



PRODUCT: ISOPROPANOL (IPA) REVISION: 12

DATED: 23/05/19

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PRODUCT SPECIFICATION

Product Name	Isopropanol 'S' Grade (2-propanol)
Alternative Names	Isopropyl Alcohol
Specification Reference	IPA/7 (08/07)

SALES SPECIFICATION

PROPERTY	UNITS	VALUE	ASTM	ISO	OTHER
Appearance		Clear and free from suspended matter	D4176		Visual
Colour	Pt-Co	10 max	D1209	6271	
Water	Mass %	0.1 max	D1364	760	
Acidity as CH ₃ COOH	Mass %	0.001 max	D1613	2887	
Isopropanol	Mass %	99.8 min			GC
Further Properties		Typical Values			
Density	g/ml	0.784 – 0.786	D4052	12185	
Distillation at 101.3 kPa			D1078	918	
Initial Boiling Point	°C	82.0			
Final Boiling Point	°C	83.0			
Refractive Index N _D ²⁰		1.377	D1218	5661	
Non Volatile Matter	mg/100 ml	<1	D1353	759	

PHYSICAL PROPERTIES

PROPERTY	CONDITIONS	UNIT	VALUE
Molecular mass			60.096
Density	20°C	kg/litre (vacuo)	0.7851
Relative density	20°C/20°C		0.7863
Change in relative density	20°C	per °C	0.84x10 ⁻³
Coefficient of Cubical expansion	20°C	per °C	1.07x10 ⁻³
Litres per Tonne	20°C		1274
Melting point	1.013 bar	°C	-89.5
Boiling point	1.013 bar	°C	82.3
Change in boiling point	20°C	°C/mbar	0.025
Vapour pressure		mbar	41.6
Flammable limits			
Upper	20 °C	% volume	12.0
Lower	20 °C	% volume	2.0
Flash point	Abel closed cup	°C	12
Auto ignition temperature		°C	399
Specific heat (liquid)	20°C	kJ/kg°C	2.49
Specific heat (vapour)	20 °C	kJ/kg°C	1.75
Latent heat (of fusion)		kJ/kg	89.6
(of vaporisation)	at boiling point		670
Heat of combustion	20 °C	kJ/kg	33.37
Critical temperature		Mj/kg	234.9
Critical pressure		°C	53.6
Critical volume		bar	0.2201
Volume Resistivity	25°C	m ² /kg mole	7.7x10 ⁴
Thermal Conductivity	20 °C	ohm.m	141
Dielectric constant	20 °C	mW/m°C	19
Refractive Index	20°C	n _D ²⁰	1.3776
Absolute viscosity	20°C	cP	2.43
Solubility	20°C	g/kg	Complete
in water	20°C	g/kg	Complete
water in solvent	21.5°C		2.93
Evaporation rate			
Relative to n-BuAc = 1			



NOTES

Tennants ISOPROPANOL complies with the following standards:

BS 1595:1976

ASTM D770

Current European Pharmacopeia

Exclusion of Liability

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Health and Safety

A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on the handling precautions and emergency procedures. This must be consulted fully before handling, storage and use.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

1.1 Product Identifier

Trade Names	ISOPROPANOL
Synonyms	ISOPROPYL ALCOHOL, propan-2-ol
CAS Number	67-63-0
EINECS Number	200-661-7
REACH Registration Number	01-2119457558-25-xxxx
HMRC Tariff No.	290512000

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture	raw material for photochemicals, raw material for cleaning agents and disinfectants, process control substance, Solvent, industrial use
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1.3 Details of the supplier of the safety data sheet

Tennants Distribution Limited
Hazelbottom Road
Cheetham
Manchester
M8 0GR
Tel: 44(0)161 205 4454
Fax: 44(0) 161 203 4298
Email: msds@tennantsdistribution.com

1.4 Emergency telephone number

Tel: 44(0)844 335 0001 (24 hours)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 2	H225: Highly flammable liquid and vapour.
Eye irritation, Category 2, Eyes	H319: Causes serious eye irritation.
Specific target organ toxicity – single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard Pictogram



Signal word

Danger

Hazard statements	H225	Highly flammable liquid and vapour.
	H319	Causes serious eye irritation.
	H336	May cause drowsiness or dizziness.

Precautionary statements

Prevention:

P243	Take precautionary measures against static discharge
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.



P271 Use only outdoors or in a well-ventilated area.

Response:

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	CAS-No. EINECS-No./ELINCS No.	Content [%]
propan-2-ol; isopropyl alcohol; isopropanol	67-63-0 200-661-7	

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice	Take off contaminated clothing and shoes immediately.
If inhaled	Move to fresh air.
In case of skin contact	Wash off with plenty of water.
In case of eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed	Drink plenty of water. Do NOT induce vomiting. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Risks	No information available.
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4.3 Indication of any immediate medical attention and special treatment needed

Treatment	For specialist advice physicians should contact the Poisons Information Service.
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5. FIRE FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media	Water spray Alcohol-resistant foam Carbon dioxide (CO ₂) Dry powder
Unsuitable extinguishing media	High volume water jet



5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting

No information available.

5.3 Advice for fire-fighters

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions

Ensure adequate ventilation.

Keep away from sources of ignition – No smoking.

6.2 Environmental precautions

Environmental precautions

Do not flush into surface water or sanitary sewer system.

Do not allow material to contaminate ground water system.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

6.4 Reference to other sections

For personal protection see section 8.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling

Ensure adequate ventilation.

Vapours are heavier than air and may spread along floors.

Advice on protection against fire and explosion

Keep away from sources of ignition – No smoking.

Vapours may form explosive mixtures with air.

Do not allow to enter drains (danger of explosion).

Take precautionary measures against static discharges.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Keep container tightly closed.

Store between 5 and 25 ° C in a dry, well ventilated place away from sources of heat, ignition and direct sunlight.

German storage class

3 Flammable Liquids

7.3 Specific end uses

Consult the technical guidelines for the use of this Substance/mixture.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Component	CAS Number	Value	Control Parameters	Update	Basis
Isopropanol	67-63-0	TWA	400 ppm 999 mg/m3	2007	EH40 WEL
		STEL	500 ppm 1,250 mg/m3	2007	EH40 WEL

DNEL



propan-2-ol; isopropyl
alcohol; isopropanol

End Use: Workers
Exposure routes: Skin contact
Potential health effects: Chronic effects
Exposure time: 1 d
Value: 888 mg/kg

End Use: Workers
Exposure routes: Inhalation
Potential health effects: Chronic effects
Value: 500 mg/m³

End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Chronic effects
Exposure time: 1 d
Value: 319 mg/kg

End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Chronic effects
Value: 89 mg/m³

End Use: Consumers
Exposure routes: Ingestion
Potential health effects: Chronic effects
Exposure time: 1 d
Value: 26 mg/kg

PNEC
propan-2-ol; isopropyl
alcohol; isopropanol

Fresh water
Value: 140.9 mg/l

Marine water
Value: 140.9 mg/l

Fresh water sediment
Value: 552 mg/kg

Marine sediment
Value: 552 mg/kg

Soil
Value: 28 mg/kg

8.2 Exposure controls

Personal protective equipment

Respiratory protection

No personal respiratory protective equipment normally required.
In inadequately ventilated areas, where workplace limits are exceeded, where unpleasant odours exist or where aerosols are in use, or smoke and mist occur, use self-contained breathing apparatus or breathing apparatus with a type A filter



	or appropriate combined filter (e.g. where aerosols are in use, or smoke and mist occur, A-P2 or ABEK-P2), in compliance with EN 141.
Eye protection	Tightly fitting safety goggles
Hygiene measures	Take off all contaminated clothing immediately.
Protective measures	Avoid contact with skin and eyes. Do not breathe vapours or spray mist.
Environmental exposure controls	
General advice	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.
9. PHYSICAL AND CHEMICAL PROPERTIES	
9.1 Information on basic physical and chemical properties	
Appearance	Liquid
Colour	Colourless
Odour	Alcohol like
pH	Not applicable
Melting point/range	-89 ° C
Boiling point/boiling range	82 ° C, 1,013 hPa
Flash point	12 ° C
Lower explosion limit	2 % (V)
Upper explosion limit	12 % (V)
Vapour pressure	42 hPa, 20 °C 60.2 hPa, 25 °C
Density	0.7855 g/cm ³ , 20 ° C
Water solubility	completely miscible
Partition coefficient: n-Octanol/water	log Pow: 0.05, 25 ° C, (literature value)
Autoignition temperature	> 399 ° C
Ignition temperature	425 °C
Thermal decomposition	No decomposition if used as directed
Viscosity, dynamic	2.5 mPas, 20 °C 2.1 mPas, 25 ° C
Explosive properties	Not explosive, No explosive
9.2 Other information	
Oxidising potential	no data available



Refractive index	1.376 – 1.378, 20 ° C
10. STABILITY AND REACTIVITY	
10.1 Reactivity	
No data available	
10.2 Chemical stability	
No data available	
10.3 Possibility of hazardous reactions	
Hazardous reactions	Vapours may form explosive mixture with air.
10.4 Conditions to avoid	
Conditions to avoid	Heat, flames and sparks.
10.5 Incompatible materials	
Materials to avoid	No data available
10.6 Hazardous decomposition products	
Hazardous decomposition products	No decomposition if stored normally.
11. TOXICOLOGICAL INFORMATION	
11.1 Information on toxicological effects	
Further information	no data available
<u>Components:</u>	
propan-2-ol; isopropyl alcohol; isopropanol:	
Acute oral toxicity	LD50: > 2,000 mg/kg, rat, GLP: no, (literature value)
Acute dermal toxicity	LD50: > 2,000 mg/kg rabbit, GLP, no, (literature value)
Skin corrosion/irritation	rabbit, Result: not irritating, GLP: no, (literature value)
Serious eye damage/eye Irritation	rabbit, Result: irritating, GLP: no, (literature value)
Respiratory or skin	Buehler Test, guinea pic, Result: not sensitising, GLP: no, (literature value)
Germ cell mutagenicity	
Genotoxicity in vitro	Ames test, Salmonella typhimurium, with and without, Result: not mutagenic, GLP: no, (literature value)



12. ECOLOGICAL INFORMATION

12.1 Toxicity

Components:

Propanol-2-ol; isopropyl alcohol; isopropanol:

Toxicity to fish	LC50: > 100 mg/l, 48 h, Leuciscus idus melanotus, static GLP: no (literature value)
Toxicity to daphnia and other aquatic invertebrates	EC50: > 100 mg/l, 48 h, Daphnia magna, static test, GLP: no, (literature value)
Toxicity to algae	EC50: > 100 mg/l, 72 h, Scenedesmus subspicatus, static test, GLP: no, (literature value)

12.2 Persistence and degradability

Components:

propanol-2-ol; isopropyl alcohol; isopropanol:

Biodegradability	aerobic, > 70 %, Result: Readily biodegradable., Exposure time: 10 d, content 7 mg/l, GLP: no, (literature value)
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12.3 Bioaccumulative potential

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment

Components

propan-2-ol; isopropyl alcohol; isopropanol:

Assessment	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)., This substance is not considered to be very persistent nor very bioaccumulating (vPvB).
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12.6 Other adverse effects

Product:

Additional ecological	No data available information
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13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product	Following pre-treatment and observing the regulations for hazardous wastes, it must be taken to a permitted hazardous wastes landfill or hazardous wastes incinerator.
Contaminated packaging	Can be used after re-conditioning.



14. TRANSPORT INFORMATION	
14.1 UN Number ADR RID IMDG IATA	1219 1219 1219 1219
14.2 Proper Shipping Name ADR RID IMDG IATA	ISOPROPYL ALCOHOL, ISOPROPANOL ISOPROPYL ALCOHOL, ISOPROPANOL ISOPROPYL ALCOHOL, ISOPROPANOL ISOPROPANOL
14.3 Transport hazard class ADR RID IMDG IATA	3 3 3 3
14.4 Packing group ADR Packaging Group Classification Code Hazard Identification No Labels Tunnel Restriction Code RID Packaging Group Classification Code Hazard Identification No Labels IMDG Packaging Group Labels EmS Number IATA Packaging Instruction (cargo aircraft) Packaging Group Labels	II F1 33 3 (D/E) II F1 33 3 II 3 F-E, S-D 307 II 3
14.5 Environmental hazards ADR Environmentally hazardous RID Environmentally hazardous IMDG Marine pollutant IATA Environmentally hazardous	No No No No
14.6 Special precautions for user No data available	
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Pollution category	
Z	



15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Major Accident Hazard	96/82/EC
Legislation	Highly flammable
	Quantity 1:5,000 t
	Quantity 2:50,000 t

Notification status

EINECS	On the inventory, or in compliance with the inventory
TSCA	On TSCA Inventory
AUSTR	On the inventory, or in compliance with the inventory
DSL	All components of this product are on the Canadian DSL list
ENCS	On the inventory, or in compliance with the inventory
KOREA	On the inventory, or in compliance with the inventory
PHIL	On the inventory, or in compliance with the inventory
CHINA	On the inventory, or in compliance with the inventory
ISHL	On the inventory, or in compliance with the inventory
NZIOC	On the inventory, or in compliance with the inventory

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H3326	May cause drowsiness or dizziness.

Reason for issue: Specification updated.

Revision Date: 23/05/19

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ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Identified uses

Manufacture	Industrial uses: Uses of substances as such or in preparations at industrial sites
Manufacture (Intermediate)	Industrial uses: Uses of substances as such or in preparations at industrial sites
Distribution	Industrial uses: Uses of substances as such or in preparations at industrial sites
Formulation and Packing	Industrial uses: Uses of substances as such or in preparations at industrial sites
Coatings	Industrial uses: Uses of substances as such or in preparations at industrial sites
Coatings	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Coatings	Consumer uses: Private households (= general public = consumers)
Cleaning Agents	Industrial uses: Uses of substances as such or in preparations at industrial sites
Cleaning Agents	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

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Cleaning Agents	Consumer uses: Private households (= general public = consumers)
Oil field drilling	Industrial uses: Uses of substances as such or in preparations at industrial sites
Lubricants	Industrial uses: Uses of substances as such or in preparations at industrial sites
Lubricants	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Lubricants	Consumer uses: Private households (= general public = consumers)
Metal working fluids	Industrial uses: Uses of substances as such or in preparations at industrial sites
Metal working fluids	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Blowing Agents	Industrial uses: Uses of substances as such or in preparations at industrial sites
Binders and Release Agents	Industrial uses: Uses of substances as such or in preparations at industrial sites
Binders and Release Agents	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Agrochemicals	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Agrochemicals	Consumer uses: Private households (= general public = consumers)
Fuel	Industrial uses: Uses of substances as such or in preparations at industrial sites
Fuel	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Fuel	Consumer uses: Private households (= general public = consumers)
Functional fluids	Industrial uses: Uses of substances as such or in preparations at industrial sites
Functional fluids	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Functional fluids	Consumer uses: Private households (= general public = consumers)

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

De-icing and Anti-icing Applications	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
De-icing and Anti-icing Applications	Consumer uses: Private households (= general public = consumers)
Road and construction application	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Other consumer uses	Consumer uses: Private households (= general public = consumers)
Laboratory Agent	Industrial uses: Uses of substances as such or in preparations at industrial sites
Laboratory Agent	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Explosives Manufacture and Use	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Rubber production and processing	Industrial uses: Uses of substances as such or in preparations at industrial sites
Polymer Processing	Industrial uses: Uses of substances as such or in preparations at industrial sites
Polymer Processing	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Water treatment	Industrial uses: Uses of substances as such or in preparations at industrial sites
Water treatment	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Water treatment	Consumer uses: Private households (= general public = consumers)
Mining chemicals	Industrial uses: Uses of substances as such or in preparations at industrial sites

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

1. Short title of Exposure Scenario:

Manufacture

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3, SU8, SU9: Industrial uses: Uses of substances as such or in preparations at industrial sites, Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC15: Use as laboratory reagent
Environmental Release Categories	ERC1, ERC4: Manufacture of substances, Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure:

ERC1, ERC4: Manufacture of substances, Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Technical conditions and measures / Organizational measures

Remarks : No exposure assessment presented for the environment.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	High volatile liquid
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

General exposures (closed systems), PROC1, PROC2, PROC3
General exposures (open systems), PROC4
Process sampling, PROC8b
Laboratory activities, PROC15
Bulk transfers, (open systems), PROC8b
Bulk transfers, (closed systems), PROC8b
Equipment cleaning and maintenance, PROC8a
Storage, PROC2

Risk Management Measures

Handle substance within a closed system.

Handle substance within a closed system.

No specific measures identified.
No specific measures identified.
Handle substance within a closed system.

Ensure material transfers are under containment or extract ventilation.
Clear spills immediately.
Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Store substance within a closed system., Avoid dip sampling.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.00
		Skin contact		0.34 mg/kg/day	0.00
PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12

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		Skin contact		0.34 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		150 ppm	0.74
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		2.5 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		150 ppm	0.74
		Skin contact		6.86 mg/kg/day	0.01
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.00
		Skin contact		0.34 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

1. Short title of Exposure Scenario:

Manufacture (Intermediate)

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3, SU8, SU9: Industrial uses: Uses of substances as such or in preparations at industrial sites, Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC15: Use as laboratory reagent
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure:

ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or

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preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities. Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	High volatile liquid
Vapour pressure	60.2 hPa

Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

General exposures (closed systems), PROC1, PROC2, PROC3
General exposures (open systems), PROC4
Process sampling, PROC8b
Laboratory activities, PROC15
Bulk transfers, (open systems), PROC8b
Bulk transfers, (closed systems), PROC8b
Equipment cleaning and maintenance, PROC8a
Storage, PROC2

Risk Management Measures

Handle substance within a closed system.
Handle substance within a closed system.
No specific measures identified.
No specific measures identified.
Handle substance within a closed system.
Ensure material transfers are under containment or extract ventilation.
Clear spills immediately.
Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Store substance within a closed system., Avoid dip sampling.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.00
		Skin contact		0.34 mg/kg/day	0.00
PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

PROC8b	ECETOC TRA	Inhalation	150 ppm	0.74
		Skin contact	6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation	2.5 ppm	0.25
		Skin contact	6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation	150 ppm	0.74
		Skin contact	6.86 mg/kg/day	0.01
PROC8a	ECETOC TRA	Inhalation	50 ppm	0.25
		Skin contact	13.71 mg/kg/day	0.02
PROC2	ECETOC TRA	Inhalation	10 ppm	0.05
		Skin contact	1.37 mg/kg/day	0.00
PROC1	ECETOC TRA	Inhalation	0.01 ppm	0.00
		Skin contact	0.34 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

1. Short title of Exposure Scenario:

Distribution

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3, SU8, SU9: Industrial uses: Uses of substances as such or in preparations at industrial sites, Manufacture of bulk, large scale chemicals (including petroleum products), Manufacture of fine chemicals
Process categories	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC15: Use as laboratory reagent</p>
Environmental Release Categories	<p>ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC7: Manufacture of substances, Formulation of preparations, Formulation in materials, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of substances in closed systems</p>

2.1 Contributing scenario controlling environmental exposure:

ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC7: Manufacture of substances, Formulation of preparations, Formulation in materials, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in inclusion into or onto a matrix, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	High volatile liquid
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

General exposures (closed systems), PROC1, PROC2, PROC3
General exposures (open systems), PROC4
Process sampling, PROC3
Laboratory activities, PROC15
Bulk transfers, (open systems), PROC8b
Bulk transfers, (closed systems), PROC8b
Drum and small package filling, PROC9
Equipment cleaning and maintenance, PROC8a

Risk Management Measures

Handle substance within a closed system.

Clear transfer lines prior to de-coupling.

Avoid dip sampling.
No specific measures identified.
Clear transfer lines prior to de-coupling.

Clear transfer lines prior to de-coupling.

Clear spills immediately.
Put lids on containers immediately after use.
Apply vessel entry procedures including use of forced supplied air.
Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Store substance within a closed system., Avoid dip sampling.

Storage, PROC2

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.000491
		Skin contact		1.37 mg/kg/day	0.0015
PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		6.86 mg/kg/day	0.01
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

1. Short title of Exposure Scenario:

Formulation and Packing

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3, SU 10: Industrial uses: Uses of substances as such or in preparations at industrial sites, Formulation
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent
Environmental Release Categories	: ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure:

ERC2: Formulation of preparations

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

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PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15:
Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Production of preparations or articles by tableting, compression, extrusion, pelletisation, Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	High volatile liquid
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

General exposures (closed systems), PROC1, PROC2, PROC3
General exposures (open systems), PROC4
Batch processes at elevated temperatures, PROC3
Process sampling, PROC3
Laboratory activities, PROC15
Bulk transfers, PROC8b

Mixing operations (open systems), PROC5
Manual, Transfer from/pouring from containers, PROC8a
Drum/batch transfers, PROC8b
Production or preparation or articles by tableting, compression, extrusion or pelletisation, PROC14
Drum and small package filling, PROC9
Equipment cleaning and maintenance, PROC8a

Risk Management Measures

Handle substance within a closed system.

No specific measures identified.
No specific measures identified.
Avoid dip sampling.
No specific measures identified.
Clear spills immediately.
Clear transfer lines prior to de-coupling., Remotely vent displaced vapours.
No specific measures identified.
No specific measures identified.
No specific measures identified.
No specific measures identified.

Put lids on containers immediately after use.

Apply vessel entry procedures including use of forced supplied air.
Retain drain downs in sealed storage pending disposal or for

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.00
		Skin contact		0.34 mg/kg/day	0.00
PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		6.86 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		5 ppm	0.50
		Skin contact		6.86 mg/kg/day	0.01
PROC3	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.34 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC5	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.00
	ECETOC TRA	Inhalation		5 ppm	0.50
		Skin contact		13.71 mg/kg/day	0.02
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC14	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		3.43 mg/kg/day	0.00
PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

1. Short title of Exposure Scenario:

Coatings

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	: PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent
Environmental Release Categories	: ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

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Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Industrial spraying, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Roller application or brushing, Treatment of articles by dipping and pouring, Production of preparations or articles by tableting, compression, extrusion, pelletisation, Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid, vapour pressure 0.5-10 kPa
Vapour pressure	5-100 hPa
Process Temperature	20 °C

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
Other Operational Conditions affecting worker exposure	Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenario

General exposures (closed systems), PROC1
General exposures (closed systems), with sample collection, Use in contained systems, PROC2
Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing, PROC2
Mixing operations (closed systems), General exposures (closed systems), PROC3
Film formation - air drying, PROC4
Preparation of material for application, Mixing operations (open systems), PROC5
Spraying (automatic/robotic),

Risk Management Measures

Handle substance within a closed system.
Handle substance within a closed system.
Handle substance within a closed system.
Handle substance within a closed system.
No specific measures identified.
No specific measures identified.
Carry out in a vented booth provided with laminar airflow.

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PROC7

Manual, Spraying, PROC7

Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).

Material transfers, PROC8a, PROC8b

Clear transfer lines prior to de-coupling.

Roller, spreader, flow application, PROCIO

No specific measures identified.

Dipping, immersion and pouring, PROC13

Avoid manual contact with wet work pieces.

Laboratory activities, PROC15

No specific measures identified.

Material transfers, Drum/batch transfers, Transfer from/pouring from containers, PROC9

No specific measures identified.

Production or preparation of articles by tableting, compression, extrusion or pelletisation, PROC14

No specific measures identified.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.0
		Skin contact		0.34 mg/kg/day	0.0
PROC2	ECETOC TRA	Inhalation		10 ppm	0.0
		Skin contact		1.37 mg/kg/day	0.0
PROC2	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		1.37 mg/kg/day	0.0
PROC3	ECETOC TRA	Inhalation		25 ppm	0.1
		Skin contact		0.34 mg/kg/day	0.0
PROC4	ECETOC TRA	Inhalation		20 ppm	0.1
		Skin contact		6.86 mg/kg/day	0.0
PROC5	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		13.71 mg/kg/day	0.0
PROC7	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		42.86 mg/kg/day	0.0
PROC7	ECETOC TRA	Inhalation		75 ppm	0.4
		Skin contact		42.86 mg/kg/day	0.0
PROC8a	ECETOC TRA	Inhalation		75 ppm	0.2
		Skin contact		13.71 mg/kg/day	0.0
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		6.86 mg/kg/day	0.0
PROCIO	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		27.43 mg/kg/day	0.0
PROC13	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		0.69 mg/kg/day	0.0
PROC15	ECETOC TRA	Inhalation		10 ppm	0.0
		Skin contact		0.34 mg/kg/day	0.0
PROC9	ECETOC TRA	Inhalation		50 ppm	0.2

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		Skin contact		6.86 mg/kg/day	0.0
PROC14	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		3.43 mg/kg/day	0.0

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

1. Short title of Exposure Scenario:

Coatings

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	: PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	: ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

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Additional good practice advice

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROCIO, PROC11, PROC13, PROC15, PROC19: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Roller application or brushing, Non industrial spraying, Treatment of articles by dipping and pouring, Use as laboratory reagent, Hand-mixing with intimate contact and only PPE available

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid, vapour pressure 0.5-10 kPa
Vapour pressure	5-100 hPa
Process Temperature	20 °C

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.
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Contributing Scenario

General exposures (closed systems), PROC1
Filling/preparation of equipment from drums or containers., PROC2
General exposures (closed systems), Use in contained systems, PROC2
Preparation of material for application, PROC3
Film formation - air drying, Outdoor, PROC4
Film formation - air drying, Indoor, PROC4
Preparation of material for application, Indoor, PROC5
Preparation of material for application, Outdoor, PROC5
Material transfers. Drum/batch

Risk Management Measures

Handle substance within a closed system.
Handle substance within a closed system.
Handle substance within a closed system.
No specific measures identified.
No specific measures identified.
No specific measures identified.
No specific measures identified.
No specific measures identified.
No SDecific measures identified.

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transfers, PROC8a, PROC8b	
Roller, spreader, flow application, Indoor, PROCIO	No specific measures identified.
Roller, spreader, flow application, Outdoor, PROCIO	No specific measures identified.
Manual, Spraying, Indoor, PROC11	Carry out in a vented booth or extracted enclosure.
Manual, Spraying, Outdoor, PROC11	Ensure operation is undertaken outdoors.
Dipping, immersion and pouring, Indoor, PROC13	Avoid manual contact with wet work pieces., Ensure operatives are trained to minimise exposures.
Dipping, immersion and pouring, Outdoor, PROC13	Avoid manual contact with wet work pieces., Ensure operatives are trained to minimise exposures.
Laboratory activities, PROC15	No specific measures identified.
Hand application - fingerpaints, pastels, adhesives, Indoor, PROC19	Ensure doors and windows are opened.
Hand application - fingerpaints, pastels, adhesives, Outdoor, PROC19	No specific measures identified.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.0
		Skin contact		0.34 mg/kg/day	0.0
PROC2	ECETOC TRA	Inhalation		20 ppm	0.1
		Skin contact		1.37 mg/kg/day	0.0
PROC2	ECETOC TRA	Inhalation		20 ppm	0.1
		Skin contact		1.37 mg/kg/day	0.0
PROC3	ECETOC TRA	Inhalation		25 ppm	0.1
		Skin contact		0.34 mg/kg/day	0.0
PROC4	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		6.86 mg/kg/day	0.0
PROC4	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		0.69 mg/kg/day	0.0
PROC5	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		13.71 mg/kg/day	0.0
PROC5	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		13.71 mg/kg/day	0.0
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		13.71 mg/kg/day	0.0
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		6.86 mg/kg/day	0.0
PROCIO	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		27.43 mg/kg/day	0.0
PROCIO	ECETOC TRA	Inhalation		100 ppm	0.5

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		Skin contact		27.43 mg/kg/day	0.0
PROC11	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		107.14 mg/kg/day	0.1
PROC11	ECETOC TRA	Inhalation		150 ppm	0.7
		Skin contact		107.14 mg/kg/day	0.1
PROC13	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		13.71 mg/kg/day	0.0
PROC13	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		13.71 mg/kg/day	0.0
PROC15	ECETOC TRA	Inhalation		10 ppm	0.0
		Skin contact		0.34 mg/kg/day	0.0
PROC19	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		141.43 mg/kg/day	0.2
PROC19	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		141.43 mg/kg/day	0.2

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario:

Coatings

Main User Groups	: SU 21: Consumer uses: Private households (= general public = consumers)
Sectors of end-use	: SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC1: Adhesives, sealants PC4: Anti-Freeze and de-icing products PC8: Biocidal products (e.g. Disinfectants, pest control) PC9a: Coatings and paints, thinners, paint removers PC9c: Finger paints PC9b: Fillers, putties, plasters, modelling clay PC15: Non-metal-surface treatment products PC18: Ink and toners PC23: Leather tanning, dye, finishing, impregnation and care products PC24: Lubricants, greases, release products PC31: Polishes and wax blends PC34: Textile dyes, finishing and impregnating products; including bleaches and other processing aids
Environmental Release Categories	: ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Viscosity, dynamic 2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC1, PC4, PC8, PC9, PC15, PC18, PC23, PC24, PC31, PC34: Adhesives, sealants, Anti-Freeze and de-icing products, Biocidal products (e.g. Disinfectants, pest control), Coatings and Paints, Fillers, Putties, Thinners, Non-metal-surface treatment products, Ink and toners, Leather tanning, dye, finishing, impregnation and care products, Lubricants, greases, release products, Polishes and wax blends, Textile dyes, finishing and impregnating products; including bleaches and other processing aids

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Product characteristics

Concentration of the Substance in Mixture/Article	Unless otherwise stated, covers concentrations up to 100 %
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	For each use event, covers use amounts up to 13,800 g
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Frequency and duration of use

Remarks	Unless otherwise stated, covers use frequency up to 1 times per day
Remarks	Covers exposure up to 6 hours/event

Other given operational conditions affecting consumers exposure

Room size	: 20 m3
Remarks	: Assumes use with typical ventilation, Unless otherwise stated assumes use at ambient temperatures

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Application Route	: Adhesives, sealants, Sealants, Glues, hobby use
Consumer Measures	: Unless otherwise stated, covers concentrations up to 30 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 35.73 cm2, For each use event, covers use amounts up to 9 g, Covers use in room size of 20 m3, Covers exposure up to 4 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Adhesives, sealants, Sealants, Glues DIY-use (carpet glue, tile glue, wood parquet glue)
Consumer Measures	: Unless otherwise stated, covers concentrations up to 30 %, Covers use up to 1 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 110.00 cm2, For each use event, covers use amounts up to 6,390 g, Covers use in room size of 20 m3, Covers exposure up to 6 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Adhesives, sealants, Sealants, Glue from spray
Consumer Measures	: Unless otherwise stated, covers concentrations up to 30 %, Covers use up to 6 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 35.73 cm2, For each use event, covers use amounts up to 85 g, Covers use in room size of 20 m3, Covers exposure up to 4 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Adhesives, sealants, Sealants
Consumer Measures	: Unless otherwise stated, covers concentrations up to 30 %, Covers use up to 365 days/year, Unless otherwise stated,

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	covers use frequency up to 1 times per day, Covers skin contact area up to 35.73 cm ² , For each use event, covers use amounts up to 75 g, Covers use in room size of 20 m ³ , Covers exposure up to 1 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Anti-Freeze and de-icing products, Washing car window
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, For each use event, covers use amounts up to 0.5 g, Covers use in a one car garage (34 m ³) under typical ventilation, Covers use in room size of 34 m ³ , Covers exposure up to 0.02 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Anti-Freeze and de-icing products, Pouring into radiator
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm ² , For each use event, covers use amounts up to 2,000 g, Covers use in a one car garage (34 m ³) under typical ventilation, Covers use in room size of 34 m ³ , Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Anti-Freeze and de-icing products, Lock de-icer
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 214.40 cm ² , For each use event, covers use amounts up to 4 g, Covers use in a one car garage (34 m ³) under typical ventilation, Covers use in room size of 34 m ³ , Covers exposure up to 0.25 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Biocidal products (e.g. Disinfectants, pest control), Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Consumer Measures	Unless otherwise stated, covers concentrations up to 5 %, Covers use up to 128 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm ² , For each use event, covers use amounts up to 27 g, Covers use in room size of 20 m ³ , Covers exposure up to 0.33 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Biocidal products (e.g. Disinfectants, pest control), Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Consumer Measures	Unless otherwise stated, covers concentrations up to 15 %, Covers use up to 128 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm ² , For each use event, covers use amounts up to 35 g, Covers use in room size of 20 m ³ ,

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	Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Coatings and paints, thinners, paint removers, Solvent rich, high solid, water borne paint
Consumer Measures	Unless otherwise stated, covers concentrations up to 27.5 %, Covers use up to 6 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm ² , For each use event, covers use amounts up to 744 g, Covers use in room size of 20 m ³ , Covers exposure up to 2.20 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Coatings and paints, thinners, paint removers, Aerosol spray can
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 2 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, For each use event, covers use amounts up to 215 g, Covers use in a one car garage (34 m ³) under typical ventilation, Covers use in room size of 34 m ³ , Covers exposure up to 0.33 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Coatings and paints, thinners, paint removers, Removers (paint-, glue-, wall paper-, sealant-remover)
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 3 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm ² , For each use event, covers use amounts up to 491 g, Covers use in room size of 20 m ³ , Covers exposure up to 2.00 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Fillers, putties, plasters, modelling clay, Fillers and putty
Consumer Measures	Unless otherwise stated, covers concentrations up to 2 %, Covers use up to 12 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 35.73 cm ² , For each use event, covers use amounts up to 85 g, Covers use in room size of 20 m ³ , Covers exposure up to 4 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Fillers, putties, plasters, modelling clay, Plasters and floor equalizers
Consumer Measures	Unless otherwise stated, covers concentrations up to 2 %, Covers use up to 12 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm ² , For each use event, covers use amounts up to 13,800 g, Covers use in room size of 20 m ³ , Covers exposure up to 2.00 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Fillers, putties, plasters, modelling clay, Modelling clay
Consumer Measures	Unless otherwise stated, covers concentrations up to 10 %, Covers use up to 12 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm ² , For each use event, covers use amounts up to 13,800 g, Covers use in room size of 20 m ³ , Covers exposure up to 2.00 hours/event, No specific risk management measure identified beyond those operational conditions stated.

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Application Route Consumer Measures	Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 254.40 cm ² , For each use event, assumes swallowed amount of 1 g, Covers use in room size of 20 m ³ , No specific risk management measure identified beyond those operational conditions stated. Finger paints Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 254.40 cm ² , For each use event, assumes swallowed amount of 1.35 g, Covers use in room size of 20 m ³ , Avoid using at a product concentration greater than 15 %.
Application Route Consumer Measures	Non-metal-surface treatment products, Solvent rich, high solid, water borne paint Unless otherwise stated, covers concentrations up to 27.5 %, Covers use up to 6 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm ² , For each use event, covers use amounts up to 744 g, Covers use in room size of 20 m ³ , Covers exposure up to 2.20 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route Consumer Measures	Non-metal-surface treatment products, Aerosol spray can Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 2 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, For each use event, covers use amounts up to 215 g, Covers use in a one car garage (34 m ³) under typical ventilation, Covers use in room size of 34 m ³ , Covers exposure up to 0.33 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route Consumer Measures	Non-metal-surface treatment products, Removers (paint-, glue-, wall paper-, sealant-remover) Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 3 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm ² , For each use event, covers use amounts up to 491 g, Covers use in room size of 20 m ³ , Covers exposure up to 2.00 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route Consumer Measures	Ink and toners Unless otherwise stated, covers concentrations up to 10 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 71.40 cm ² , For each use event, covers use amounts up to 40 g, Covers use in room size of 20 m ³ , Covers exposure up to 2.20 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route Consumer Measures	Leather tanning, dye, finishing, impregnation and care products, Polishes, wax / cream (floor, furniture, shoes) Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 71.40 cm ² , For each use event, covers use amounts up to 40 g, Covers use in room size of 20 m ³ , Covers exposure up to 2.20 hours/event, No specific risk management measure identified beyond those operational conditions stated.

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	Covers use up to 29 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 430.00 cm ² , For each use event, covers use amounts up to 56 g, Covers use in room size of 20 m ³ , Covers exposure up to 0.33 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Leather tanning, dye, finishing, impregnation and care products, Polishes, spray (furniture, shoes)
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 8 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 430.00 cm ² , For each use event, covers use amounts up to 56 g, Covers use in room size of 20 m ³ , Covers exposure up to 0.33 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Lubricants, greases, release products, Liquids
Consumer Measures	Unless otherwise stated, covers concentrations up to 100 %, Covers use up to 4 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 468.00 cm ² , For each use event, covers use amounts up to 2,200 g, Covers use in a one car garage (34 m ³) under typical ventilation, Covers use in room size of 34 m ³ , Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Lubricants, greases, release products, Pastes
Consumer Measures	Unless otherwise stated, covers concentrations up to 20 %, Covers use up to 10 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 468.00 cm ² , For each use event, covers use amounts up to 34 g, Covers use in room size of 20 m ³ , No specific risk management measure identified beyond those operational conditions stated.
Application Route	Lubricants, greases, release products, Sprays
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 6 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm ² , For each use event, covers use amounts up to 73 g, Covers use in room size of 20 m ³ , Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Polishes and wax blends, Polishes, wax / cream (floor, furniture, shoes)
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 29 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 430.00 cm ² , For each use event, covers use amounts up to 142 g, Covers use in room size of 20 m ³ , Covers exposure up to 1.23 hours/event, No specific risk management measure identified beyond those operational conditions stated.

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Application Route Polishes and wax blends, Polishes, spray (furniture, shoes)
Consumer Measures Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 8 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 430.00 cm², For each use event, covers use amounts up to 35 g, Covers use in room size of 20 m³, Covers exposure up to 0.33 hours/event, No specific risk management measure identified beyond those operational conditions stated.

Application Route Textile dyes, finishing and impregnating products; including bleaches and other processing aids
Consumer Measures Unless otherwise stated, covers concentrations up to 10 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm², For each use event, covers use amounts up to 115 g, Covers use in room size of 20 m³, Covers exposure up to 1 hours/event, No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PC1	ECETOC TRA	Skin contact, Chronic effects		1.8 mg/kg/day	0.01
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		135 mg/m ³	0.16
PC1	ECETOC TRA	Skin contact, Chronic effects		21.4 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		225000 mg/m ³	0.33
PC1	ECETOC TRA	Skin contact, Chronic effects		1.8 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00

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		Inhalation, Chronic effects		3825 mg/m3	0.02
PC1	ECETOC TRA	Skin contact, Chronic effects		1.8 mg/kg/day	0.01
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		5850 mg/m3	0.66
PC4	ECETOC TRA	Skin contact, Chronic effects		0 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		0.1 mg/m3	0.00
PC4	ECETOC TRA	Skin contact, Chronic effects		14.3 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		5882.4 mg/m3	0.10
PC4	ECETOC TRA	Skin contact, Chronic effects		17.9 mg/kg/day	0.06
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		58.8 mg/m3	0.01
PC8	ECETOC TRA	Skin contact, Chronic effects		85.8 mg/kg/day	0.00
		Inhalation, Chronic effects		0 mg/kg/day	0.08
		Ingestion, Chronic effects		1500 mg/m3	0.00
PC8	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.22
		Ingestion, Chronic		0 mg/kg/day	0.00

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		effects			
		Inhalation, Chronic effects		6250 mg/m3	0.09
PC8	ECETOC TRA	Skin contact, Chronic effects		28.6 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		350 mg/m3	0.06
PC9a	ECETOC TRA	Skin contact, Chronic effects		35.7 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		93750 mg/m3	0.43
PC9a	ECETOC TRA	Skin contact, Chronic effects		35.7 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		32500 mg/m3	0.09
PC9a	ECETOC TRA	Skin contact, Chronic effects		0 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		7500 mg/m3	0.39
PC9a	ECETOC TRA	Skin contact, Chronic effects		128.6 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		90000 mg/m3	0.06
PC9b	ECETOC TRA	Skin contact, Chronic effects		6 mg/kg/day	0.00
		Ingestion,		0 mg/kg/day	0.00

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		Chronic effects			
		Inhalation, Chronic effects		50000 mg/m3	0.05
PC9b	ECETOC TRA	Skin contact, Chronic effects		142.9 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		> 999999 mg/m3	0.25
PC9b	ECETOC TRA	Skin contact, Chronic effects		25.4 mg/kg/day	0.01
		Ingestion, Chronic effects		10 mg/kg/day	0.77
		Inhalation, Chronic effects		0 mg/m3	0.00
PC9c	ECETOC TRA	Skin contact, Chronic effects		127.2 mg/kg/day	0.12
		Ingestion, Chronic effects		68 mg/kg/day	0.78
		Inhalation, Chronic effects		0 mg/m3	
PC15	ECETOC TRA	Skin contact, Chronic effects		35.7 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		93750 mg/m3	0.17
PC15	ECETOC TRA	Skin contact, Chronic effects		35.7 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		32500 mg/m3	0.09
PC15	ECETOC TRA	Skin contact, Chronic effects		0 mg/kg/day	0.00

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		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		7500 mg/m3	0.39
PC15	ECETOC TRA	Skin contact, Chronic effects		128.6 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		90000 mg/m3	0.06
PC18	ECETOC TRA	Skin contact, Chronic effects		1.2 mg/kg/day	0.02
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		200 mg/m3	0.57
PC23	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		1400 mg/m3	0.57
PC23	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		1400 mg/m3	0.20
PC24	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.24
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		125000 mg/m3	0.04
PC24	ECETOC TRA	Skin contact, Chronic		28.6 mg/kg/day	0.05

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		effects			
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		0 mg/m3	0.00
PC24	ECETOC TRA	Skin contact, Chronic effects		35.7 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		7500 mg/m3	0.14
PC31	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.01
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		13750 mg/m3	0.12
PC31	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		3375 mg/m3	0.12
PC34	ECETOC TRA	Skin contact, Chronic effects		14.3 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		575 mg/m3	0.40

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

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Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. No exposure assessment presented for the environment.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

1. Short title of Exposure Scenario:

Cleaning Agents

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	<p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC7: Industrial spraying</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROCIO: Roller application or brushing</p> <p>PROC13: Treatment of articles by dipping and pouring</p>
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	:	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROCIO, PROC13: Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Industrial spraying, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of

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substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Roller application or brushing, Treatment of articles by dipping and pouring

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid, vapour pressure 0.5-10 kPa
Vapour pressure	5-100 hPa
Process Temperature	20 °C

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenario

Bulk transfers, PROC8a
Automated process with (semi) closed systems., Use in contained systems, PROC2
Automated process with (semi) closed systems., Drum/batch transfers, Use in contained systems, PROC3
Application of cleaning products in closed systems, PROC2
Filling/preparation of equipment from drums or containers., PROC8b
Use in contained batch processes, PROC4
Degreasing small objects in cleaning station, PROC13
Cleaning with low-pressure washers, PROCIO
Cleaning with high pressure washers, PROC7
Manual, Surfaces, Cleaning, no spraying, PROCIO

Risk Management Measures

Clear transfer lines prior to de-coupling.
No specific measures identified.

No specific measures identified.

No specific measures identified.
Clear transfer lines prior to de-coupling.

No specific measures identified.
No specific measures identified.
No specific measures identified.
Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).
No specific measures identified.

3. Exposure estimation and reference to its source

Health

Contributing	Exposure	Specific	Value	Level of	RCR
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Scenario	Assessment Method	conditions	Exposure	
PROC8a	ECETOC TRA	Inhalation	50 ppm	0.2
		Skin contact	13.71 mg/kg/day	0.0
PROC2	ECETOC TRA	Inhalation	10 ppm	0.0
		Skin contact	1.37 mg/kg/day	0.0
PROC3	ECETOC TRA	Inhalation	25 ppm	0.1
		Skin contact	0.34 mg/kg/day	0.0
PROC2	ECETOC TRA	Inhalation	10 ppm	0.0
		Skin contact	1.37 mg/kg/day	0.0
PROC8b	ECETOC TRA	Inhalation	50 ppm	0.2
		Skin contact	6.86 mg/kg/day	0.0
PROC4	ECETOC TRA	Inhalation	100 ppm	0.5
		Skin contact	6.86 mg/kg/day	0.0
PROC13	ECETOC TRA	Inhalation	50 ppm	0.2
		Skin contact	13.71 mg/kg/day	0.0
PROCIO	ECETOC TRA	Inhalation	50 ppm	0.2
		Skin contact	27.43 mg/kg/day	0.0
PROC7	ECETOC TRA	Inhalation	75 ppm	0.4
		Skin contact	42.86 mg/kg/day	0.0
PROCIO	ECETOC TRA	Inhalation	50 ppm	0.2
		Skin contact	13.71 mg/kg/day	0.0

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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1. Short title of Exposure Scenario:

Cleaning Agents

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	<p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROCIO: Roller application or brushing</p> <p>PROC11: Non industrial spraying</p> <p>PROC13: Treatment of articles by dipping and pouring</p>
Environmental Release Categories	ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC2, PROC3, PROC4, PROC8a, PROC8b, PROCIO, PROC11, PROC13: Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises. Transfer of substance or preparation (charging/ discharging) from/ to

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vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Roller application or brushing, Non industrial spraying, Treatment of articles by dipping and pouring

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid, vapour pressure 0.5-10 kPa
Vapour pressure	5-100 hPa
Process Temperature	20 °C

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenario

Filling/preparation of equipment from drums or containers., PROC8b
Automated process with (semi) closed systems., Use in contained systems, PROC2
Automated process with (semi) closed systems., Drum/batch transfers, Use in contained systems, PROC3
Semi Automated process, (e.g.: Semi automatic application of floor care and maintenance products), PROC4
Filling/preparation of equipment from drums or containers., PROC8a
Manual, Surfaces, Cleaning, Dipping, immersion and pouring, PROC13
Cleaning with low-pressure washers, Rolling, Brushing, no spraying, PROC10
Cleaning with high pressure washers, Spraying, Indoor, PROC11
Cleaning with high pressure washers, Spraying, Outdoor, PROC11

Risk Management Measures

No specific measures identified.

No specific measures identified.

No specific measures identified.

No specific measures identified.

No specific measures identified.

No specific measures identified.

Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Limit the substance content in the product to 5 %.
Ensure operation is undertaken outdoors.

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Manual, Surfaces, Cleaning, Spraying, PROCIO	No specific measures identified.
Ad hoc manual application via trigger sprays, dipping, etc., Rolling, Brushing, PROCIO	No specific measures identified.
Application of cleaning products in closed systems, Outdoor, PROC4	No specific measures identified.
Cleaning of medical devices, PROC4	No specific measures identified.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		13.71 mg/kg/day	0.0
PROC2	ECETOC TRA	Inhalation		20 ppm	0.1
		Skin contact		1.37 mg/kg/day	0.0
PROC3	ECETOC TRA	Inhalation		25 ppm	0.1
		Skin contact		0.34 mg/kg/day	0.0
PROC4	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		6.86 mg/kg/day	0.0
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		13.71 mg/kg/day	0.0
PROC13	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		13.71 mg/kg/day	0.0
PROCIO	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		27.43 mg/kg/day	0.0
PROC11	ECETOC TRA	Inhalation		150 ppm	0.7
		Skin contact		107.14 mg/kg/day	0.1
PROC11	ECETOC TRA	Inhalation		35 ppm	0.2
		Skin contact		107.14 mg/kg/day	0.1
PROCIO	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		27.43 mg/kg/day	0.0
PROCIO	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		27.43 mg/kg/day	0.0
PROCIO	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		27.43 mg/kg/day	0.0
PROC4	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		6.86 mg/kg/day	0.0
PROC4	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		6.86 mg/kg/day	0.0

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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

1. Short title of Exposure Scenario:

Cleaning Agents

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Sectors of end-use	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC3: Air care products PC4: Anti-Freeze and de-icing products PC8: Biocidal products (e.g. Disinfectants, pest control) PC9a: Coatings and paints, thinners, paint removers PC9c: Finger paints PC9b: Fillers, putties, plasters, modelling clay PC24: Lubricants, greases, release products PC35: Washing and cleaning products (including solvent based products) PC38: Welding and soldering products (with flux coatings or flux cores.), flux products
Environmental Release Categories	ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Viscosity, dynamic 2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC3, PC4, PC8, PC9, PC24, PC35, PC38: Air care products, Anti-Freeze and de-icing products, Biocidal products (e.g. Disinfectants, pest control), Coatings and Paints, Fillers, Putties, Thinners, Lubricants, greases, release products, Washing and cleaning products (including solvent based products), Welding and soldering products (with flux coatings or flux cores.), flux products

Product characteristics

Concentration of the Substance in Mixture/Article : Unless otherwise stated, covers concentrations up to 100 %
Physical Form (at time of use) : Liquid substance

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Vapour pressure 60.2 hPa

Amount used

Remarks : For each use event, covers use amounts up to 13,800 g

Frequency and duration of use

Remarks : Covers exposure up to 4 hours/event, Unless otherwise stated, covers use frequency up to 1 times per day

Human factors not influenced by risk management

Dermal exposure : Covers skin contact area up to 857.50 cm²

Other given operational conditions affecting consumers exposure

Remarks : Unless otherwise stated assumes use at ambient temperatures, Covers use in room size of 20 m³, Assumes use with typical ventilation

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Application Route : Air care products, Air care, instant action (aerosol sprays)
Consumer Measures : Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 4 times per day, For each use event, covers use amounts up to 0.1 g, Covers use in room size of 20 m³, Covers exposure up to 0.25 hours/event, No specific risk management measure identified beyond those operational conditions stated.

Application Route : Air care products, Air care, instant action (aerosol sprays), excipient only

Consumer Measures : Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 4 times per day, Covers skin contact area up to 428.00 cm², For each use event, covers use amounts up to 0.1 g, Covers use in room size of 20 m³, Covers exposure up to 0.25 hours/event, No specific risk management measure identified beyond those operational conditions stated.

Application Route : Air care products, Air care, continuous action (solid and liquid), excipient only

Consumer Measures : Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 35.73 cm², For each use event, covers use amounts up to 0.48 g, Covers use in room size of 20 m³, Covers exposure up to 8 hours/event, No specific risk management measure identified beyond those operational conditions stated.

Application Route : Air care products, Air care, continuous action (solid and liquid)
Consumer Measures : Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 35.73 cm², For each use event, covers use amounts up to 0.48 g, Covers use in room size of 20 m³

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Application Route	Covers exposure up to 8 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Consumer Measures	Anti-Freeze and de-icing products, Washing car window Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, For each use event, covers use amounts up to 0.5 g, Covers use in a one car garage (34 m3) under typical ventilation, Covers use in room size of 34 m3, Covers exposure up to 0.02 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Anti-Freeze and de-icing products, Pouring into radiator
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm2, For each use event, covers use amounts up to 2,000 g, Covers use in a one car garage (34 m3) under typical ventilation, Covers use in room size of 34 m3, Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Anti-Freeze and de-icing products, Lock de-icer
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 214.40 cm2, For each use event, covers use amounts up to 4 g, Covers use in a one car garage (34 m3) under typical ventilation, Covers use in room size of 34 m3, Covers exposure up to 0.25 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Biocidal products (e.g. Disinfectants, pest control), excipient only, Laundry and dish washing products
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm2, For each use event, covers use amounts up to 15 g, Covers use in room size of 20 m3, Covers exposure up to 0.5 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Biocidal products (e.g. Disinfectants, pest control), excipient only, Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 128 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm2, For each use event, covers use amounts up to 27 g, Covers use in room size of 20 m3, Covers exposure up to 0.33 hours/event, No specific risk management measure identified beyond those operational conditions stated.

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Application Route	Biocidal products (e.g. Disinfectants, pest control), excipient only, Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 128 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm ² , For each use event, covers use amounts up to 35 g, Covers use in room size of 20 m ³ , Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Welding and soldering products (with flux coatings or flux cores.), flux products
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, For each use event, covers use amounts up to 12 g, Covers use in room size of 20 m ³ , Covers exposure up to 1 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Coatings and paints, thinners, paint removers, Solvent rich, high solid, water borne paint
Consumer Measures	Unless otherwise stated, covers concentrations up to 27.5 %, Covers use up to 6 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm ² , For each use event, covers use amounts up to 744 g, Covers use in room size of 20 m ³ , Covers exposure up to 2.20 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Coatings and paints, thinners, paint removers, Aerosol spray can
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 2 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, For each use event, covers use amounts up to 215 g, Covers use in a one car garage (34 m ³) under typical ventilation, Covers use in room size of 34 m ³ , Covers exposure up to 0.33 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Coatings and paints, thinners, paint removers, Removers (paint-, glue-, wall paper-, sealant-remover)
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 3 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm ² , For each use event, covers use amounts up to 491 g, Covers use in room size of 20 m ³ , Covers exposure up to 2.00 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Fillers, putties, plasters, modelling clay, Fillers and putty
Consumer Measures	Unless otherwise stated, covers concentrations up to 20 %, Covers use up to 12 days/year, Unless otherwise stated,

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	covers use frequency up to 1 times per day, Covers skin contact area up to 35.73 cm ² , For each use event, covers use amounts up to 85 g, Covers use in room size of 20 m ³ , Covers exposure up to 4 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Fillers, putties, plasters, modelling clay, Plasters and floor equalizers
Consumer Measures	Unless otherwise stated, covers concentrations up to 2 %, Covers use up to 12 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm ² , For each use event, covers use amounts up to 13,800 g, Covers use in room size of 20 m ³ , Covers exposure up to 2.00 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Fillers, putties, plasters, modelling clay, Modelling clay
Consumer Measures	Unless otherwise stated, covers concentrations up to 20 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 254.40 cm ² , For each use event, assumes swallowed amount of 1 g, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Finger paints
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 254.40 cm ² , For each use event, assumes swallowed amount of 1.35 g, Covers use in room size of 20 m ³ , Avoid using at a product concentration greater than 15 %.
Application Route	Lubricants, greases, release products, Liquids
Consumer Measures	Unless otherwise stated, covers concentrations up to 100 %, Covers use up to 4 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 468.00 cm ² , For each use event, covers use amounts up to 2,200 g, Covers use in a one car garage (34 m ³) under typical ventilation, Covers use in room size of 34 m ³ , Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Lubricants, greases, release products, Pastes
Consumer Measures	Unless otherwise stated, covers concentrations up to 20 %, Covers use up to 10 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 468.00 cm ² , For each use event, covers use amounts up to 34 g, Covers use in room size of 20 m ³ , No specific risk management measure identified beyond those operational conditions stated.
Application Route	Lubricants, greases, release products, Sprays
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 6 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area UD to 428.00 cm ² . For each use event, covers

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	use amounts up to 73 g, Covers use in room size of 20 m3, Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Washing and cleaning products (including solvent based products), Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 128 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm2, For each use event, covers use amounts up to 27 g, Covers use in room size of 20 m3, Covers exposure up to 0.33 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Washing and cleaning products (including solvent based products), Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 128 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm2, For each use event, covers use amounts up to 35 g, Covers use in room size of 20 m3, Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 128 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm2, For each use event, covers use amounts up to 35 g, Covers use in room size of 20 m3, Covers exposure up to 0.17 hours/event
Application Route	Welding and soldering products (with flux coatings or flux cores.), flux products
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, For each use event, covers use amounts up to 12 g, Covers use in room size of 20 m3, Covers exposure up to 1 hours/event

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PC3	ECETOC TRA	Skin contact,		11.9 mg/kg/day	0.45

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		Chronic effects			
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		1000 mg/m3	0.00
PC3	ECETOC TRA	Skin contact, Chronic effects		11.9 mg/kg/day	0.45
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		1000 mg/m3	0.00
PC3	ECETOC TRA	Skin contact, Chronic effects		0 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		250 mg/m3	0.01
PC3	ECETOC TRA	Skin contact, Chronic effects		0 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		250 mg/m3	0.01
PC4	ECETOC TRA	Skin contact, Chronic effects		0 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		0.1 mg/m3	0.00
PC4	ECETOC TRA	Skin contact, Chronic effects		14.3 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		5882.4 mg/m3	0.10

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PC4	ECETOC TRA	Skin contact, Chronic effects		17.9 mg/kg/day	0.06
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		58.8 mg/m3	0.01
PC8	ECETOC TRA	Skin contact, Chronic effects		85.8 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		1500 mg/m3	0.08
PC8	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.22
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		6250 mg/m3	0.09
PC8	ECETOC TRA	Skin contact, Chronic effects		28.6 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		350 mg/m3	0.06
PC9a	ECETOC TRA	Skin contact, Chronic effects		35.7 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		93750 mg/m3	0.43
PC9a	ECETOC TRA	Skin contact, Chronic effects		35.7 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		32500 mg/m3	0.17

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

		effects			
PC9a	ECETOC TRA	Skin contact, Chronic effects		0 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		7500 mg/m3	0.39
PC9a	ECETOC TRA	Skin contact, Chronic effects		128.6 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		90000 mg/m3	0.06
PC9b	ECETOC TRA	Skin contact, Chronic effects		6 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		50000 mg/m3	0.60
PC9b	ECETOC TRA	Skin contact, Chronic effects		124.9 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		> 999999 mg/m3	0.25
PC9b	ECETOC TRA	Skin contact, Chronic effects		25.4 mg/kg/day	0.01
		Ingestion, Chronic effects		10 mg/kg/day	0.77
		Inhalation, Chronic effects		0 mg/m3	0.00
PC9c	ECETOC TRA	Skin contact, Chronic effects		127.2 mg/kg/day	0.12
		Ingestion, Chronic effects		68 mg/kg/day	0.78
		Inhalation,		0 mg/m3	

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

		Chronic effects			
PC24	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.24
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		125000 mg/m3	0.04
PC24	ECETOC TRA	Skin contact, Chronic effects		28.6 mg/kg/day	0.05
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		0 mg/m3	0.00
PC24	ECETOC TRA	Skin contact, Chronic effects		35.7 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		7500 mg/m3	0.14
PC35	ECETOC TRA	Skin contact, Chronic effects		85.8 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		1500 mg/m3	0.08
PC35	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.22
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		6250 mg/m3	0.09
PC35	ECETOC TRA	Skin contact, Chronic effects		28.6 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

		Inhalation, Chronic effects		350 mg/m3	0.06
PC38	ECETOC TRA	Skin contact, Chronic effects		0 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		120 mg/m3	0.11

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. No exposure assessment presented for the environment.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

1. Short title of Exposure Scenario:

Oil field drilling

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities,

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

PROC8b
PROC8b
PROC3
PROC4

Risk Management Measures

Handle substance within a closed system.
Handle substance within a closed system.
Handle substance within a closed system.
No specific measures identified.

PROC4 : No specific measures identified.

PROC8a : No specific measures identified.

PROC3 : No specific measures identified.

Process sampling, PROC3 : Clear spills immediately.
Clear transfer lines prior to de-coupling., Remotely vent displaced vapours.

General exposures (closed systems), PROC1 : No specific measures identified

Pouring from small containers, PROC8a : No specific measures identified

General exposures (open systems), PROC4 : No specific measures identified

Equipment cleaning and maintenance, PROC8a : No specific measures identified

Storage, PROC1, PROC2 : No specific measures identified

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

		Skin contact		6.86 mg/kg/day	0.01
PROC3	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		0.34 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		6.86 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		5 ppm	0.50
		Skin contact		6.86 mg/kg/day	0.01
PROC4	ECETOC TRA	Inhalation		2.5 ppm	0.01
		Skin contact		6.86 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.00
		Skin contact		0.34 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		5 ppm	0.50
		Skin contact		13.71 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		13.71 mg/kg/day	0.00
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

1. Short title of Exposure Scenario:

Lubricants

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC7: Industrial spraying</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC10: Roller application or brushing</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC17: Lubrication at high energy conditions and in partly open process</p> <p>PROC18: Greasing at high energy conditions</p>
Environmental Release Categories	ERC4, ERC7: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure:

ERC4, ERC7: Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17, PROC18: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Industrial spraying, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Roller application or brushing, Treatment of articles by dipping and pouring, Lubrication at high energy conditions and in partly open process, Greasing at high energy conditions

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

General exposures (closed systems), PROC1, PROC2, PROC3

General exposures (open systems), PROC4

Bulk transfers, PROC8b

Filling/preparation of equipment from drums or containers., PROC8a, PROC8b

Initial factory fill of equipment, PROC9

Operation and lubrication of high energy open equipment, PROC17, PROC18

Manual roller application or brushing, PROC10

Treatment by dipping and pouring, PROC13

Spraying, PROC7

Risk Management Measures

Handle substance within a closed system.

No specific measures identified.

Clear spills immediately.

Clear transfer lines prior to de-coupling., Remotely vent displaced vapours. Wear suitable gloves tested to EN374. No specific measures identified.

No specific measures identified.

Provide extraction ventilation at points where emissions occur., Restrict area of openings to equipment.

No specific measures identified.

No specific measures identified.

Automate activity where possible.

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Maintenance (of larger plant items) and machine set up, PROC8b	Automate activity where possible. Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Maintenance of small items, PROC8a	Avoid manual contact with wet work pieces., Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Remanufacture of reject articles, PROC9	Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Storage, PROC1, PROC2	Store substance within a closed system., Avoid dip sampling.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		0.69 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		5 ppm	0.50
		Skin contact		0.69 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		0.69 mg/kg/day	0.00
PROC17	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		1.37 mg/kg/day	0.00
PROC17	ECETOC TRA	Inhalation		4 ppm	0.40
		Skin contact		1.37 mg/kg/day	0.00
PROC18	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		0.69 mg/kg/day	0.00
PROC18	ECETOC TRA	Inhalation		4 ppm	0.40
		Skin contact		0.69 mg/kg/day	0.00
PROC10	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		27.43 mg/kg/day	0.03
PROC13	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC7	ECETOC TRA	Inhalation		12.5 ppm	0.06
		Skin contact		2.14 mg/kg/day	0.00
PROC7	ECETOC TRA	Inhalation		1 ppm	0.10
		Skin contact		2.14 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		150 ppm	0.74
		Skin contact		0.69 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.08
		Skin contact		0.14 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	: SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	: PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/to vessels/ large containers at dedicated facilities PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC17: Lubrication at high energy conditions and in partly open process PROC18: Greasing at high energy conditions PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems
Environmental Release Categories	: ERC8a, ERC8d, ERC9a, ERC9b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d, ERC9a, ERC9b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC17, PROC18, PROC20: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Roller application or brushing, Non industrial spraying, Treatment of articles by dipping and pouring, Lubrication at high energy conditions and in partly open process, Greasing at high energy conditions, Heat and pressure transfer fluids in dispersive, professional use but closed systems

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid, vapour pressure 0.5-10 kPa
Vapour pressure	5-100 hPa
Process Temperature	20 °C

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.
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Contributing Scenario

General exposures (closed systems), PROC1, PROC2, PROC3

General exposures (open systems), PROC4

Bulk transfers, PROC8b
Filling/preparation of equipment from drums or containers., Dedicated facility, PROC8b

Filling/preparation of equipment from drums or containers., Non-dedicated facility, PROC8a

Operation and lubrication of high energy open equipment, Indoor,

Risk Management Measures

Handle substance within a closed system., No other specific measures identified.

No specific measures identified.

No specific measures identified.

No specific measures identified.

No specific measures identified.

No specific measures identified.

Restrict area of openings to equipment., Provide extraction ventilation at points where emissions occur.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

PROC17, PROC18

Operation and lubrication of high energy open equipment, Outdoor, PROC17

Maintenance (of larger plant items) and machine set up, PROC8b

Maintenance (of larger plant items) and machine set up, PROC8b

Maintenance of small items, PROC8a

Engine lubricant service, PROC9

Manual roller application or brushing, PROC10

Spraying, PROC11

Spraying, PROC11

Treatment by dipping and pouring, PROC13

Treatment by dipping and pouring, PROC13

Storage, PROC1, PROC2

Avoid carrying out operation for more than 4 hours., Limit the substance content in the product to 5 %.

Ensure operation is undertaken outdoors.

Provide extract ventilation to emission points when contact with warm (>50oC) product is likely.

Provide extract ventilation to emission points when contact with warm (>50oC) product is likely.

Retain drain downs in sealed storage pending disposal or for subsequent recycle. Wear a respirator conforming to EN140 with Type A/P2 filter or better.

No specific measures identified.

No specific measures identified.

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Avoid carrying out operation for more than 4 hours.

Wear a respirator conforming to EN 140 with Type A/P2 filter or better.

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings., Allow time for product to drain from workpiece.

Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan., Allow time for product to drain from workpiece. Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1 PROC2	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		1.37 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC20	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		1.71 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		0.69 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		5 ppm	0.50
		Skin contact		0.69 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

		Skin contact	13.71 mg/kg/day	0.02
PROC17	ECETOC TRA	Inhalation	40 ppm	0.20
		Skin contact	1.37 mg/kg/day	0.00
PROC18	ECETOC TRA	Inhalation	60 ppm	0.30
		Skin contact	0.69 mg/kg/day	0.00
PROC17 PROC18	ECETOC TRA	Inhalation	5 ppm	0.50
		Skin contact	1.37 mg/kg/day	0.00
PROC17	ECETOC TRA	Inhalation	140 ppm	0.69
		Skin contact	27.43 mg/kg/day	0.00
PROC17	ECETOC TRA	Inhalation	4.2 ppm	0.42
		Skin contact	27.43 mg/kg/day	0.03
PROC8b	ECETOC TRA	Inhalation	50 ppm	0.25
		Skin contact	6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation	25 ppm	0.12
		Skin contact	0.69 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation	50 ppm	0.25
		Skin contact	13.71 mg/kg/day	0.02
PROC9	ECETOC TRA	Inhalation	100 ppm	0.49
		Skin contact	6.86 mg/kg/day	0.01
PROCIO	ECETOC TRA	Inhalation	100 ppm	0.49
		Skin contact	1.37 mg/kg/day	0.00
PROCIO	ECETOC TRA	Inhalation	5 ppm	0.02
		Skin contact	27.43 mg/kg/day	0.03
PROCIO	ECETOC TRA	Inhalation	5 ppm	0.02
		Skin contact	27.43 mg/kg/day	0.03
PROC11	ECETOC TRA	Inhalation	100 ppm	0.49
		Skin contact	2.14 mg/kg/day	0.00
	ECETOC TRA	Inhalation	4 ppm	0.4
		Skin contact	2.14 mg/kg/day	0.00
PROC11	ECETOC TRA	Inhalation	50 ppm	0.25
		Skin contact	107.14 mg/kg/day	0.00
	ECETOC TRA	Inhalation	2 ppm	0.2
		Skin contact	107.14 mg/kg/day	0.12
PROC13	ECETOC TRA	Inhalation	1 ppm	0.1
		Skin contact	0.34 mg/kg/day	0.00
PROC13	ECETOC TRA	Inhalation	3 ppm	0.3
		Skin contact	13.71 mg/kg/day	0.02
PROC1 PROC2	ECETOC TRA	Inhalation	20 ppm	0.10
		Skin contact	1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Sectors of end-use	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC1: Adhesives, sealants PC24: Lubricants, greases, release products PC31: Polishes and wax blends
Environmental Release Categories	ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC1, PC24, PC31:

Adhesives, sealants, Lubricants, greases, release products, Polishes and wax blends

Product characteristics

Concentration of the Substance in Mixture/Article	Unless otherwise stated, covers concentrations up to 100 %
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	For each use event, covers use amounts up to 6,390 g
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Frequency and duration of use

Remarks	Unless otherwise stated, covers use frequency up to 1 times per day, Covers exposure up to 6 hours/event
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Human factors not influenced by risk management

Dermal exposure	: Covers skin contact area up to 468.00 cm ²
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Other given operational conditions affecting consumers exposure

Remarks	: Unless otherwise stated assumes use at ambient temperatures, Covers use in room size of 20 m ³ , Assumes
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use with typical ventilation

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Application Route	: Adhesives, sealants, Glues, hobby use
Consumer Measures	: Unless otherwise stated, covers concentrations up to 30 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 35.73 cm ² , For each use event, covers use amounts up to 9 g, Covers use in room size of 20 m ³ , Covers exposure up to 4 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Adhesives, sealants, Glues DIY-use (carpet glue, tile glue, wood parquet glue)
Consumer Measures	: Unless otherwise stated, covers concentrations up to 30 %, Covers use up to 1 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 110.00 cm ² , For each use event, covers use amounts up to 6,390 g, Covers use in room size of 20 m ³ , Covers exposure up to 6 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Adhesives, sealants, Glue from spray
Consumer Measures	: Unless otherwise stated, covers concentrations up to 30 %, Covers use up to 6 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 35.73 cm ² , For each use event, covers use amounts up to 85 g, Covers use in room size of 20 m ³ , Covers exposure up to 4 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Adhesives, sealants, Sealants
Consumer Measures	: Unless otherwise stated, covers concentrations up to 30 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 35.73 cm ² , For each use event, covers use amounts up to 75 g, Covers use in room size of 20 m ³ , Covers exposure up to 1 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Lubricants, greases, release products, Liquids
Consumer Measures	: Unless otherwise stated, covers concentrations up to 100 %, Covers use up to 4 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 468.00 cm ² , For each use event, covers use amounts up to 2,200 g, Covers use in a one car garage (34 m ³) under typical ventilation, Covers use in room size of 34 m ³ , Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Lubricants, greases, release products, Pastes
Consumer Measures	: Unless otherwise stated, covers concentrations up to 20 %,

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Application Route	Covers use up to 10 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 468.00 cm ² , For each use event, covers use amounts up to 34 g, Covers use in room size of 20 m ³ , No specific risk management measure identified beyond those operational conditions stated.
Consumer Measures	Lubricants, greases, release products, Sprays Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 6 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm ² , For each use event, covers use amounts up to 73 g, Covers use in room size of 20 m ³ , Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Polishes and wax blends, Polishes, wax / cream (floor, furniture, shoes)
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 29 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 430.00 cm ² , For each use event, covers use amounts up to 142 g, Covers use in room size of 20 m ³ , Covers exposure up to 1.23 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	Polishes and wax blends, Polishes, spray (furniture, shoes)
Consumer Measures	Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 8 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 430.00 cm ² , For each use event, covers use amounts up to 35 g, Covers use in room size of 20 m ³ , Covers exposure up to 0.33 hours/event, No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PC1	ECETOC TRA	Skin contact, Chronic effects		1.8 mg/kg/day	0.01
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		135 mg/m ³	0.10

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PC1	ECETOC TRA	Skin contact, Chronic effects		21.4 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		147985.2 mg/m3	0.20
PC1	ECETOC TRA	Skin contact, Chronic effects		1.8 mg/kg/day	0.01
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		3825 mg/m3	0.91
PC1	ECETOC TRA	Skin contact, Chronic effects		1.8 mg/kg/day	0.01
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		5850 mg/m3	0.40
PC24	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.24
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		125000 mg/m3	0.04
PC24	ECETOC TRA	Skin contact, Chronic effects		28.6 mg/kg/day	0.05
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		0 mg/m3	0.00
PC24	ECETOC TRA	Skin contact, Chronic effects		35.7 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		7500 mg/m3	0.14

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		effects			
PC31	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.01
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		13750 mg/m3	0.12
PC31	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		3375 mg/m3	0.12

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. No exposure assessment presented for the environment.

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Metal working fluids

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	: PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC17: Lubrication at high energy conditions and in partly open process
Environmental Release Categories	: ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

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Additional good practice advice

No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC17: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Industrial spraying, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Roller application or brushing, Treatment of articles by dipping and pouring, Lubrication at high energy conditions and in partly open process

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

General exposures (closed systems), PROC1, PROC2, PROC3

General exposures (open systems), PROC4

Bulk transfers, PROC8b

Process sampling, PROC8b

Metal machining operations, PROC17

Treatment by dipping and pouring, PROC13

Spraying, PROC7

Manual roller application or brushing, PROC10

Automated metal rolling/forming, PROC2

Semi-automated metal

Risk Management Measures

Handle substance within a closed system.

No specific measures identified.

Clear spills immediately.

Clear transfer lines prior to de-coupling., Remotely vent displaced vapours.

Use dedicated equipment.

Restrict area of openings to equipment.

Automate activity where possible.

Allow time for product to drain from workpiece.

Automate activity where possible.

Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Avoid splashing.

No specific measures identified.

Automate activity where possible.

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rolling/forming, PROC17, PROC4	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Equipment cleaning and maintenance, Dedicated facility, PROC8b	Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Equipment cleaning and maintenance, Non-dedicated facility, PROC8a	Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Storage, PROC1, PROC2	Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1 PROC2	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		1.37 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC5	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC17	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		1.37 mg/kg/day	0.00
PROC13	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC7	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		42.86 mg/kg/day	0.00
PROC7	ECETOC TRA	Inhalation		4 ppm	0.40
		Skin contact		2.14 mg/kg/day	0.00
PROC10	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		27.43 mg/kg/day	0.03
PROC2	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		0.14 mg/kg/day	0.00
PROC17	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		27.43 mg/kg/day	0.00
PROC17	ECETOC TRA	Inhalation		2 ppm	0.20
		Skin contact		1.37 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		100 ppm	0.49

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		Skin contact		6.86 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.01
		Skin contact		1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC10: Roller application or brushing</p> <p>PROC11: Non industrial spraying</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC17: Lubrication at high energy conditions and in partly open process</p>
Environmental Release Categories	ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC9, PROCIO, PROC11, PROC13, PROC17: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Roller application or brushing, Non industrial spraying, Treatment of articles by dipping and pouring, Lubrication at high energy conditions and in partly open process

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	23.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

General exposures (closed systems), PROC1, PROC2, PROC3
Bulk transfers, PROC8b
Filling/preparation of equipment from drums or containers., Dedicated facility, PROC8b
Filling/preparation of equipment from drums or containers., Dedicated facility, PROC9
Process sampling, PROC8b
Metal machining operations, PROC17
Manual roller application or brushing, PROCIO
Spraying, PROC11

Treatment by dipping and pouring, PROC13
Equipment cleaning and maintenance, Non-dedicated facility, PROC8a
Equipment cleaning and maintenance, Dedicated facility, PROC8b
Storage, PROC1, PROC2

Risk Management Measures

Handle substance within a closed system., No other specific measures identified.

Clear transfer lines prior to de-coupling.
Clear transfer lines prior to de-coupling.

No specific measures identified.

No specific measures identified.

Provide enhanced general ventilation by mechanical means.

No specific measures identified.
Provide enhanced general ventilation by mechanical means.
Wear a respirator conforming to EN140 with Type A/P2 filter or better.
Allow time for product to drain from workpiece.

Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Clear transfer lines prior to de-coupling.

Handle substance within a closed system., No other specific

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measures identified.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1 PROC2	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		1.37 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC9	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		6.86 mg/kg/day	0.01
PROC8a	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		13.71 mg/kg/day	0.02
PROC8b	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		13.71 mg/kg/day	0.02
PROC17	ECETOC TRA	Inhalation		40 ppm	0.20
		Skin contact		27.43 mg/kg/day	0.03
PROC17	ECETOC TRA	Inhalation		4 ppm	0.40
		Skin contact		27.43 mg/kg/day	0.00
PROCIO	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		27.43 mg/kg/day	0.03
PROCIO	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		27.43 mg/kg/day	0.03
PROCIO	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		27.43 mg/kg/day	0.03
PROC11	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		107.14 mg/kg/day	0.12
PROC11	ECETOC TRA	Inhalation		4 ppm	0.40
		Skin contact		2.14 mg/kg/day	0.0
PROC11	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		107.14 mg/kg/day	0.00
PROC11	ECETOC TRA	Inhalation		6 ppm	0.60
		Skin contact		107.14 mg/kg/day	0.12
PROC13	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC13	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		13.71 mg/kg/day	0.02
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02

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PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC1 PROC2	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		0.14 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC12: Use of blowing agents in manufacture of foam</p>
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	:	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9, PROC12: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Use of blowing agents in manufacture of foam

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

PROC8b

PROC1
PROC12
PROC12
PROC12
PROC12
PROC12
PROC3
PROC3
PROC3
PROC12
PROC8b
PROC12
PROC12
PROC12
PROC12

Risk Management Measures

: Clear transfer lines prior to de-coupling., Use vapour recovery units when necessary.

No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified
No specific measures identified

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC8b	ECETOC TRA	Inhalation		150 ppm	0.74
		Skin contact		6.86 mg/kg/day	0.01
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.00
		Skin contact		0.34 mg/kg/day	0.00
PROC12	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.34 mg/kg/day	0.00
PROC12	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.34 mg/kg/day	0.00
PROC12	ECETOC TRA	Inhalation		100 ppm	0.49

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		Skin contact		0.34 mg/kg/day	0.00
PROC12	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.34 mg/kg/day	0.00
PROC12	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.34 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		150 ppm	0.74
		Skin contact		6.86 mg/kg/day	0.01
PROC3	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		0.34 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		0.34 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		0.34 mg/kg/day	0.00
PROC12	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.34 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		150 ppm	0.74
		Skin contact		6.86 mg/kg/day	0.01
PROC12	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.34 mg/kg/day	0.00
PROC12	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.34 mg/kg/day	0.00
PROC12	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.34 mg/kg/day	0.00
PROC12	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.34 mg/kg/day	0.00
PROC12	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.34 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC6: Calendering operations PROC7: Industrial spraying PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROCIO: Roller application or brushing PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	:	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8b, PROCIO, PROC14: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Calendering operations, Industrial spraying, Transfer of substance or preparation

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

(charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Roller application or brushing, Production of preparations or articles by tableting, compression, extrusion, pelletisation

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Material transfers, PROC1, PROC2, PROC3
Drum/batch transfers, PROC8b
Mixing operations (closed systems), PROC3
Mixing operations (open systems), PROC4
Mold forming, PROC14
Casting operations, (open systems), PROC6
Spraying, Machine, PROC7

Spraying, Manual, PROC7
Storage, PROC1, PROC2

Risk Management Measures

Clear transfer lines prior to de-coupling.

No specific measures identified.
No specific measures identified.

No specific measures identified.

No specific measures identified.
Provide extraction ventilation at points where emissions occur.

Automate activity where possible.
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Carry out in a vented booth or extracted enclosure.
Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1 PROC2 PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.14 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		6.86 mg/kg/day	0.01

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

PROC14	ECETOC TRA	Inhalation	50 ppm	0.25
		Skin contact	3.43 mg/kg/day	0.00
PROC6	ECETOC TRA	Inhalation	25 ppm	0.12
		Skin contact	27.43 mg/kg/day	0.03
PROC6	ECETOC TRA	Inhalation	2.5 ppm	0.25
		Skin contact	1.37 mg/kg/day	0.00
PROC7	ECETOC TRA	Inhalation	175 ppm	0.86
		Skin contact	42.86 mg/kg/day	0.05
PROC7	ECETOC TRA	Inhalation	5 ppm	0.50
		Skin contact	2.14 mg/kg/day	0.00
PROC10	ECETOC TRA	Inhalation	50 ppm	0.25
		Skin contact	27.43 mg/kg/day	0.03
PROC7	ECETOC TRA	Inhalation	25 ppm	0.12
		Skin contact	42.86 mg/kg/day	0.05
PROC7	ECETOC TRA	Inhalation	5 ppm	0.50
		Skin contact	2.14 mg/kg/day	0.00
PROC1 PROC2	ECETOC TRA	Inhalation	10 ppm	0.05
		Skin contact	1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC6: Calendering operations</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROCIO: Roller application or brushing</p> <p>PROC11: Non industrial spraying</p> <p>PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation</p>
Environmental Release Categories	ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC6, PROC8b, PROCIO, PROC11, PROC14: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises,

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Calendering operations, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Roller application or brushing, Non industrial spraying, Production of preparations or articles by tableting, compression, extrusion, pelletisation

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Material transfers, (closed systems), PROC1, PROC2, PROC3
Drum/batch transfers, PROC8b
Mixing operations (open systems), PROC3
Mixing operations (closed systems), PROC4
Mold forming, PROC14
Casting operations, (open systems), PROC6
Spraying, Machine, PROC11

Manual roller application or brushing, PROCIO
Spraying, Manual, PROC11

Batch process, PROC1, PROC2

Risk Management Measures

Retain drain downs in sealed storage pending disposal or for subsequent recycle.

No specific measures identified.
No specific measures identified.

No specific measures identified.

No specific measures identified.
Limit the substance content in the product to 25 %.
Provide extraction ventilation at points where emissions occur.
Minimise exposure by extracted full enclosure for the operation or equipment., Segregate the activity away from other operations.
No specific measures identified.

Carry out in a vented booth or extracted enclosure., Segregate the activity away from other operations.
Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1 PROC2 PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		1.37 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

		Skin contact		6.86 mg/kg/day	0.01
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC14	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		3.43 mg/kg/day	0.00
PROC6	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		1.37 mg/kg/day	0.00
PROC6	ECETOC TRA	Inhalation		6 ppm	0.60
		Skin contact		1.37 mg/kg/day	0.00
PROC11	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		2.14 mg/kg/day	0.00
PROC11	ECETOC TRA	Inhalation		3 ppm	0.30
		Skin contact		2.14 mg/kg/day	0.00
PROCIO	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		27.43 mg/kg/day	0.03
PROC11	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		2.14 mg/kg/day	0.00
PROC11	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		2.14 mg/kg/day	0.00
PROC1 PROC2	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	:	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC11, PROC13: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

(charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Non industrial spraying, Treatment of articles by dipping and pouring

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Transfer from/pouring from containers, PROC8b
Mixing operations, PROC4
Spraying/ fogging by manual application, PROC11

Spraying/ fogging by machine application, PROC11
Ad hoc manual application via trigger sprays, dipping, etc., PROC13
Operation of equipment containing engine oils and, PROC8a
Disposal of wastes, PROC8a

Storage, PROC1, PROC2

Risk Management Measures

No specific measures identified.

No specific measures identified.
Avoid carrying out operation for more than 4 hours., Limit the substance content in the product to 25 %.

Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.
No specific measures identified.

Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Dispose of waste product or used containers according to local regulations.
Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC4	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC11	ECETOC TRA	Inhalation		180 ppm	0.89
		Skin contact		107.14 mg/kg/day	0.12
PROC11	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		2.14 mg/kg/day	0.00
PROC13	ECETOC TRA	Inhalation		100 ppm	0.49

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

		Skin contact		13.71 mg/kg/day	0.02
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC1 PROC2	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		0.14 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Sectors of end-use	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC12: Fertilizers PC27: Plant protection products
Environmental Release Categories	ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Viscosity, dynamic 2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC12, PC27: Fertilizers, Plant protection products

Product characteristics

Concentration of the Substance in Mixture/Article : Unless otherwise stated, covers concentrations up to 50 %
Physical Form (at time of use) Liquid substance
Vapour pressure 60.2 hPa

Amount used

Remarks For each use event, covers use amounts up to 50 g

Frequency and duration of use

Remarks Unless otherwise stated, covers use frequency up to 0 times per day

Human factors not influenced by risk management

Dermal exposure : Covers skin contact area up to 857.50 cm²

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Application Route	: Fertilizers
Consumer Measures	: Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm ² , For each use event, covers use amounts up to 0.3 g, Covers use in room size of 20 m ³ , No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Plant protection products
Consumer Measures	: Unless otherwise stated, covers concentrations up to 50 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 857.50 cm ² , For each use event, covers use amounts up to 0.3 g, Covers use in room size of 20 m ³ , No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PC12	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.22
		Ingestion, Chronic effects		15 mg/kg/day	0.58
		Inhalation, Chronic effects		0 mg/m ³	0.00
PC27	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.22
		Ingestion, Chronic effects		15 mg/kg/day	0.58
		Inhalation, Chronic effects		0 mg/m ³	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. No exposure assessment presented for the environment.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	: PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC16: Using material as fuel sources, limited exposure to unburned product to be expected
Environmental Release Categories	: ERC7: Industrial use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure:
ERC7: Industrial use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Using material as fuel sources, limited exposure to unburned product to be expected

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Bulk transfers, PROC8b

Drum/batch transfers, PROC8b

General exposures (closed systems), PROC1, PROC2

General exposures (open systems), (closed systems), PROC16, PROC3

Equipment cleaning and maintenance, PROC8a

Vessel and container cleaning, PROC8a

Storage, PROC1, PROC2

Risk Management Measures

: Handle substance within a closed system., Clear transfer lines prior to de-coupling.

: Avoid spillage when withdrawing pump.

: No specific measures identified.

: Handle substance within a closed system., No other specific measures identified.

: Apply vessel entry procedures including use of forced supplied air.
Retain drain downs in sealed storage pending disposal or for subsequent recycle.

: Apply vessel entry procedures including use of forced supplied air.
Retain drain downs in sealed storage pending disposal or for subsequent recycle.

: Store substance within a closed system., Avoid dip sampling.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC16	ECETOC TRA	Inhalation		5 ppm	0.02

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

		Skin contact		0.34 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC16: Using material as fuel sources, limited exposure to unburned product to be expected
Environmental Release Categories	ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure:

ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

large containers at dedicated facilities, Using material as fuel sources, limited exposure to unburned product to be expected

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Bulk transfers, PROC8b

Drum/batch transfers, PROC8b

General exposures (closed systems), PROC1, PROC2

General exposures (open systems), (closed systems), PROC3, PROC16

Equipment cleaning and maintenance, PROC8a

Vessel and container cleaning, PROC8a

Storage, PROC1

Risk Management Measures

: Handle substance within a closed system., Clear transfer lines prior to de-coupling.

: Avoid spillage when withdrawing pump.

: Avoid spillage when withdrawing pump.

: Handle substance within a closed system., No other specific measures identified.

: Handle substance within a closed system., No other specific measures identified.

: Retain drain downs in sealed storage pending disposal or for subsequent recycle.

: Apply vessel entry procedures including use of forced supplied air.

Retain drain downs in sealed storage pending disposal or for subsequent recycle.

: Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC1 PROC2	ECETOC TRA	Inhalation		20 ppm	0.10

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		Skin contact		1.37 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC16	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.00
		Skin contact		0.34 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Sectors of end-use	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC13: Fuels
Environmental Release Categories	ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure:

ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

Product characteristics

Viscosity, dynamic 2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC13: Fuels

Product characteristics

Concentration of the Substance in Mixture/Article	Unless otherwise stated, covers concentrations up to 100 %
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks For each use event, covers use amounts up to 37,500 g

Frequency and duration of use

Remarks Unless otherwise stated, covers use frequency up to 0.143 times per day, Covers exposure up to 2.00 hours/event

Other given operational conditions affecting consumers exposure

Remarks : Unless otherwise stated assumes use at ambient temperatures, Covers use in room size of 20 m3, Assumes use with typical ventilation

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Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Application Route	: Fuels, Liquid: Automotive Refuelling
Consumer Measures	: Unless otherwise stated, covers concentrations up to 100 %, Covers use up to 52 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 210.00 cm ² , For each use event, covers use amounts up to 37,500 g, Covers outdoor use, Covers use in room size of 100 m ³ , Covers exposure up to 0.05 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Fuels, Liquid: Scooter Refuelling
Consumer Measures	: Unless otherwise stated, covers concentrations up to 100 %, Covers use up to 52 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 210.00 cm ² , For each use event, covers use amounts up to 3,750 g, Covers outdoor use, Covers use in room size of 100 m ³ , Covers exposure up to 0.03 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Fuels, Liquid: Garden Equipment - Use
Consumer Measures	: Unless otherwise stated, covers concentrations up to 100 %, Covers use up to 26 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, For each use event, covers use amounts up to 750 g, Covers outdoor use, Covers use in room size of 100 m ³ , Covers exposure up to 2.00 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Fuels, Liquid: Garden Equipment - Refuelling
Consumer Measures	: Unless otherwise stated, covers concentrations up to 100 %, Covers use up to 26 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 420.00 cm ² , For each use event, covers use amounts up to 750 g, Covers use in a one car garage (34 m ³) under typical ventilation, Covers use in room size of 34 m ³ , Covers exposure up to 0.03 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Fuels, Liquid: Home space heater fuel
Consumer Measures	: Unless otherwise stated, covers concentrations up to 100 %, Covers use up to 26 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 420.00 cm ² , For each use event, covers use amounts up to 750 g, Covers use in room size of 20 m ³ , Covers exposure up to 8 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Fuels, Liquid: Lamp oil
Consumer Measures	: Unless otherwise stated, covers concentrations up to 100 %, Covers use up to 52 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 210.00 cm ² , For each use event, covers use amounts up to 100 g, Covers use in room size of 20 m ³ , Covers exposure up to 0.01 hours/event, No specific risk

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management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PC13	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		125000 mg/m3	0.02
PC13	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		125000 mg/m3	0.01
PC13	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		125000 mg/m3	0.08
PC13	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.22
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		125000 mg/m3	0.01
PC13	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.02
		Ingestion, Chronic		0 mg/kg/day	0.00

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		effects			
		Inhalation, Chronic effects		125000 mg/m3	0.10
PC13	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.11
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		125000 mg/m3	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. No exposure assessment presented for the environment.

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Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	: PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Environmental Release Categories	: ERC7: Industrial use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure:
ERC7: Industrial use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC9: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

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Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Bulk transfers, (closed systems), PROC1, PROC2
Drum/batch transfers, PROC8b
Pelletizing, (closed systems), PROC9
Filling/preparation of equipment from drums or containers., PROC8a
General exposures (closed systems), PROC2
General exposures (open systems), PROC4
Remanufacture of reject articles, PROC9

Equipment maintenance, PROC8a

Storage, PROC1, PROC2

Risk Management Measures

Transfer via enclosed lines.

No specific measures identified.
No specific measures identified.

Carefully pour from containers.

No specific measures identified.

No specific measures identified.

Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		20 ppm	0.10

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		Skin contact		6.86 mg/kg/day	0.01
PROC4	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		6.86 mg/kg/day	0.01
PROC4	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		6.86 mg/kg/day	0.01
PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems
Environmental Release Categories	ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure:

ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC9, PROC20: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small

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containers (dedicated filling line, including weighing), Heat and pressure transfer fluids in dispersive, professional use but closed systems

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Risk Management Measures

Drum/batch transfers, PROC8a	: No specific measures identified.
Transfer from/pouring from containers, PROC9	: Avoid spillage when withdrawing pump.
Filling/preparation of equipment from drums or containers., PROC9	: No specific measures identified.
General exposures (open systems), PROC20	: No specific measures identified.
Remanufacture of reject articles, PROC9	: Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Equipment maintenance, PROC8a	: Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Storage, PROC1, PROC2	: Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC9	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		6.86 mg/kg/day	0.01
PROC9	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		6.86 mg/kg/day	0.01
PROC1 PROC2 PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		1.37 mg/kg/day	0.00
PROC20	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		1.71 mg/kg/day	0.00
PRQC20	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		1.71 mg/kg/day	0.00

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PROC9	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		6.86 mg/kg/day	0.01
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC1 PROC2	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Sectors of end-use	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC16: Heat transfer fluids PC17: Hydraulic fluids
Environmental Release Categories	ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure:

ERC9a, ERC9b: Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

Product characteristics

Viscosity, dynamic 2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC16, PC17: Heat transfer fluids, Hydraulic fluids

Product characteristics

Concentration of the Substance in Mixture/Article	Unless otherwise stated, covers concentrations up to 100 %
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks For each use event, covers use amounts up to 2,200 g

Frequency and duration of use

Remarks Unless otherwise stated, covers use frequency up to 0.01 times per day, Covers exposure up to 0.167 hours/event

Human factors not influenced by risk management

Dermal exposure : Covers skin contact area up to 468.00 cm²

Other given operational conditions affecting consumers exposure

Remarks : Unless otherwise stated assumes use at ambient

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temperatures, Covers use in room size of 20 m3, Assumes use with typical ventilation

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Application Route	: Heat transfer fluids, Liquids
Consumer Measures	: Unless otherwise stated, covers concentrations up to 100 %, Covers use up to 4 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 468.00 cm2, For each use event, covers use amounts up to 2,200 g, Covers use in a one car garage (34 m3) under typical ventilation, Covers use in room size of 34 m3, Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Hydraulic fluids, Liquids
Consumer Measures	: Unless otherwise stated, covers concentrations up to 100 %, Covers use up to 4 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 468.00 cm2, For each use event, covers use amounts up to 2,200 g, Covers use in a one car garage (34 m3) under typical ventilation, Covers use in room size of 34 m3, Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PC16	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.24
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		125000 mg/m3	0.04
PC17	ECETOC TRA	Skin contact, Chronic effects		71.5 mg/kg/day	0.24
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic		125000 mg/m3	0.04

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effects

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. No exposure assessment presented for the environment.

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Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC11: Non industrial spraying
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8d: Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC8a, PROC8b, PROC11: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Non industrial spraying

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
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Physical Form (at time of use) Liquid substance
Vapour pressure 60.2 hPa

Amount used

Remarks Not applicable.

Frequency and duration of use

Remarks Covers daily exposures up to 8 hours (unless stated differently).

Contributing Scenario

Bulk transfers, PROC8b
Material transfers, PROC8b
Spraying/ fogging by machine application, PROC11

Operation of equipment containing engine oils and, PROCIO

Risk Management Measures

Clear transfer lines prior to de-coupling.
Clear transfer lines prior to de-coupling.
Avoid carrying out operation for more than 1 hour., Stay upwind/ keep distance from source.
Ensure operation is undertaken outdoors.
No specific measures identified.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		6.86 mg/kg/day	0.0
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		6.86 mg/kg/day	0.0
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.2
		Skin contact		6.86 mg/kg/day	0.0
PROC11	ECETOC TRA	Inhalation		100 ppm	0.5
		Skin contact		107.14 mg/kg/day	0.1
PROC11	ECETOC TRA	Inhalation		70 ppm	0.3
		Skin contact		107.14 mg/kg/day	0.1
PROCIO	ECETOC TRA	Inhalation		25 ppm	0.1
		Skin contact		27.43 mg/kg/day	0.0

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

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Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Main User Groups : **SU 21:** Consumer uses: Private households (= general public = consumers)
Sectors of end-use : **SU 21:** Consumer uses: Private households (= general public = consumers)
Chemical product category : **PC4:** Anti-Freeze and de-icing products
Environmental Release Categories : **ERC8d:** Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8d: Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Viscosity, dynamic 2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC4: Anti-Freeze and de-icing products

Product characteristics

Concentration of the Substance in Mixture/Article Unless otherwise stated, covers concentrations up to 40 %
Physical Form (at time of use) Liquid substance
Vapour pressure 60.2 hPa

Amount used

Remarks For each use event, covers use amounts up to 2,000 g

Frequency and duration of use

Remarks Unless otherwise stated, covers use frequency up to 1 times per day, Covers exposure up to 0.25 hours/event

Human factors not influenced by risk management

Dermal exposure : Covers skin contact area up to 428.00 cm²

Other given operational conditions affecting consumers exposure

Remarks : Unless otherwise stated assumes use at ambient temperatures, Covers use in room size of 20 m³, Assumes use with natural ventilation

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Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Application Route	: Anti-Freeze and de-icing products, Washing car window
Consumer Measures	: Unless otherwise stated, covers concentrations up to 1 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, For each use event, covers use amounts up to 0.5 g, Covers use in a one car garage (34 m3) under typical ventilation, Covers use in room size of 34 m3, Covers exposure up to 0.02 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Anti-Freeze and de-icing products, Pouring into radiator
Consumer Measures	: Unless otherwise stated, covers concentrations up to 10 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 428.00 cm2, For each use event, covers use amounts up to 2,000 g, Covers use in a one car garage (34 m3) under typical ventilation, Covers use in room size of 34 m3, Covers exposure up to 0.17 hours/event, No specific risk management measure identified beyond those operational conditions stated.
Application Route	: Anti-Freeze and de-icing products, Lock de-icer
Consumer Measures	: Unless otherwise stated, covers concentrations up to 40 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 214.40 cm2, For each use event, covers use amounts up to 4 g, Covers use in a one car garage (34 m3) under typical ventilation, Covers use in room size of 34 m3, Covers exposure up to 0.25 hours/event, No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PC4	ECETOC TRA	Skin contact, Chronic effects		0 mg/kg/day	0.00
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		0.1 mg/m3	0.00
PC4	ECETOC TRA	Skin contact, Chronic		14.3 mg/kg/day	0.04

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		effects			
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		5882.4 mg/m3	0.04
PC4	ECETOC TRA	Skin contact, Chronic effects		17.9 mg/kg/day	0.06
		Ingestion, Chronic effects		0 mg/kg/day	0.00
		Inhalation, Chronic effects		58.8 mg/m3	0.01

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. No exposure assessment presented for the environment.

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Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROCIO: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC8d, ERC8f: Wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure:

ERC8d, ERC8f: Wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC8a, PROC8b, PROC9, PROCIO, PROC11, PROC13: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Roller application or brushing, Non industrial spraying, Treatment of articles by dipping and pouring

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Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid, vapour pressure 0.5-10 kPa
Vapour pressure	5-100 hPa
Process Temperature	20 °C

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenario

Drum/batch transfers, Non-dedicated facility, PROC8a
Drum/batch transfers, Dedicated facility, PROC8b
Drum/batch transfers, Dedicated facility, PROC8b

Rolling, Brushing, PROCIO
Spraying/ fogging by machine application, PROC11

Dipping, immersion and pouring, PROC13
Equipment cleaning and maintenance, PROC8a

Risk Management Measures

No specific measures identified.

No specific measures identified.

Use dedicated equipment., Clear transfer lines prior to de-coupling. Wear a respirator conforming to EN140 with Type A filter or better.
No specific measures identified.
Automate activity where possible., Stay upwind/ keep distance from source.
Wear a respirator conforming to EN 140 with Type A filter or better.
No specific measures identified.

Retain drain downs in sealed storage pending disposal or for subsequent recycle.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC8b	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		6.86 mg/kg/day	0.01
PROCIO	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		27.43 mg/kg/day	0.03
PROC11	ECETOC TRA	Inhalation		50 ppm	0.25

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		Skin contact		107.14 mg/kg/day	0.12
PROC11	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		107.14 mg/kg/day	0.12
PROC13	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Sectors of end-use	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC28: Perfumes, fragrances PC39: Cosmetics, personal care products
Environmental Release Categories	ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Viscosity, dynamic 2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling consumer exposure for: PC28, PC39: Perfumes, fragrances, Cosmetics, personal care products

Product characteristics

Physical Form (at time of use) : Liquid substance
Vapour pressure : 60.2 hPa

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : Operational conditions are described by specific EU-document and assessed outside REACH in accordance with Article 2(6) REACH.

3. Exposure estimation and reference to its source

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Environment

not applicable

Health

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. No exposure assessment presented for the environment.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	PROCIO: Roller application or brushing PROC15: Use as laboratory reagent
Environmental Release Categories	ERC2, ERC4: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure:

ERC2, ERC4: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice	: No exposure assessment presented for the environment.
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2.2 Contributing scenario controlling worker exposure:

PROC1Q, PROC15: Roller application or brushing, Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Risk Management Measures

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- Laboratory activities, PROC15 : Avoid carrying out operation for more than 4 hours., Automate activity where possible., Clear spills immediately.
Restrict area of openings to equipment., Handle substance within a closed system., Remotely vent displaced vapours., Use dedicated equipment.
- Cleaning, PROCIO : Automate activity where possible.
Drain or remove substance from equipment prior to break-in or maintenance., Retain drain downs in sealed storage pending disposal or for subsequent recycle.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		6 ppm	0.60
		Skin contact		0.34 mg/kg/day	0.00
PROCIO	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.03
PROCIO	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		27.43 mg/kg/day	0.00
PROCIO	ECETOC TRA	Inhalation		8.5 ppm	0.85
		Skin contact		27.43 mg/kg/day	0.01
PROCIO	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.00
PROCIO	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.03

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PROCIO	ECETOC TRA	Inhalation	25 ppm	0.12
		Skin contact	27.43 mg/kg/day	0.01

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROCIO: Roller application or brushing PROC15: Use as laboratory reagent
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a: Wide dispersive indoor use of processing aids in open systems

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1Q, PROC15: Roller application or brushing, Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Laboratory activities, PROC15

Risk Management Measures

Avoid carrying out operation for more than 4 hours., Clear spills immediately.. Allow time for product to drain from

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Cleaning, PROCIO : workpiece., Automate activity where possible.
Handle substance within a closed system., Clear transfer lines
prior to de-coupling., Remotely vent displaced vapours., Use
dedicated equipment., Restrict area of openings to equipment.
Retain drain downs in sealed storage pending disposal or for
subsequent recycle.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.34 mg/kg/day	0.00
PROC15	ECETOC TRA	Inhalation		6 ppm	0.60
		Skin contact		0.34 mg/kg/day	0.00
PROCIO	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.03
PROCIO	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		27.43 mg/kg/day	0.00
PROCIO	ECETOC TRA	Inhalation		8.5 ppm	0.85
		Skin contact		27.43 mg/kg/day	0.01
PROCIO	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.00
PROCIO	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.03
PROCIO	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.01

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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC3: Use in closed batch process (synthesis or formulation) PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
Environmental Release Categories	ERC8d: Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8d: Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC3, PROC5, PROC8a, PROC8b: Use in closed process, no likelihood of exposure, Use in closed batch process (synthesis or formulation), Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics

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Concentration of the Substance in Mixture/Article
Physical Form (at time of use)
Vapour pressure

Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Liquid substance
60.2 hPa

Amount used

Remarks

Not applicable.

Frequency and duration of use

Remarks

Covers daily exposures up to 8 hours (unless stated differently).

Contributing Scenario

Bulk transfers, PROC3

Drum/batch transfers, PROC8a

Mixing operations, (closed systems), PROC3

Material transfers, PROC8a

Transfer from/pouring from containers, Non-dedicated facility, PROC8a

Operation of equipment containing engine oils and, PROC8b

Equipment maintenance, PROC8a

Storage, PROC1, PROC2

Risk Management Measures

Ensure material transfers are under containment or extract ventilation., Clear transfer lines prior to de-coupling., Remotely vent displaced vapours.

No specific measures identified.

No specific measures identified.

No specific measures identified.

Avoid spillage when withdrawing pump.

No specific measures identified.

No specific measures identified.

Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		13.71 mg/kg/day	0.02
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC5	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC8a	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		13.71 mg/kg/day	0.02
PROC8b	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		6.86 mg/kg/day	0.01

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PROC8a	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		13.71 mg/kg/day	0.02
PROC1 PROC2	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	: PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC15: Use as laboratory reagent PROC21: Low energy manipulation of substances bound in materials and/ or articles
Environmental Release Categories	: ERC1, ERC4, ERC6d: Manufacture of substances, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

2.1 Contributing scenario controlling environmental exposure:

ERC1, ERC4, ERC6d: Manufacture of substances, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC13, PROC14, PROC15, PROC21: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Calendering operations, Industrial spraying, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Treatment of articles by dipping and pouring, Production of preparations or articles by tableting, compression, extrusion, pelletisation, Use as laboratory reagent, Low energy manipulation of substances bound in materials and/ or articles

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid, vapour pressure 0.5-10 kPa
Vapour pressure	5-100 hPa
Process Temperature	20 °C

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature., Assumes a good basic standard of occupational hygiene is implemented.
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Contributing Scenario

Material transfers, (closed systems), PROC1, PROC2
Material transfers, PROC8b
Bulk weighing, PROC1, PROC2
Small scale weighing, PROC9
Additive premixing, PROC3, PROC4

Risk Management Measures

No specific measures identified.

Handle substance within a closed system.
No specific measures identified.
No specific measures identified.
No specific measures identified.

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Additive premixing, PROC5	No specific measures identified.
Material transfers, PROC8b, PROC9	No specific measures identified.
Calendering (including Banburys), PROC6	Minimise exposure by extracted full enclosure for the operation or equipment.
Calendering (including Banburys), PROC6	No specific measures identified.
Pressing uncured rubber blanks, PROC14	No specific measures identified.
Tyre build up, PROC7	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
Vulcanisation, PROC6	Minimise exposure by extracted full enclosure for the operation or equipment.
Vulcanisation, PROC6	No specific measures identified.
Vulcanisation, PROC6	Provide extract ventilation to material transfer points and other openings.
Cooling cured articles, PROC6	Minimise exposure by extracted full enclosure for the operation or equipment.
Production of articles by dipping and pouring, PROC13	No specific measures identified.
Finishing operations, PROC21	No specific measures identified.
Equipment maintenance, PROC8a	No specific measures identified.
Storage, PROC1, PROC2	Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		6.86 mg/kg/day	0.01
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC3 PROC4	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC5	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC8b PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC6	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.03
PROC6	ECETOC TRA	Inhalation		25 ppm	0.12

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		Skin contact		27.43 mg/kg/day	0.03
PROC14	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		3.43 mg/kg/day	0.00
PROC7	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		42.86 mg/kg/day	0.05
PROC6	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.00
PROC6	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.00
PROC6	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.03
PROC6	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.03
PROC6	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.03
PROC13	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC21	ECETOC TRA	Inhalation		0 ppm	0.00
		Skin contact		2.83 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		0.14 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Main User Groups	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	: SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	: PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC21: Low energy manipulation of substances bound in materials and/ or articles
Environmental Release Categories	: ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

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Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC13, PROC14, PROC21: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Calendering operations, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Treatment of articles by dipping and pouring, Production of preparations or articles by tableting, compression, extrusion, pelletisation, Low energy manipulation of substances bound in materials and/ or articles

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Bulk transfers, (closed systems), PROC1, PROC2
Bulk transfers, PROC8b
Bulk weighing, PROC1, PROC2
Small scale weighing, PROC9
Additive premixing, PROC3, PROC4, PROC5
Bulk transfers, PROC8b, PROC9
Calendering (including Banburys), PROC6
Production of articles by dipping and pouring, PROC13
Extrusion and masterbatching, PROC14
Injection moulding of articles, PROC14
Finishing operations, PROC21
Equipment maintenance, PROC8a

Risk Management Measures

No specific measures identified.
Handle substance within a closed system.
Handle substance within a closed system.
Use dry break couplings for material transfer.
No specific measures identified.
No specific measures identified.
No specific measures identified.
No specific measures identified.
No specific measures identified.
Clear up spills immediately and dispose of waste safely.

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Storage, PROC1, PROC2

Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC3 PROC4	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		6.86 mg/kg/day	0.01
PROC5	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC8b PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC6	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		27.43 mg/kg/day	0.03
PROC6	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		27.43 mg/kg/day	0.03
PROC13	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC14	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		3.43 mg/kg/day	0.00
PROC14	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		3.43 mg/kg/day	0.00
PROC21	ECETOC TRA	Inhalation		0 ppm	0.00
		Skin contact		2.83 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC1 PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation PROC21: Low energy manipulation of substances bound in materials and/ or articles
Environmental Release Categories	ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure:

ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC6, PROC8a, PROC8b, PROC14, PROC21: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Calendering operations, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at

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dedicated facilities, Production of preparations or articles by tableting, compression, extrusion, pelletisation, Low energy manipulation of substances bound in materials and/or articles

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Bulk transfers, (closed systems), PROC1, PROC2
Material transfers, PROC8b
Injection moulding of articles, PROC6
Injection moulding of articles, PROC14
Rework of articles, PROC21
Equipment maintenance, PROC8a
Storage, PROC1, PROC2

Risk Management Measures

Handle substance within a closed system.
Use bulk or semi-bulk handling systems.
No specific measures identified.
No specific measures identified.
No specific measures identified.
No specific measures identified.
Store substance within a closed system., No other specific measures identified.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC1 PROC2	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		1.37 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC6	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		27.43 mg/kg/day	0.03
PROC14	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		3.43 mg/kg/day	0.00
PROC21	ECETOC TRA	Inhalation		0 ppm	0.00
		Skin contact		2.83 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.00

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PROC1 PROC2	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		1.37 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/to vessels/ large containers at dedicated facilities</p> <p>PROC13: Treatment of articles by dipping and pouring</p>
Environmental Release Categories	: ERC3: Formulation in materials

2.1 Contributing scenario controlling environmental exposure:
ERC3: Formulation in materials

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice	: No exposure assessment presented for the environment.
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2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC13: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Treatment of articles by dipping and pouring

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Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Automated metal rolling/forming, PROC2
Drum/batch transfers, PROC8b

General exposures (closed systems), PROC3

General exposures (open systems), PROC4

Pouring from small containers, PROC13

Equipment maintenance, PROC8a

Storage, PROC1

Risk Management Measures

: Transfer via enclosed lines., Clear transfer lines prior to de-coupling.

: Avoid spillage when withdrawing pump.

: No specific measures identified.

: Restrict area of openings to equipment.

: Carefully pour from containers.

: Retain drain downs in sealed storage pending disposal or for subsequent recycle.

: Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		6.86 mg/kg/day	0.01
PROC13	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.02
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.00
		Skin contact		0.34 mg/kg/day	0.00

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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC3: Use in closed batch process (synthesis or formulation) PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure:

ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	: 2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice	: No exposure assessment presented for the environment.
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2.2 Contributing scenario controlling worker exposure:

PROC1, PROC3, PROC8a, PROC8b, PROC13: Use in closed process, no likelihood of exposure, Use in closed batch process (synthesis or formulation), Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Treatment of articles by dipping and pouring

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: Liquid substance

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Vapour pressure 60.2 hPa

Amount used

Remarks Not applicable.

Frequency and duration of use

Remarks Covers daily exposures up to 8 hours (unless stated differently).

Contributing Scenario

Drum/batch transfers, PROC8b

General exposures (closed systems), PROC3

General exposures (open systems), PROC4

Pouring from small containers, PROC13

Equipment maintenance, PROC8a

Storage, PROC1

Risk Management Measures

: Avoid spillage when withdrawing pump.

: No specific measures identified.

: Restrict area of openings to equipment.

: Avoid spillage when withdrawing pump. Carefully pour from containers.

: Retain drain downs in sealed storage pending disposal or for subsequent recycle.

: Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC4	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		0.69 mg/kg/day	0.00
PROC13	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		0.69 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		100 ppm	0.49
		Skin contact		13.71 mg/kg/day	0.02
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.00
		Skin contact		0.34 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

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Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Main User Groups	: SU 21: Consumer uses: Private households (= general public = consumers)
Sectors of end-use	: SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC36: Water softeners PC37: Water treatment chemicals
Environmental Release Categories	: ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

2.1 Contributing scenario controlling environmental exposure:

ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix

Product characteristics

Viscosity, dynamic	2.5 mPas at 20 °C
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Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice	: No exposure assessment presented for the environment.
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2.2 Contributing scenario controlling consumer exposure for: PC36, PC37: Water softeners, Water treatment chemicals

Product characteristics

Concentration of the Substance in Mixture/Article	Unless otherwise stated, covers concentrations up to 20 %
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	For each use event, covers use amounts up to 10 g
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Frequency and duration of use

Remarks	Unless otherwise stated, covers use frequency up to 1 times per day
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Human factors not influenced by risk management

Dermal exposure	: Covers skin contact area up to 6,600.00 cm ²
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Other given operational conditions affecting consumers exposure

Remarks	: Unless otherwise stated assumes use at ambient temperatures, Covers use in room size of 20 m ³ , Assumes use with typical ventilation
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Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Application Route	:	Water softeners
Consumer Measures	:	Unless otherwise stated, covers concentrations up to 20 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 6,600.00 cm ² , For each use event, assumes swallowed amount of 0.000015 g, For each use event, covers use amounts up to 10 g, Covers use in room size of 20 m ³ , No specific risk management measure identified beyond those operational conditions stated.
Application Route	:	Water treatment chemicals
Consumer Measures	:	Unless otherwise stated, covers concentrations up to 20 %, Covers use up to 365 days/year, Unless otherwise stated, covers use frequency up to 1 times per day, Covers skin contact area up to 6,600.00 cm ² , For each use event, assumes swallowed amount of 0.000154 g, For each use event, covers use amounts up to 10 g, Covers use in room size of 20 m ³ , No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
PC36	ECETOC TRA	Skin contact, Chronic effects		1320 mg/kg/day	0.00
		Ingestion, Chronic effects		100 mg/kg/day	0.00
		Inhalation, Chronic effects		100 mg/m ³	0.08
PC37	ECETOC TRA	Skin contact, Chronic effects		13200 mg/kg/day	0.00
		Ingestion, Chronic effects		1080 mg/kg/day	0.00
		Inhalation, Chronic effects		100 mg/m ³	0.08

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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. No exposure assessment presented for the environment.

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Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)</p> <p>PROC8a: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p>
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure:

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	2.5 mPas at 20 °C

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : No exposure assessment presented for the environment.

2.2 Contributing scenario controlling worker exposure:

PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9: Use in closed process, no likelihood of exposure, Use in closed, continuous process with occasional

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controlled exposure, Use in closed batch process (synthesis or formulation), Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	Liquid substance
Vapour pressure	60.2 hPa

Amount used

Remarks	Not applicable.
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Frequency and duration of use

Remarks	Covers daily exposures up to 8 hours (unless stated differently).
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Contributing Scenario

Bulk transfers, PROC2

Drum/batch transfers, PROC8b

Pouring from small containers, PROC9

General exposures (closed systems), PROC3

General exposures (open systems), PROC5

phase separation, (closed systems), PROC4

ion exchange processes, (closed systems), PROC2

Process sampling, PROC3

Mixing operations, (closed systems), PROC1

Equipment cleaning and maintenance, PROC8a

Storage, PROC1

Risk Management Measures

Transfer via enclosed lines., Clear transfer lines prior to de-coupling.

Avoid spillage when withdrawing pump.

No specific measures identified.

No specific measures identified.

No specific measures identified.

No specific measures identified.

No specific measures identified.

No specific measures identified.

Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Store substance within a closed system.

3. Exposure estimation and reference to its source

Health

Contributing Scenario	Exposure Assessment	Specific conditions	Value	Level of Exposure	RCR
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ANNEX TO SAFETY DATA SHEET: ISOPROPYL ALCOHOL

	Method				
PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC8b	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC9	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		6.86 mg/kg/day	0.01
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC5	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC4	ECETOC TRA	Inhalation		20 ppm	0.10
		Skin contact		6.86 mg/kg/day	0.01
PROC2	ECETOC TRA	Inhalation		10 ppm	0.05
		Skin contact		1.37 mg/kg/day	0.00
PROC3	ECETOC TRA	Inhalation		25 ppm	0.12
		Skin contact		0.34 mg/kg/day	0.00
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.00
		Skin contact		0.34 mg/kg/day	0.00
PROC8a	ECETOC TRA	Inhalation		50 ppm	0.25
		Skin contact		13.71 mg/kg/day	0.02
PROC1	ECETOC TRA	Inhalation		0.01 ppm	0.00
		Skin contact		0.34 mg/kg/day	0.00

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Environment

No exposure assessment presented for the environment.

Health

Information on scaling calculations can be requested at "reach@de.sasol.com". The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.