deffner & Johann

Supplies for RESTORATION | CONSERVATION | ART HANDLING – SINCE 1880

SAFETY DATA SHEET

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SAFETY DATA SHEET

DOW EUROPE GMBH

Safety Data Sheet according to Reg. (EU) 2020/878

Product name: DOWANOL™ PM Glycol Ether

Revision Date: 04.11.2022
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DOW EUROPE GMBH encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
Product name: DOWANOL™ PM Glycol Ether

Chemical name of the substance: 1-methoxy-2-propanol
CASRN: 107-98-2
EC-No.: 203-539-1
REACH Registration Number: 01-2119457435-35-0000

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Manufacture: Manufacture of substance. Use at industrial sites: Use as an intermediate. Formulation or re-packing: Formulation & (re)packing of substances and mixtures. Use at industrial sites: Use in coatings, Solvent. Use at industrial sites: Use in coatings. Widespread use by professional workers: Use in coatings, Solvent. Widespread use by professional workers: Use in coatings. Consumer use: Use in coatings. Use at industrial sites: Use in cleaning agents. Widespread use by professional workers: Use in cleaning agents. Consumer use: Use in cleaning agents. Widespread use by professional workers: Use in agrochemicals. Consumer use: Use in coatings. Consumer use: Use in de-icing and anti-icing fluids. Consumer use: Uses in cosmetics/personal care products, perfumes and fragrances. Consumer use: Use in agrochemicals.
For details on use descriptors and exposure scenarios, please refer to the extended part of the Safety Data Sheet.

Customer Information Number: 09723-9350-0 (08:00-16:00)
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SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008:
Flammable liquids - Category 3 - H226
Specific target organ toxicity - single exposure - Category 3 - H336
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008:

Hazard pictograms

Signal word: WARNING

Hazard statements

H226	Flammable liquid and vapour.
H336	May cause drowsiness or dizziness.

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing mist or vapours.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P370 + P378	In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.

2.3 Other hazards

This product contains no substances assessed to be PBT or vPvB at levels of 0.1% or higher.

Endocrine disrupting properties

Environment:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Human Health:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

This product is a substance.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 107-98-2 **EC-No.** 203-539-1 **Index-No.** 603-064-00-3	01-2119457435-35	>= 99,5 %	1-methoxy-2-propanol	Flam. Liq. 3; H226 STOT SE 3; H336 (Central nervous system) Acute toxicity estimate Acute oral toxicity: 3 739 mg/kg 4 277 mg/kg Acute inhalation toxicity: 30,02 mg/l, 4 Hour, vapour Acute dermal toxicity: > 2 000 mg/kg
CASRN 1589-47-5 **EC-No.** 216-455-5 **Index-No.** 603-106-00-0	–	< 0,3 %	2-methoxypropanol	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Eye Dam. 1; H318 Repr. 1B; H360D STOT SE 3; H335 (Respiratory system) Acute toxicity estimate Acute oral toxicity: > 5 000 mg/kg Acute dermal toxicity: > 5 000 mg/kg

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice:
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Wash off with plenty of water.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

4.2 Most important symptoms and effects, both acute and delayed:
May cause drowsiness or dizziness.

4.3 Indication of any immediate medical attention and special treatment needed
Notes to physician: Maintain adequate ventilation and oxygenation of the patient. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Water fog or fine spray.. Dry chemical fire extinguishers.. Carbon dioxide fire extinguishers.. Foam.. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective..

Unsuitable extinguishing media: Do not use direct water stream.. Straight or direct water streams may not be effective to extinguish fire..

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.. Combustion products may include and are not limited to:. Carbon monoxide.. Carbon dioxide..

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation.. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.. When product is stored in closed containers, a flammable atmosphere can develop.. Electrically ground and bond all equipment.. Flammable mixtures of this product are readily ignited even by static discharge.. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.. Flammable mixtures may exist within the vapor space of containers at room temperature..

Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9..

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry.. Stay upwind. Keep out of low areas where gases (fumes) can accumulate.. Water may not be effective in extinguishing fire.. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles.. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container.. Burning liquids may be extinguished by dilution with water.. Do not use direct water stream. May spread fire.. Eliminate ignition sources.. Move container from fire area if this is possible without hazard.. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage..

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).. If protective equipment is not available or not used, fight fire from a protected location or safe distance..

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Isolate area. Refer to section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3 Methods and materials for containment and cleaning up: Small spills: Absorb with materials such as: Sand. Vermiculite. Collect in suitable and properly labeled containers. Large spills: Contain spilled material if possible. Ground and bond all containers and handling equipment. Pump with explosion-proof equipment. If available, use foam to smother or suppress. See Section 13, Disposal Considerations, for additional information.

6.4 Reference to other sections: References to other sections, if applicable, have been provided in the previous sub-sections.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid breathing vapor. Use with adequate ventilation. Keep container closed. Never

use air pressure for transferring product. No smoking, open flames or sources of ignition in handling and storage area. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Electrically bond and ground all containers and equipment before transfer or use of material. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Keep away from heat, sparks and flame. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. This product is a poor conductor of electricity and can become electrostatically charged, even in bonded or grounded equipment. If sufficient charge is accumulated, ignition of flammable mixtures can occur. Handling operations that can promote accumulation of static charges include but are not limited to mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations.
Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

7.2 Conditions for safe storage, including any incompatibilities: Flammable mixtures may exist within the vapor space of containers at room temperature. Keep container closed. Minimize sources of ignition, such as static build-up, heat, spark or flame. Store in the following material(s): Carbon steel. Stainless steel. Phenolic lined steel drums. Do not store in: Aluminum. Copper. Galvanized iron. Galvanized steel.

Storage stability

Shelf life: Use within
24 Month
Bulk
6 Month

7.3 Specific end use(s): See the technical data sheet on this product for further information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
1-methoxy-2-propanol	ACGIH	TWA	50 ppm
	Further information: A4: Not classifiable as a human carcinogen		
	ACGIH	STEL	100 ppm
	Further information: A4: Not classifiable as a human carcinogen		
	2000/39/EC	TWA	375 mg/m3 100 ppm
	Further information: skin: Identifies the possibility of significant uptake through the skin; Indicative		
	2000/39/EC	STEL	568 mg/m3 150 ppm
	Further information: skin: Identifies the possibility of significant uptake through the skin; Indicative		
	AT OEL	MAK-KZW	187 mg/m3 50 ppm
	Further information: H: Risk of skin absorption		
	AT OEL	MAK-TMW	187 mg/m3 50 ppm
	Further information: H: Risk of skin absorption		
2-methoxypropanol	Dow IHG	TWA	1,5 ppm
	Dow IHG	STEL	4,5 ppm

	AT OEL	MAK-TMW	75 mg/m3 20 ppm
	Further information: H: Risk of skin absorption		
	AT OEL	MAK-KZW	300 mg/m3 80 ppm
	Further information: H: Risk of skin absorption		

Recommended monitoring procedures
Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with the Occupational Exposure Limits and the adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples should be analysed by an accredited laboratory.
Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy); European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents); European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents). Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.
National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods.
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods.
Health and Safety Executive (HSE), United Kingdom: Methods for the Determination of Hazardous Substances.
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany.
L'Institut National de Recherche et de Securité, (INRS), France.

Derived No Effect Level
1-methoxy-2-propanol
Workers

Acute systemic effects		***Acute local effects***		***Long-term systemic effects***		***Long-term local effects***	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	553,5 mg/m3	n.a.	553,5 mg/m3	183 mg/kg bw/day	369 mg/m3	n.a.	n.a.

Consumers

Acute systemic effects			***Acute local effects***		***Long-term systemic effects***			***Long-term local effects***	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	78 mg/kg bw/day	43,9 mg/m3	33 mg/kg bw/day	n.a.	n.a.

Predicted No Effect Concentration
1-methoxy-2-propanol

Compartment	**PNEC**
Fresh water	10 mg/l
Marine water	1 mg/l
Intermittent use/release	100 mg/l
Sewage treatment plant	100 mg/l

Fresh water sediment	52,3 mg/kg dry weight (d.w.)
Marine sediment	5,2 mg/kg dry weight (d.w.)
Soil	4,59 mg/kg dry weight (d.w.)

8.2 Exposure controls
Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields). Safety glasses (with side shields) should be consistent with EN 166 or equivalent. If exposure causes eye discomfort, use a full-face respirator (meeting standard EN 136) with organic vapor cartridge (meeting standard EN 14387).

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Wear clean, body-covering clothing.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.
Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 ºC, meeting standard EN 14387).

Environmental exposure controls
See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	
Physical state	Liquid.
Color	Colorless
Odor	Ether
Odor Threshold	No test data available
pH	Not applicable
Melting point/freezing point	
Melting point/range	Not applicable to liquids
Freezing point	-96 °C *Literature*
Boiling point or initial boiling point and boiling range	
Boiling point (760 mmHg)	120,15 °C at 1 013 hPa *OECD Test Guideline 103*
Flash point	**closed cup** 31 °C *Setaflash Closed Cup*
Flammability (solid, gas)	Not applicable to liquids
Flammability (liquids)	Not expected to be a static-accumulating flammable liquid.
Lower explosion limit	1,48 % vol *Literature*
Upper explosion limit	13,7 % vol *Literature*
Vapor Pressure	1,56 kPa at 25 °C *Literature*
Relative Vapor Density (air = 1)	3,12 at 25 °C *Literature*
Relative Density (water = 1)	0,919 at 25 °C / 25 °C *Literature*
Density	0,916 g/cm3 at 25 °C *Literature*
Solubility(ies)	
Water solubility	completely miscible
Partition coefficient: n-octanol/water	log Pow: 0,37 *Measured*
Auto-ignition temperature	287 °C *Literature*
Decomposition temperature	No test data available
Kinematic Viscosity	1,86 mm2/s at 25 °C *Literature*
Particle characteristics	
Particle size	Not applicable, liquid

9.2 Other information

Molecular weight	90,1 g/mol *Literature*
Dynamic Viscosity	1,7 mPa.s at 25 °C *Literature*
Explosive properties	No
Oxidizing properties	No
Evaporation Rate (Butyl Acetate = 1)	No test data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No data available

10.2 Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

10.3 Possibility of hazardous reactions: Polymerization will not occur.

10.4 Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid static discharge.

10.5 Incompatible materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

10.6 Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials.. Decomposition products can include and are not limited to:. Carbon monoxide.. Carbon dioxide..

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure
Ingestion, Inhalation, Skin contact, Eye contact.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

Acute Toxicity Endpoints:

Acute oral toxicity

Information for the Product:

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Based on product testing:
LD50, Rat, male, 3 739 mg/kg OECD 401 or equivalent
Based on product testing:
LD50, Rat, female, 4 277 mg/kg OECD 401 or equivalent

Information for components:

1-methoxy-2-propanol
LD50, Rat, male, 3 739 mg/kg OECD 401 or equivalent

LD50, Rat, female, 4 277 mg/kg OECD 401 or equivalent

2-methoxypropanol
Single dose oral LD50 has not been determined.

For similar material(s): LD50, Rat, > 5 000 mg/kg

Acute dermal toxicity

Information for the Product:

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Based on product testing:
LD50, Rabbit, male and female, > 2 000 mg/kg OECD 402 or equivalent No deaths occurred at this concentration.

Information for components:

1-methoxy-2-propanol
LD50, Rabbit, male and female, > 2 000 mg/kg OECD 402 or equivalent No deaths occurred at this concentration.

2-methoxypropanol
The dermal LD50 has not been determined.

For similar material(s): LD50, Rabbit, > 5 000 mg/kg

Acute inhalation toxicity

Information for the Product:

Brief exposure (minutes) is not likely to cause adverse effects. The odor is objectionable at 100 ppm; higher levels produce eye, nose, and throat irritation and are intolerable at 1000 ppm. Anesthetic effects are seen at or above 1000 ppm.

Based on product testing:
LC50, Rat, male and female, 4 Hour, vapour, 30,02 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.
Information for components:

1-methoxy-2-propanol
LC50, Rat, male and female, 4 Hour, vapour, 30,02 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

2-methoxypropanol
As product: The LC50 has not been determined.

Skin corrosion/irritation

Information for the Product:

Based on product testing:
Brief contact is essentially nonirritating to skin.

Information for components:

1-methoxy-2-propanol
Brief contact is essentially nonirritating to skin.

2-methoxypropanol
Prolonged contact may cause skin irritation with local redness.
Repeated contact may cause skin irritation with local redness.

Serious eye damage/eye irritation

Information for the Product:

Based on product testing:
May cause slight eye irritation.
May cause slight temporary corneal injury.

Information for components:

1-methoxy-2-propanol
May cause slight eye irritation.
May cause slight temporary corneal injury.

2-methoxypropanol
May cause eye irritation.

Sensitization

Information for the Product:

For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Information for components:

1-methoxy-2-propanol
For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

2-methoxypropanol
For similar material(s):

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause drowsiness or dizziness.

Information for the Product:

Product test data not available.

Information for components:

1-methoxy-2-propanol
May cause drowsiness or dizziness.
Route of Exposure: Inhalation
Target Organs: Central nervous system

2-methoxypropanol
May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

Aspiration Hazard

Information for the Product:

Based on physical properties, not likely to be an aspiration hazard.

Information for components:

1-methoxy-2-propanol
Based on physical properties, not likely to be an aspiration hazard.

2-methoxypropanol
Based on physical properties, not likely to be an aspiration hazard.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Information for the Product:

Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
In animals, effects have been reported on the following organs:
Liver
Kidney effects and/or tumors have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

Information for components:

1-methoxy-2-propanol
Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
In animals, effects have been reported on the following organs:
Liver.
Kidney effects and/or tumors have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

2-methoxypropanol
Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

Carcinogenicity

Information for the Product:

Did not cause cancer in laboratory animals.

Information for components:

1-methoxy-2-propanol
Did not cause cancer in laboratory animals.

2-methoxypropanol
Similar formulations did not cause cancer in laboratory animals.

Teratogenicity

Information for the Product:

Based on product testing: Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Information for components:

1-methoxy-2-propanol
Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

2-methoxypropanol
Has caused birth defects in laboratory animals at doses nontoxic to the mother.

Reproductive toxicity

Information for the Product:

Based on product testing: In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Information for components:

1-methoxy-2-propanol
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

2-methoxypropanol
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Mutagenicity

Information for the Product:

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Information for components:

1-methoxy-2-propanol
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

2-methoxypropanol
In vitro genetic toxicity studies were negative. For similar material(s): Animal genetic toxicity studies were negative.

11.2 Information on other hazards
Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Information for components:

1-methoxy-2-propanol
The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

2-methoxypropanol
The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

12.1 Toxicity
Acute toxicity to fish

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

LC50, Leuciscus idus (Golden orfe), static test, 96 Hour, 6 812 mg/l, DIN 38412

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, >= 1 000 mg/l, OECD Test Guideline 203 or Equivalent

LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, 20 800 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), static test, 48 Hour, 21 100 - 25 900 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), static test, 7 d, Growth rate inhibition, > 1 000 mg/l, OECD Test Guideline 201 or Equivalent

12.2 Persistence and degradability
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 96 %
Exposure time: 28 d
Method: OECD Test Guideline 301E or Equivalent

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 7,8 Hour
Method: Estimated.

12.3 Bioaccumulative potential
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0,37 at 20 °C Measured
Bioconcentration factor (BCF): < 2

12.4 Mobility in soil
Partition coefficient (Koc): 0,2 - 1,0 Estimated.

12.5 Results of PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Endocrine disrupting properties The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

1-methoxy-2-propanol

The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

2-methoxypropanol

The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

12.7 Other adverse effects

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

SECTION 14: TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

14.1	**UN number or ID number**	UN 3092
14.2	**UN proper shipping name**	1-METHOXY-2-PROPANOL
14.3	**Transport hazard class(es)**	3
14.4	**Packing group**	III
14.5	**Environmental hazards**	Not considered environmentally hazardous based on available data.
14.6	**Special precautions for user**	Hazard Identification Number: 30

Classification for INLAND waterways (ADNR/ADN):

14.1	**UN number or ID number**	UN 3092
14.2	**UN proper shipping name**	1-METHOXY-2-PROPANOL
14.3	**Transport hazard class(es)**	3
14.4	**Packing group**	III
14.5	**Environmental hazards**	Not considered environmentally hazardous based on available data.

14.6 Special precautions for user No data available.

Classification for SEA transport (IMO-IMDG):

14.1	**UN number or ID number**	UN 3092
14.2	**UN proper shipping name**	1-METHOXY-2-PROPANOL
14.3	**Transport hazard class(es)**	3
14.4	**Packing group**	III
14.5	**Environmental hazards**	Not considered as marine pollutant based on available data.
14.6	**Special precautions for user**	EmS: F-E, S-D
14.7	**Maritime transport in bulk according to IMO instruments**	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

14.1	**UN number or ID number**	UN 3092
14.2	**UN proper shipping name**	1-Methoxy-2-propanol
14.3	**Transport hazard class(es)**	3
14.4	**Packing group**	III
14.5	**Environmental hazards**	Not applicable
14.6	**Special precautions for user**	No data available.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

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

REACh Regulation (EC) No 1907/2006
This product has been registered, according to Regulation (EC) No. 1907/2006 (REACH)., The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer´s/user´s responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous Conditions of restriction for the following entries should be considered:

substances, mixtures and articles (Annex XVII) Number on list 3, 40
2-methoxypropanol (Number on list 30)

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Listed in Regulation: FLAMMABLE LIQUIDS
Number in Regulation: P5c
5 000 t
50 000 t

Ordinance on flammable liquids (Austria)
VBF Danger Class: Danger class B II
B II

Observe the Federal Law on Safety and Health Protection at Work (Workers' Protection Act – ASchG), as amended.

Further information
Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

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

SECTION 16: OTHER INFORMATION

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

H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H360D	May damage the unborn child.

Product Literature
Additional information on this product may be obtained by calling your sales or customer service contact. Ask for a product brochure.

Revision
Identification Number: 65207 / A305 / Issue Date: 04.11.2022 / Version: 5.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

2000/39/EC	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
ACGIH	USA. ACGIH Threshold Limit Values (TLV)
AT OEL	Austria. Limit values regulation - Annex I: Substance list
Dow IHG	Dow Industrial Hygiene Guideline

MAK-KZW	Short Term Exposure Limit
MAK-TMW	Time Weighted Average
STEL	Short term exposure limit
TWA	Time weighted average
Eye Dam.	Serious eye damage
Flam. Liq.	Flammable liquids
Repr.	Reproductive toxicity
Skin Irrit.	Skin irritation
STOT SE	Specific target organ toxicity - single exposure

Full text of other abbreviations
ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW EUROPE GMBH urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ

between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.
AT

Annex

Exposure Scenario

Number	Title
ES1	Manufacture; Manufacture of substance
ES2	Use at industrial sites; Use as an intermediate
ES3	Formulation or re-packing; Formulation & (re)packing of substances and mixtures
ES4	Use at industrial sites; Use in coatings, Solvent
ES5	Use at industrial sites; Use in coatings
ES6	Widespread use by professional workers; Use in coatings, Solvent
ES7	Widespread use by professional workers; Use in coatings
ES8	Consumer use; Use in coatings
ES9	Use at industrial sites; Use in cleaning agents
ES10	Widespread use by professional workers; Use in cleaning agents
ES11	Consumer use; Use in cleaning agents
ES12	Widespread use by professional workers; Use in agrochemicals
ES13	Consumer use; Use in coatings
ES14	Consumer use; Use in de-icing and anti-icing fluids
ES15	Consumer use; Uses in cosmetics/personal care products, perfumes and fragrances
ES16	Consumer use; Use in agrochemicals

ES1: Manufacture of substance

1.1. Title section

Structured Short Title	:	Manufacture
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Manufacture of the substance**	ERC1
Worker		
CS2	**General exposures, Continuous process, (closed systems)**	PROC1
CS3	**General exposures, Continuous process, With sample collection, (closed systems)**	PROC2
CS4	**Use in contained batch processes**	PROC3
CS5	**General exposures (open systems)**	PROC4
CS6	**Process sampling, (closed systems)**	PROC2
CS7	**Equipment cleaning and maintenance**	PROC8a
CS8	**Bulk transfers, Dedicated facility**	PROC8b
CS9	**Bulk product storage, (closed systems)**	PROC1
CS10	**Laboratory activities**	PROC15

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Manufacture of the substance (ERC1)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	400000 kg/day
Maximum allowable site tonnage (MSafe)	:	526 383
Release type	:	Continuous release
Emission days	:	300
Conditions and measures related to sewage treatment plant		
Municipal Sewage Treatment Plant		

Waste - minimum efficiency of 87,3 %		
Onsite and Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
A leak prevention plan is needed to prevent low level continual releases. Bund storage facilities to prevent soil and water pollution in the event of spillage. Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.		
Prevent discharge of undissolved substance to waste water or recover from wastewater.		

1.2.2. Control of worker exposure: General exposures, Continuous process, (closed systems) (PROC1)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

1.2.3. Control of worker exposure: General exposures, Continuous process, With sample collection, (closed systems) (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

1.2.4. Control of worker exposure: Use in contained batch processes (PROC3)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

1.2.5. Control of worker exposure: General exposures (open systems) (PROC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

1.2.6. Control of worker exposure: Process sampling, (closed systems) (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

1.2.7. Control of worker exposure: Equipment cleaning and maintenance (PROC8a)

Product (article) characteristics
Covers concentrations up to 100 %

Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

1.2.8. Control of worker exposure: Bulk transfers, Dedicated facility (PROC8b)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Clear transfer lines prior to de-coupling.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

1.2.9. Control of worker exposure: Bulk product storage, (closed systems) (PROC1)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		

Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

1.2.10. Control of worker exposure: Laboratory activities (PROC15)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Manufacture of the substance (ERC1)

Protection Target	Exposure estimate	RCR
Fresh water	7,59 mg/L (EUSES)	0,759
Fresh water sediment	> 9 mg/kg dry weight (d.w.)	0,759
Marine water	0,760 mg/L	0,760
Marine sediment	3,97 mg/kg dry weight (d.w.)	0,760

Soil	2,55 mg/kg dry weight (d.w.)	0,555

1.3.2. Worker exposure: General exposures, Continuous process, (closed systems) (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0,04 mg/m³ (ECETOC TRA worker v2.0)	< 0,001
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,002

1.3.3. Worker exposure: General exposures, Continuous process, With sample collection, (closed systems) (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,11

1.3.4. Worker exposure: Use in contained batch processes (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	93,85 mg/m³ (ECETOC TRA worker v2.0)	0,25
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,26

1.3.5. Worker exposure: General exposures (open systems) (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,24

1.3.6. Worker exposure: Process sampling, (closed systems) (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	3,75 mg/m³ (ECETOC TRA worker v2.0)	0,01
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,01

1.3.7. Worker exposure: Equipment cleaning and maintenance (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,58

1.3.8. Worker exposure: Bulk transfers, Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

1.3.9. Worker exposure: Bulk product storage, (closed systems) (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,11

1.3.10. Worker exposure: Laboratory activities (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³	0,10

			(ECETOC TRA worker v2.0)	
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,10

1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES2: Use as an intermediate

2.1. Title section

Structured Short Title	:	Use at industrial sites
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Use of intermediate**	ERC6a
Worker		
CS2	**General exposures, Continuous process, (closed systems)**	PROC1
CS3	**General exposures, Continuous process, With sample collection, (closed systems)**	PROC2
CS4	**Process sampling, (closed systems)**	PROC2
CS5	**Bulk product storage, (closed systems)**	PROC1
CS6	**Use in contained batch processes**	PROC3
CS7	**General exposures (open systems)**	PROC4
CS8	**Equipment cleaning and maintenance**	PROC8a
CS9	**Bulk transfers, Dedicated facility**	PROC8b
CS10	**Laboratory activities**	PROC15

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Use of intermediate (ERC6a)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	38133 kg/day
Maximum allowable site tonnage (MSafe)	:	2 538 tonnes/day
Release type	:	Continuous release
Emission days	:	300
Conditions and measures related to sewage treatment plant		
Municipal Sewage Treatment Plant		

Waste - minimum efficiency of 87,3 %		
Onsite and Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Used in wet processes		
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
A leak prevention plan is needed to prevent low level continual releases. Bund storage facilities to prevent soil and water pollution in the event of spillage. Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.		
Prevent discharge of undissolved substance to waste water or recover from wastewater.		

2.2.2. Control of worker exposure: General exposures, Continuous process, (closed systems) (PROC1)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

2.2.3. Control of worker exposure: General exposures, Continuous process, With sample collection, (closed systems) (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

2.2.4. Control of worker exposure: Process sampling, (closed systems) (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

2.2.5. Control of worker exposure: Bulk product storage, (closed systems) (PROC1)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

2.2.6. Control of worker exposure: Use in contained batch processes (PROC3)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

2.2.7. Control of worker exposure: General exposures (open systems) (PROC4)

Product (article) characteristics
Covers concentrations up to 100 %

Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

2.2.8. Control of worker exposure: Equipment cleaning and maintenance (PROC8a)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

2.2.9. Control of worker exposure: Bulk transfers, Dedicated facility (PROC8b)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		

Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Clear transfer lines prior to de-coupling.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

2.2.10. Control of worker exposure: Laboratory activities (PROC15)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Use of intermediate (ERC6a)

Protection Target	Exposure estimate	RCR
Fresh water	0,122 mg/L (EUSES)	0,014
Fresh water sediment	0,749 mg/kg dry weight (d.w.)	0,014
Marine water	0,0129 mg/L	0,015
Marine sediment	0,0786 mg/kg dry weight (d.w.)	0,015

Soil	0,0679 mg/kg dry weight (d.w.)	0,015

2.3.2. Worker exposure: General exposures, Continuous process, (closed systems) (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0,04 mg/m³ (ECETOC TRA worker v2.0)	< 0,001
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,002

2.3.3. Worker exposure: General exposures, Continuous process, With sample collection, (closed systems) (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,11

2.3.4. Worker exposure: Process sampling, (closed systems) (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	3,75 mg/m³ (ECETOC TRA worker v2.0)	0,01
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,01

2.3.5. Worker exposure: Bulk product storage, (closed systems) (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,11

2.3.6. Worker exposure: Use in contained batch processes (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	93,85 mg/m³ (ECETOC TRA worker v2.0)	0,25
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,26

2.3.7. Worker exposure: General exposures (open systems) (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,24

2.3.8. Worker exposure: Equipment cleaning and maintenance (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,58

2.3.9. Worker exposure: Bulk transfers, Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

2.3.10. Worker exposure: Laboratory activities (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³	0,10

			(ECETOC TRA worker v2.0)	
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,10

2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES3: Formulation & (re)packing of substances and mixtures

3.1. Title section

Structured Short Title	:	Formulation or re-packing
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Formulation into mixture**	ERC2
Worker		
CS2	**General exposures, Use in contained batch processes, With sample collection**	PROC3
CS3	**(closed systems), no sampling, Continuous process, General exposures**	PROC1
CS4	**General exposures, Continuous process, With sample collection, (closed systems)**	PROC2
CS5	**Bulk product storage, (closed systems)**	PROC1
CS6	**General exposures, Use in contained batch processes, With sample collection**	PROC3
CS7	**Batch processes at elevated temperatures, (closed systems)**	PROC3
CS8	**General exposures (open systems)**	PROC4
CS9	**Mixing operations (open systems)**	PROC5
CS10	**Equipment cleaning and maintenance**	PROC8a
CS11	**Bulk transfers, Dedicated facility**	PROC8b
CS12	**Drum/batch transfers, Dedicated facility**	PROC8b
CS13	**Transfer from/pouring from containers, Manual**	PROC8a
CS14	**Drum and small package filling, Dedicated facility**	PROC9
CS15	**Production or preparation or articles by tabletting, compression, extrusion or pelletisation**	PROC14
CS16	**Laboratory activities**	PROC15

3.2. Conditions of use affecting exposure

3.2.1. Control of environmental exposure: Formulation into mixture (ERC2)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	84066 kg/day
Maximum allowable site tonnage (MSafe)	:	518 692 kg/day
Release type	:	Continuous release
Emission days	:	300
Conditions and measures related to sewage treatment plant		
Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Onsite and Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Prevent discharge of undissolved substance to waste water or recover from wastewater.		
A leak prevention plan is needed to prevent low level continual releases. Bund storage facilities to prevent soil and water pollution in the event of spillage. Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.		

3.2.2. Control of worker exposure: General exposures, Use in contained batch processes, With sample collection (PROC3)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours

Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.3. Control of worker exposure: (closed systems), no sampling, Continuous process, General exposures (PROC1)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.4. Control of worker exposure: General exposures, Continuous process, With sample collection, (closed systems) (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours

Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.5. Control of worker exposure: Bulk product storage, (closed systems) (PROC1)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.6. Control of worker exposure: General exposures, Use in contained batch processes, With sample collection (PROC3)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		

No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.7. Control of worker exposure: Batch processes at elevated temperatures, (closed systems) (PROC3)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide extract ventilation to points where emissions occur. Inhalation - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.8. Control of worker exposure: General exposures (open systems) (PROC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		

Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.9. Control of worker exposure: Mixing operations (open systems) (PROC5)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.10. Control of worker exposure: Equipment cleaning and maintenance (PROC8a)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient

temperature.
Assumes a good basic standard of occupational hygiene is implemented

3.2.11. Control of worker exposure: Bulk transfers, Dedicated facility (PROC8b)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.12. Control of worker exposure: Drum/batch transfers, Dedicated facility (PROC8b)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.13. Control of worker exposure: Transfer from/pouring from containers, Manual (PROC8a)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.14. Control of worker exposure: Drum and small package filling, Dedicated facility (PROC9)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.15. Control of worker exposure: Production or preparation or articles by tabletting, compression, extrusion or pelletisation (PROC14)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.2.16. Control of worker exposure: Laboratory activities (PROC15)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

3.3. Exposure estimation and reference to its source

3.3.1. Environmental release and exposure: Formulation into mixture (ERC2)

Protection Target	Exposure estimate	RCR
Fresh water	1,33 mg/L (EUSES)	0,161
Fresh water sediment	8,44 mg/kg dry weight (d.w.)	0,161
Marine water	0,134 mg/L	0,162
Marine sediment	0,847 mg/kg dry weight (d.w.)	0,162
Soil	0,569 mg/kg dry weight (d.w.)	0,124

3.3.2. Worker exposure: General exposures, Use in contained batch processes, With sample collection (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	93,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v2.0)	0,01
combined routes				0,11

3.3.3. Worker exposure: (closed systems), no sampling, Continuous process, General exposures (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0,04 mg/m³ (ECETOC TRA worker v2.0)	< 0,001
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,002

3.3.4. Worker exposure: General exposures, Continuous process, With sample collection, (closed systems) (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,11

3.3.5. Worker exposure: Bulk product storage, (closed systems) (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,11

3.3.6. Worker exposure: General exposures, Use in contained batch processes, With sample collection (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	93,85 mg/m³ (ECETOC TRA worker v2.0)	0,25
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,26

3.3.7. Worker exposure: Batch processes at elevated temperatures, (closed systems) (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	93,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	0,34 mg/kg bw/day	0,01
combined routes				0,11

3.3.8. Worker exposure: General exposures (open systems) (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,24

3.3.9. Worker exposure: Mixing operations (open systems) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR

inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,07
combined routes				0,58

3.3.10. Worker exposure: Equipment cleaning and maintenance (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,58

3.3.11. Worker exposure: Bulk transfers, Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

3.3.12. Worker exposure: Drum/batch transfers, Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

3.3.13. Worker exposure: Transfer from/pouring from containers, Manual (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51

dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,58

3.3.14. Worker exposure: Drum and small package filling, Dedicated facility (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

3.3.15. Worker exposure: Production or preparation or articles by tabletting, compression, extrusion or pelletisation (PROC14)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	3,43 mg/kg bw/day	0,02
combined routes				0,53

3.3.16. Worker exposure: Laboratory activities (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,10

3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES4: Use in coatings, Solvent

4.1. Title section

Structured Short Title	:	Use at industrial sites
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Use of non-reactive processing aid at industrial site (no inclusion into or onto article)**	ERC4
Worker		
CS2	**General exposures (closed systems)**	PROC1
CS3	**General exposures (closed systems), With sample collection**	PROC2
CS4	**Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing**	PROC2
CS5	**Mixing operations (closed systems), General exposures (closed systems)**	PROC3
CS6	**Film formation - air drying**	PROC4
CS7	**Preparation of material for application, Mixing operations (open systems)**	PROC5
CS8	**Spraying (automatic/robotic)**	PROC7
CS9	**Spraying, Manual**	PROC7
CS10	**Material transfers, Non-dedicated facility**	PROC8a
CS11	**Material transfers, Dedicated facility**	PROC8b
CS12	**Material transfers, Drum/batch transfers, Transfer from/pouring from containers, Dedicated facility**	PROC9
CS13	**Roller, spreader, flow application**	PROC10
CS14	**Dipping, immersion and pouring**	PROC13
CS15	**Production or preparation or articles by tabletting, compression, extrusion or pelletisation**	PROC14
CS16	**Laboratory activities**	PROC15

4.2. Conditions of use affecting exposure

4.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	105087 kg/day
Maximum allowable site tonnage (MSafe)	:	77 517 kg/day
Release type	:	Continuous release
Emission days	:	300
Technical and organisational conditions and measures		
Treat air emission to provide the required removal efficiency of (%): Air - minimum efficiency of 70 %		
Conditions and measures related to sewage treatment plant		
Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Onsite and Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases.		
Prevent discharge of undissolved substance to waste water or recover from wastewater.		

4.2.2. Control of worker exposure: General exposures (closed systems) (PROC1)

Product (article) characteristics

Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.3. Control of worker exposure: General exposures (closed systems), With sample collection (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.4. Control of worker exposure: Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing (PROC2)

Product (article) characteristics
Covers concentrations up to 100 %

Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.5. Control of worker exposure: Mixing operations (closed systems), General exposures (closed systems) (PROC3)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.6. Control of worker exposure: Film formation - air drying (PROC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP

Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.7. Control of worker exposure: Preparation of material for application, Mixing operations (open systems) (PROC5)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.8. Control of worker exposure: Spraying (automatic/robotic) (PROC7)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		

Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (10 to 15 air changes per hour) Inhalation - minimum efficiency of 70 %		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.9. Control of worker exposure: Spraying, Manual (PROC7)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Carry out in a vented booth or extracted enclosure. Inhalation - minimum efficiency of 95 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.10. Control of worker exposure: Material transfers, Non-dedicated facility (PROC8a)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP

Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.11. Control of worker exposure: Material transfers, Dedicated facility (PROC8b)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.12. Control of worker exposure: Material transfers, Drum/batch transfers, Transfer from/pouring from containers, Dedicated facility (PROC9)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		

Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.13. Control of worker exposure: Roller, spreader, flow application (PROC10)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.14. Control of worker exposure: Dipping, immersion and pouring (PROC13)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours

Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.15. Control of worker exposure: Production or preparation or articles by tabletting, compression, extrusion or pelletisation (PROC14)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.2.16. Control of worker exposure: Laboratory activities (PROC15)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		

No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

4.3. Exposure estimation and reference to its source

4.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Protection Target	Exposure estimate	RCR
Fresh water	1,11 mg/L (EUSES)	0,135
Fresh water sediment	7,05 mg/kg dry weight (d.w.)	0,135
Marine water	0,112 mg/L	0,136
Marine sediment	0,709 mg/kg dry weight (d.w.)	0,136
Soil	0,469 mg/kg dry weight (d.w.)	0,102

4.3.2. Worker exposure: General exposures (closed systems) (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0,04 mg/m³ (ECETOC TRA worker v2.0)	< 0,001
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,002

4.3.3. Worker exposure: General exposures (closed systems), With sample collection (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0,04 mg/m³ (ECETOC TRA worker v2.0)	< 0,001
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,002

4.3.4. Worker exposure: Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,52

4.3.5. Worker exposure: Mixing operations (closed systems), General exposures (closed systems) (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	93,85 mg/m³ (ECETOC TRA worker v2.0)	0,25
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,26

4.3.6. Worker exposure: Film formation - air drying (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,24

4.3.7. Worker exposure: Preparation of material for application, Mixing operations (open systems) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,2
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,24

4.3.8. Worker exposure: Spraying (automatic/robotic) (PROC7)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	46,93 mg/m³ (ECETOC TRA worker v2.0)	0,13
dermal	systemic	long-term	2,14 mg/kg bw/day	0,01
combined routes				0,14

4.3.9. Worker exposure: Spraying, Manual (PROC7)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	281,56 mg/m³ (ECETOC TRA worker v2.0)	0,76
dermal	systemic	long-term	8,57 mg/kg bw/day	0,05
combined routes				0,81

4.3.10. Worker exposure: Material transfers, Non-dedicated facility (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,58

4.3.11. Worker exposure: Material transfers, Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

4.3.12. Worker exposure: Material transfers, Drum/batch transfers, Transfer from/pouring from containers, Dedicated facility (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR

inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,58

4.3.13. Worker exposure: Roller, spreader, flow application (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	5,49 mg/kg bw/day (ECETOC TRA worker v2.0)	0,51
inhalative	systemic	long-term	187,71 mg/m³	0,03
combined routes				0,54

4.3.14. Worker exposure: Dipping, immersion and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,58

4.3.15. Worker exposure: Production or preparation or articles by tabletting, compression, extrusion or pelletisation (PROC14)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	3,43 mg/kg bw/day	0,02
combined routes				0,53

4.3.16. Worker exposure: Laboratory activities (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³	0,1

			(ECETOC TRA worker v2.0)	
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,102

4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES5: Use in coatings

5.1. Title section

Structured Short Title	:	Use at industrial sites
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Use of non-reactive processing aid at industrial site (no inclusion into or onto article)**	ERC4
Worker		
CS2	**General exposures (closed systems)**	PROC1
CS3	**General exposures (closed systems), With sample collection**	PROC2
CS4	**Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing**	PROC2
CS5	**Mixing operations (closed systems), General exposures (closed systems)**	PROC3
CS6	**Mixing operations (open systems)**	PROC4
CS7	**Film formation - air drying**	PROC4
CS8	**Spraying (automatic/robotic)**	PROC7
CS9	**Spraying, Manual**	PROC7
CS10	**Material transfers, Non-dedicated facility**	PROC8a
CS11	**Material transfers, Dedicated facility**	PROC8b
CS12	**Material transfers, Dedicated facility**	PROC8b
CS13	**Roller, spreader, flow application**	PROC10
CS14	**Dipping, immersion and pouring**	PROC13
CS15	**Production or preparation or articles by tabletting, compression, extrusion or pelletisation**	PROC14
CS16	**Laboratory activities**	PROC15

5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	430 kg/day
Maximum allowable site tonnage (MSafe)	:	14 285 kg/day
Release type	:	Continuous release
Emission days	:	300
Conditions and measures related to sewage treatment plant		
Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Onsite and Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Prevent discharge of undissolved substance to waste water or recover from wastewater.		
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. Bund storage facilities to prevent soil and water pollution in the event of spillage.		

5.2.2. Control of worker exposure: General exposures (closed systems) (PROC1)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		

No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.3. Control of worker exposure: General exposures (closed systems), With sample collection (PROC2)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.4. Control of worker exposure: Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing (PROC2)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		

Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.5. Control of worker exposure: Mixing operations (closed systems), General exposures (closed systems) (PROC3)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.6. Control of worker exposure: Mixing operations (open systems) (PROC4)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		

Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.7. Control of worker exposure: Film formation - air drying (PROC4)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.8. Control of worker exposure: Spraying (automatic/robotic) (PROC7)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.

Assumes a good basic standard of occupational hygiene is implemented

5.2.9. Control of worker exposure: Spraying, Manual (PROC7)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.10. Control of worker exposure: Material transfers, Non-dedicated facility (PROC8a)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.11. Control of worker exposure: Material transfers, Dedicated facility (PROC8b)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.12. Control of worker exposure: Material transfers, Dedicated facility (PROC8b)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.13. Control of worker exposure: Roller, spreader, flow application (PROC10)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.14. Control of worker exposure: Dipping, immersion and pouring (PROC13)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.15. Control of worker exposure: Production or preparation or articles by tabletting, compression, extrusion or pelletisation (PROC14)

Product (article) characteristics

Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.2.16. Control of worker exposure: Laboratory activities (PROC15)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Protection Target	Exposure estimate	RCR

Fresh water	0,247 mg/L (EUSES)	0,030
Fresh water sediment	1,55 mg/kg dry weight (d.w.)	0,030
Marine water	0,0254 mg/L	0,003
Marine sediment	0,158 mg/kg dry weight (d.w.)	0,003
Soil	0,118 mg/kg dry weight (d.w.)	0,028

5.3.2. Worker exposure: General exposures (closed systems) (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0,01 mg/m³ (ECETOC TRA worker v2.0)	< 0,001
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,002

5.3.3. Worker exposure: General exposures (closed systems), With sample collection (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	7,51 mg/m³ (ECETOC TRA worker v2.0)	0,02
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,03

5.3.4. Worker exposure: Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,11

5.3.5. Worker exposure: Mixing operations (closed systems), General exposures (closed systems) (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	18,77 mg/m³	0,05

			(ECETOC TRA worker v2.0)	
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,05

5.3.6. Worker exposure: Mixing operations (open systems) (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	15,02 mg/m³ (ECETOC TRA worker v2.0)	0,04
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,08

5.3.8. Worker exposure: Spraying (automatic/robotic) (PROC7)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	8,57 mg/kg bw/day	0,05
combined routes				0,56

5.3.9. Worker exposure: Spraying, Manual (PROC7)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	8,57 mg/kg bw/day	0,05
combined routes				0,56

5.3.10. Worker exposure: Material transfers, Non-dedicated facility (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	13,71 mg/kg	0,07

			bw/day	
combined routes				0,18

5.3.11. Worker exposure: Material transfers, Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,14

5.3.13. Worker exposure: Roller, spreader, flow application (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	27,43 mg/kg bw/day (ECETOC TRA worker v2.0)	0,15
inhalative	systemic	long-term	37,54 mg/m³	0,10
combined routes				0,25

5.3.14. Worker exposure: Dipping, immersion and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,18

5.3.15. Worker exposure: Production or preparation or articles by tabletting, compression, extrusion or pelletisation (PROC14)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	3,43 mg/kg bw/day	0,02

combined routes				0,12

5.3.16. Worker exposure: Laboratory activities (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	7,51 mg/m³ (ECETOC TRA worker v2.0)	0,02
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,02

5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES6: Use in coatings, Solvent

6.1. Title section

Structured Short Title	:	Widespread use by professional workers
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)**	ERC8a, ERC8d
Worker		
CS2	**General exposures (closed systems)**	PROC1
CS3	**Filling/ preparation of equipment from drums or containers.**	PROC2
CS4	**Film formation - air drying, Outdoor**	PROC4
CS5	**Film formation - air drying, Indoor**	PROC4
CS6	**Preparation of material for application**	PROC3
CS7	**Preparation of material for application, Outdoor**	PROC5
CS8	**Preparation of material for application, Indoor**	PROC5
CS9	**Material transfers, Drum/batch transfers, Non-dedicated facility**	PROC8a
CS10	**Material transfers, Dedicated facility, Drum/batch transfers**	PROC8b
CS11	**General exposures (closed systems), Use in contained systems**	PROC2
CS12	**Roller, spreader, flow application, Indoor**	PROC10
CS13	**Roller, spreader, flow application, Outdoor**	PROC10
CS14	**Spraying, Manual, Indoor**	PROC11
CS15	**Spraying, Manual, Outdoor**	PROC11
CS16	**Dipping, immersion and pouring, Indoor**	PROC13
CS17	**Dipping, immersion and pouring, Outdoor**	PROC13
CS18	**Laboratory activities**	PROC15
CS19	**Hand application - fingerpaints, pastels, adhesives, Indoor**	PROC19
CS20	**Hand application - fingerpaints, pastels, adhesives, Outdoor**	PROC19

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	10508 kg/day
Maximum allowable site tonnage (MSafe)	:	77 517 kg/day
Release type	:	Continuous release
Emission days	:	300
Conditions and measures related to sewage treatment plant		
Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Onsite and Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Prevent discharge of undissolved substance to waste water or recover from wastewater.		
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases.		

6.2.2. Control of worker exposure: General exposures (closed systems) (PROC1)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP

Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.3. Control of worker exposure: Filling/ preparation of equipment from drums or containers. (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.4. Control of worker exposure: Film formation - air drying, Outdoor (PROC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		

Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.5. Control of worker exposure: Film formation - air drying, Indoor (PROC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.6. Control of worker exposure: Preparation of material for application (PROC3)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		

No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.7. Control of worker exposure: Preparation of material for application, Outdoor (PROC5)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Ensure operation is undertaken outdoors. Inhalation - minimum efficiency of 30 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.8. Control of worker exposure: Preparation of material for application, Indoor (PROC5)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Inhalation - minimum efficiency of 30 %		

Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.9. Control of worker exposure: Material transfers, Drum/batch transfers, Non-dedicated facility (PROC8a)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Inhalation - minimum efficiency of 30 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.10. Control of worker exposure: Material transfers, Dedicated facility, Drum/batch transfers (PROC8b)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		

Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.11. Control of worker exposure: General exposures (closed systems), Use in contained systems (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.12. Control of worker exposure: Roller, spreader, flow application, Indoor (PROC10)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Ensure operation is undertaken outdoors. Inhalation - minimum efficiency of 30 %		

Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.13. Control of worker exposure: Roller, spreader, flow application, Outdoor (PROC10)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Inhalation - minimum efficiency of 30 %		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.14. Control of worker exposure: Spraying, Manual, Indoor (PROC11)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP

Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Carry out in a vented booth or extracted enclosure.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear a full face respirator conforming to EN140 with Type A filter or better.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.15. Control of worker exposure: Spraying, Manual, Outdoor (PROC11)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Ensure operation is undertaken outdoors.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear a respirator conforming to EN140 with Type A filter or better. Wear suitable gloves tested to EN374.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.16. Control of worker exposure: Dipping, immersion and pouring, Indoor (PROC13)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.17. Control of worker exposure: Dipping, immersion and pouring, Outdoor (PROC13)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Ensure operation is undertaken outdoors.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.18. Control of worker exposure: Laboratory activities (PROC15)

Product (article) characteristics
Covers concentrations up to 100 %

Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.19. Control of worker exposure: Hand application - fingerpaints, pastels, adhesives, Indoor (PROC19)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.2.20. Control of worker exposure: Hand application - fingerpaints, pastels, adhesives, Outdoor (PROC19)

Product (article) characteristics

Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Ensure operation is undertaken outdoors.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

6.3. Exposure estimation and reference to its source

6.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Protection Target	Exposure estimate	RCR
Fresh water	1,11 mg/L (EUSES)	0,135
Fresh water sediment	7,05 mg/kg dry weight (d.w.)	0,135
Marine water	0,112 mg/L	0,136
Marine sediment	0,709 mg/kg dry weight (d.w.)	0,136
Soil	0,469 mg/kg dry weight (d.w.)	0,102

6.3.2. Worker exposure: General exposures (closed systems) (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0,04 mg/m³ (ECETOC TRA worker v2.0)	< 0,001
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,002

6.3.3. Worker exposure: Filling/ preparation of equipment from drums or containers. (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,21

6.3.4. Worker exposure: Film formation - air drying, Outdoor (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

6.3.5. Worker exposure: Film formation - air drying, Indoor (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

6.3.6. Worker exposure: Preparation of material for application (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	93,85 mg/m³ (ECETOC TRA worker v2.0)	0,25
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,26

6.3.7. Worker exposure: Preparation of material for application, Outdoor (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR

inhalative	systemic	long-term	262,79 mg/m³ (ECETOC TRA worker v2.0)	0,71
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,79

6.3.8. Worker exposure: Preparation of material for application, Indoor (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	262,79 mg/m³ (ECETOC TRA worker v2.0)	0,71
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,79

6.3.9. Worker exposure: Material transfers, Drum/batch transfers, Non-dedicated facility (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	262,79 mg/m³ (ECETOC TRA worker v2.0)	0,71
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,79

6.3.10. Worker exposure: Material transfers, Dedicated facility, Drum/batch transfers (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

6.3.11. Worker exposure: General exposures (closed systems), Use in contained systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR

inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,21

6.3.12. Worker exposure: Roller, spreader, flow application, Indoor (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	5,49 mg/kg bw/day (ECETOC TRA worker v2.0)	0,03
inhalative	systemic	long-term	262,79 mg/m³	0,71
combined routes				0,74

6.3.13. Worker exposure: Roller, spreader, flow application, Outdoor (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	5,49 mg/kg bw/day (ECETOC TRA worker v2.0)	0,03
inhalative	systemic	long-term	262,79 mg/m³	0,71
combined routes				0,74

6.3.14. Worker exposure: Spraying, Manual, Indoor (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	2,14 mg/kg bw/day	0,01
combined routes				0,11

6.3.15. Worker exposure: Spraying, Manual, Outdoor (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	131,40 mg/m³ (ECETOC TRA worker v2.0)	0,36
dermal	systemic	long-term	21,43 mg/kg	0,12

			bw/day	
combined routes				0,47

6.3.16. Worker exposure: Dipping, immersion and pouring, Indoor (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	262,79 mg/m³ (ECETOC TRA worker v2.0)	0,71
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,79

6.3.17. Worker exposure: Dipping, immersion and pouring, Outdoor (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	262,79 mg/m³ (ECETOC TRA worker v2.0)	0,71
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,79

6.3.18. Worker exposure: Laboratory activities (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,10

6.3.19. Worker exposure: Hand application - fingerpaints, pastels, adhesives, Indoor (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	14,14 mg/kg bw/day (ECETOC TRA worker v2.0)	0,08
inhalative	systemic	long-term	262,79 mg/m³	0,71
combined routes				0,79

6.3.20. Worker exposure: Hand application - fingerpaints, pastels, adhesives, Outdoor (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	14,14 mg/kg bw/day (ECETOC TRA worker v2.0)	0,08
inhalative	systemic	long-term	262,79 mg/m³	0,71
combined routes				0,79

6.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES7: Use in coatings

7.1. Title section

Structured Short Title	:	Widespread use by professional workers
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)**	ERC8a, ERC8d
Worker		
CS2	**General exposures (closed systems)**	PROC1
CS3	**Filling/ preparation of equipment from drums or containers.**	PROC2
CS4	**Film formation - air drying, Outdoor**	PROC4
CS5	**Film formation - air drying, Indoor**	PROC4
CS6	**Preparation of material for application**	PROC3
CS7	**Preparation of material for application, Outdoor**	PROC5
CS8	**Preparation of material for application, Indoor**	PROC5
CS9	**Material transfers, Drum/batch transfers, Non-dedicated facility**	PROC8a
CS10	**Material transfers, Dedicated facility, Drum/batch transfers**	PROC8b
CS11	**General exposures (closed systems), Use in contained systems**	PROC2
CS12	**Roller, spreader, flow application, Indoor**	PROC10
CS13	**Roller, spreader, flow application, Outdoor**	PROC10
CS14	**Spraying, Manual, Indoor**	PROC11
CS15	**Spraying, Manual, Outdoor**	PROC11
CS16	**Dipping, immersion and pouring, Indoor**	PROC13
CS17	**Dipping, immersion and pouring, Outdoor**	PROC13
CS18	**Laboratory activities**	PROC15
CS19	**Hand application - fingerpaints, pastels, adhesives, Indoor**	PROC19
CS20	**Hand application - fingerpaints, pastels, adhesives, Outdoor**	PROC19

7.2. Conditions of use affecting exposure

7.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	433 kg/day
Maximum allowable site tonnage (MSafe)	:	14 285 kg/day
Release type	:	Continuous release
Emission days	:	300
Conditions and measures related to sewage treatment plant		
Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Onsite and Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Prevent discharge of undissolved substance to waste water or recover from wastewater.		
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. Bund storage facilities to prevent soil and water pollution in the event of spillage.		

7.2.2. Control of worker exposure: General exposures (closed systems) (PROC1)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP

Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.3. Control of worker exposure: Filling/ preparation of equipment from drums or containers. (PROC2)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.4. Control of worker exposure: Film formation - air drying, Outdoor (PROC4)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		

Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.5. Control of worker exposure: Film formation - air drying, Indoor (PROC4)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.6. Control of worker exposure: Preparation of material for application (PROC3)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		

No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.7. Control of worker exposure: Preparation of material for application, Outdoor (PROC5)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.8. Control of worker exposure: Preparation of material for application, Indoor (PROC5)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		

Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.9. Control of worker exposure: Material transfers, Drum/batch transfers, Non-dedicated facility (PROC8a)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.10. Control of worker exposure: Material transfers, Dedicated facility, Drum/batch transfers (PROC8b)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient

	temperature.
Assumes a good basic standard of occupational hygiene is implemented	

7.2.11. Control of worker exposure: General exposures (closed systems), Use in contained systems (PROC2)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.12. Control of worker exposure: Roller, spreader, flow application, Indoor (PROC10)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.13. Control of worker exposure: Roller, spreader, flow application, Outdoor (PROC10)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.14. Control of worker exposure: Spraying, Manual, Indoor (PROC11)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Inhalation - minimum efficiency of 30 %		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Inhalation - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.

Assumes a good basic standard of occupational hygiene is implemented

7.2.15. Control of worker exposure: Spraying, Manual, Outdoor (PROC11)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Ensure operation is undertaken outdoors. Inhalation - minimum efficiency of 30 %		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Inhalation - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.16. Control of worker exposure: Dipping, immersion and pouring, Indoor (PROC13)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		

Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.17. Control of worker exposure: Dipping, immersion and pouring, Outdoor (PROC13)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.18. Control of worker exposure: Laboratory activities (PROC15)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.19. Control of worker exposure: Hand application - fingerpaints, pastels, adhesives, Indoor (PROC19)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.2.20. Control of worker exposure: Hand application - fingerpaints, pastels, adhesives, Outdoor (PROC19)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

7.3. Exposure estimation and reference to its source

7.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Protection Target	Exposure estimate	RCR
Fresh water	0,247 mg/L (EUSES)	0,003
Fresh water sediment	1,55 mg/kg dry weight (d.w.)	0,030
Marine water	0,0254 mg/L	0,003
Marine sediment	0,158 mg/kg dry weight (d.w.)	0,003
Soil	0,118 mg/kg dry weight (d.w.)	0,028

7.3.2. Worker exposure: General exposures (closed systems) (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0,01 mg/m³ (ECETOC TRA worker v2.0)	< 0,001
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,002

7.3.3. Worker exposure: Filling/ preparation of equipment from drums or containers. (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	15,02 mg/m³ (ECETOC TRA worker v2.0)	0,04
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,05

7.3.4. Worker exposure: Film formation - air drying, Outdoor (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04

combined routes				0,14

7.3.5. Worker exposure: Film formation - air drying, Indoor (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,14

7.3.6. Worker exposure: Preparation of material for application (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	18,77 mg/m³ (ECETOC TRA worker v2.0)	0,05
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,05

7.3.7. Worker exposure: Preparation of material for application, Outdoor (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,28

7.3.8. Worker exposure: Preparation of material for application, Indoor (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,28

7.3.9. Worker exposure: Material transfers, Drum/batch transfers, Non-dedicated facility (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,28

7.3.10. Worker exposure: Material transfers, Dedicated facility, Drum/batch transfers (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,14

7.3.11. Worker exposure: General exposures (closed systems), Use in contained systems (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	15,02 mg/m³ (ECETOC TRA worker v2.0)	0,04
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,05

7.3.12. Worker exposure: Roller, spreader, flow application, Indoor (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	27,43 mg/kg bw/day (ECETOC TRA worker v2.0)	0,15
inhalative	systemic	long-term	75,08 mg/m³	0,20
combined routes				0,35

7.3.13. Worker exposure: Roller, spreader, flow application, Outdoor (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	27,43 mg/kg bw/day (ECETOC TRA worker v2.0)	0,15
inhalative	systemic	long-term	75,08 mg/m³	0,20
combined routes				0,35

7.3.14. Worker exposure: Spraying, Manual, Indoor (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	262,79 mg/m³ (ECETOC TRA worker v2.0)	0,71
dermal	systemic	long-term	10,71 mg/kg bw/day	0,06
combined routes				0,77

7.3.15. Worker exposure: Spraying, Manual, Outdoor (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	262,79 mg/m³ (ECETOC TRA worker v2.0)	0,71
dermal	systemic	long-term	10,71 mg/kg bw/day	0,06
combined routes				0,77

7.3.16. Worker exposure: Dipping, immersion and pouring, Indoor (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,28

7.3.17. Worker exposure: Dipping, immersion and pouring, Outdoor (PROC13)

Exposure route	Health effect	Exposure	Exposure	RCR

		indicator	estimate	
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,28

7.3.18. Worker exposure: Laboratory activities (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	7,51 mg/m³ (ECETOC TRA worker v2.0)	0,02
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,02

7.3.19. Worker exposure: Hand application - fingerpaints, pastels, adhesives, Indoor (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	28,29 mg/kg bw/day (ECETOC TRA worker v2.0)	0,15
inhalative	systemic	long-term	75,08 mg/m³	0,20
combined routes				0,36

7.3.20. Worker exposure: Hand application - fingerpaints, pastels, adhesives, Outdoor (PROC19)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	28,29 mg/kg bw/day (ECETOC TRA worker v2.0)	0,15
inhalative	systemic	long-term	75,08 mg/m³	0,20
combined routes				0,36

7.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES8: Use in coatings

8.1. Title section

Structured Short Title	:	Consumer use; Coatings and paints, thinners, paint removers (PC9a).
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)**	ERC8a, ERC8d
Consumer		
CS2	**Waterborne latex wall paint**	PC9a

8.2. Conditions of use affecting exposure

8.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Amount used (or contained in articles), frequency and duration of use/exposure		
Release type	:	Continuous release
Emission days	:	300
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Dispose of waste or used sacks/containers according to local regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Retain drain downs in sealed storage pending disposal or for subsequent recycle. Prevent leaks and prevent soil / water pollution caused by leaks.		

8.2.2. Control of consumer exposure: Waterborne latex wall paint (PC9a)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure > 10 Pa
Amount used (or contained in articles), frequency and duration of use/exposure		
For each use event, covers use amounts up to	:	1,88 kg
Use frequency	:	Covers frequency up to: 1 uses per day
Duration	:	Covers use up to 180 min
Other conditions affecting consumers exposure		
Room size	:	Covers use in room size of 20 m3
Ventilation rate	:	Avoid using in room with closed doors.

8.3. Exposure estimation and reference to its source

8.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Protection Target	Exposure estimate	RCR
Fresh water	0,029 mg/L (EUSES)	0,003
Fresh water sediment	0,12 mg/kg dry weight (d.w.)	0,003
Marine water	0,003 mg/L	0,003
Marine sediment	0,0157 mg/kg dry weight (d.w.)	0,003
Soil	0,028 mg/kg dry weight (d.w.)	0,006

8.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES9: Use in cleaning agents

9.1. Title section

Structured Short Title	:	Use at industrial sites
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Use of non-reactive processing aid at industrial site (no inclusion into or onto article)**	ERC4
Worker		
CS2	**Bulk transfers, Non-dedicated facility**	PROC8a
CS3	**Application of cleaning products in closed systems**	PROC2
CS4	**Use in contained systems, Automated process with (semi) closed systems., Drum/batch transfers**	PROC3
CS5	**Use in contained systems, Automated process with (semi) closed systems.**	PROC2
CS6	**Filling/ preparation of equipment from drums or containers., Dedicated facility**	PROC8b
CS7	**Use in contained batch processes, Treatment by heating**	PROC4
CS8	**Dipping, immersion and pouring**	PROC13
CS9	**Cleaning with low-pressure washers**	PROC10
CS10	**Cleaning with high pressure washers**	PROC7
CS11	**Cleaning, Surfaces, no spraying, Manual**	PROC10

9.2. Conditions of use affecting exposure

9.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	5000 kg/day
Maximum allowable site tonnage (MSafe)	:	1 509 kg/day
Release type	:	Continuous release

Emission days	:	300
Conditions and measures related to sewage treatment plant		
Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Onsite and Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Dispose of waste or used sacks/containers according to local regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.		

9.2.2. Control of worker exposure: Bulk transfers, Non-dedicated facility (PROC8a)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

9.2.3. Control of worker exposure: Application of cleaning products in closed systems (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

9.2.4. Control of worker exposure: Use in contained systems, Automated process with (semi) closed systems., Drum/batch transfers (PROC3)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

9.2.5. Control of worker exposure: Use in contained systems, Automated process with (semi) closed systems. (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

9.2.6. Control of worker exposure: Filling/ preparation of equipment from drums or containers., Dedicated facility (PROC8b)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

9.2.7. Control of worker exposure: Use in contained batch processes, Treatment by heating (PROC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide extract ventilation to points where emissions occur. Inhalation - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

9.2.8. Control of worker exposure: Dipping, immersion and pouring (PROC13)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

9.2.9. Control of worker exposure: Cleaning with low-pressure washers (PROC10)

Product (article) characteristics

Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

9.2.10. Control of worker exposure: Cleaning with high pressure washers (PROC7)

Product (article) characteristics		
Covers concentrations up to 25 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (10 to 15 air changes per hour) Inhalation - minimum efficiency of 70 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

9.2.11. Control of worker exposure: Cleaning, Surfaces, no spraying, Manual (PROC10)

Product (article) characteristics
Covers concentrations up to 100 %

Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

9.3. Exposure estimation and reference to its source

9.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Protection Target	Exposure estimate	RCR
Fresh water	0,0231 mg/L (EUSES)	0,003
Fresh water sediment	0,136 mg/kg dry weight (d.w.)	0,003
Marine water	0,0031 mg/L	0,003
Marine sediment	0,00302 mg/kg dry weight (d.w.)	0,003
Soil	0,0325 mg/kg dry weight (d.w.)	0,007

9.3.2. Worker exposure: Bulk transfers, Non-dedicated facility (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,58

9.3.3. Worker exposure: Application of cleaning products in closed systems (PROC2)

Exposure route	Health effect	Exposure	Exposure	RCR

		indicator	estimate	
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,11

9.3.4. Worker exposure: Use in contained systems, Automated process with (semi) closed systems., Drum/batch transfers (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	93,85 mg/m³ (ECETOC TRA worker v2.0)	0,25
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,26

9.3.5. Worker exposure: Use in contained systems, Automated process with (semi) closed systems. (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	37,54 mg/m³ (ECETOC TRA worker v2.0)	0,01
dermal	systemic	long-term	1,37 mg/kg bw/day	0,10
combined routes				0,11

9.3.6. Worker exposure: Filling/ preparation of equipment from drums or containers., Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

9.3.7. Worker exposure: Use in contained batch processes, Treatment by heating (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR

inhalative	systemic	long-term	37,86 mg/m³ (ECETOC TRA worker v2.0)	0,10
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,14

9.3.8. Worker exposure: Dipping, immersion and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,58

9.3.9. Worker exposure: Cleaning with low-pressure washers (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	5,49 mg/kg bw/day (ECETOC TRA worker v2.0)	0,51
inhalative	systemic	long-term	187,71 mg/m³	0,03
combined routes				0,54

9.3.10. Worker exposure: Cleaning with high pressure washers (PROC7)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	168,94 mg/m³ (ECETOC TRA worker v2.0)	0,46
dermal	systemic	long-term	8,57 mg/kg bw/day	0,05
combined routes				0,50

9.3.11. Worker exposure: Cleaning, Surfaces, no spraying, Manual (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	5,49 mg/kg bw/day (ECETOC TRA worker v2.0)	0,03

inhalative	systemic	long-term	187,71 mg/m³	0,51
combined routes				0,54

9.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES10: Use in cleaning agents

10.1. Title section

Structured Short Title	:	Widespread use by professional workers
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)**	ERC8a, ERC8d
Worker		
CS2	**Filling/ preparation of equipment from drums or containers., Dedicated facility**	PROC8b
CS3	**Use in contained systems, Automated process with (semi) closed systems.**	PROC2
CS4	**Use in contained systems, Automated process with (semi) closed systems., Drum/batch transfers**	PROC3
CS5	**Semi-automated process. (e.g.: semi-automatic application of floor care and maintenance products)**	PROC4
CS6	**Filling/ preparation of equipment from drums or containers., Non-dedicated facility, Outdoor**	PROC8a
CS7	**Cleaning, Surfaces, Manual, Dipping, immersion and pouring**	PROC13
CS8	**Cleaning with low-pressure washers**	PROC10
CS9	**Cleaning with high pressure washers, Indoor**	PROC11
CS10	**Cleaning with high pressure washers, Outdoor**	PROC11
CS11	**Ad hoc manual application via trigger sprays, dipping, etc., Rolling, Brushing**	PROC10
CS12	**Ad hoc manual application via trigger sprays, dipping, etc., Rolling, Brushing**	PROC10
CS13	**Cleaning, Surfaces, Manual, Spraying**	PROC10
CS14	**Application of cleaning products in closed systems**	PROC4
CS15	**Cleaning of medical devices**	PROC4

10.2. Conditions of use affecting exposure

10.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	0,71 kg/day
Maximum allowable site tonnage (MSafe)	:	116 kg/day
Release type	:	Continuous release
Emission days	:	365
Technical and organisational conditions and measures		
Treat air emission to provide the required removal efficiency of (%): Air - minimum efficiency of 70 %		
Conditions and measures related to sewage treatment plant		
Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Onsite and Municipal Sewage Treatment Plant Waste - minimum efficiency of 87,3 %		
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Dispose of waste or used sacks/containers according to local regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.		

10.2.2. Control of worker exposure: Filling/ preparation of equipment from drums or containers., Dedicated facility (PROC8b)

Product (article) characteristics

Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.3. Control of worker exposure: Use in contained systems, Automated process with (semi) closed systems. (PROC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.4. Control of worker exposure: Use in contained systems, Automated process with (semi) closed systems., Drum/batch transfers (PROC3)

Product (article) characteristics
Covers concentrations up to 100 %

Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.5. Control of worker exposure: Semi-automated process. (e.g.: semi-automatic application of floor care and maintenance products) (PROC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.6. Control of worker exposure: Filling/ preparation of equipment from drums or containers., Non-dedicated facility, Outdoor (PROC8a)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP

Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers use up to 240 min
Technical and organisational conditions and measures		
Ensure operation is undertaken outdoors. Inhalation - minimum efficiency of 30 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.7. Control of worker exposure: Cleaning, Surfaces, Manual, Dipping, immersion and pouring (PROC13)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (10 to 15 air changes per hour) Inhalation - minimum efficiency of 70 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.8. Control of worker exposure: Cleaning with low-pressure washers (PROC10)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP

Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (10 to 15 air changes per hour) Inhalation - minimum efficiency of 70 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.9. Control of worker exposure: Cleaning with high pressure washers, Indoor (PROC11)

Product (article) characteristics		
Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (10 to 15 air changes per hour) Inhalation - minimum efficiency of 70 %		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.10. Control of worker exposure: Cleaning with high pressure washers, Outdoor (PROC11)

Product (article) characteristics

Covers concentrations up to 5 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Ensure operation is undertaken outdoors. Inhalation - minimum efficiency of 30 %		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.11. Control of worker exposure: Ad hoc manual application via trigger sprays, dipping, etc., Rolling, Brushing (PROC10)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (10 to 15 air changes per hour) Inhalation - minimum efficiency of 30 %		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Inhalation - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient

temperature.
Assumes a good basic standard of occupational hygiene is implemented

10.2.12. Control of worker exposure: Ad hoc manual application via trigger sprays, dipping, etc., Rolling, Brushing (PROC10)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide a good standard of general ventilation (10 to 15 air changes per hour) Inhalation - minimum efficiency of 30 %		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.13. Control of worker exposure: Cleaning, Surfaces, Manual, Spraying (PROC10)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Provide extract ventilation to points where emissions occur. Inhalation - minimum efficiency of 80 %		

Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.14. Control of worker exposure: Application of cleaning products in closed systems (PROC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.2.15. Control of worker exposure: Cleaning of medical devices (PROC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		

Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

10.3. Exposure estimation and reference to its source

10.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Protection Target	Exposure estimate	RCR
Fresh water	0,029 mg/L (EUSES)	0,003
Fresh water sediment	0,12 mg/kg dry weight (d.w.)	0,003
Marine water	0,003 mg/L	0,003
Marine sediment	0,0157 mg/kg dry weight (d.w.)	0,003
Soil	0,028 mg/kg dry weight (d.w.)	0,006

10.3.2. Worker exposure: Filling/ preparation of equipment from drums or containers., Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,71 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

10.3.3. Worker exposure: Use in contained systems, Automated process with (semi) closed systems. (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	75,08 mg/m³ (ECETOC TRA worker v2.0)	0,20
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,21

10.3.4. Worker exposure: Use in contained systems, Automated process with (semi) closed systems., Drum/batch transfers (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	93,85 mg/m³ (ECETOC TRA worker v2.0)	0,25
dermal	systemic	long-term	0,34 mg/kg bw/day	0,002
combined routes				0,26

10.3.5. Worker exposure: Semi-automated process. (e.g.: semi-automatic application of floor care and maintenance products) (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,87 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

10.3.6. Worker exposure: Filling/ preparation of equipment from drums or containers., Non-dedicated facility, Outdoor (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	157,61 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	13,71 mg/kg bw/day	0,04
combined routes				0,55

10.3.7. Worker exposure: Cleaning, Surfaces, Manual, Dipping, immersion and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	112,63 mg/m³ (ECETOC TRA worker v2.0)	0,31
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,38

10.3.8. Worker exposure: Cleaning with low-pressure washers (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	27,43 mg/kg bw/day (ECETOC TRA worker v2.0)	0,06
inhalative	systemic	long-term	112,63 mg/m³	0,71
combined routes				0,77

10.3.9. Worker exposure: Cleaning with high pressure washers, Indoor (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	112,63 mg/m³ (ECETOC TRA worker v2.0)	0,31
dermal	systemic	long-term	21,43 mg/kg bw/day	0,12
combined routes				0,42

10.3.10. Worker exposure: Cleaning with high pressure washers, Outdoor (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	112,63 mg/m³ (ECETOC TRA worker v2.0)	0,71
dermal	systemic	long-term	21,43 mg/kg bw/day	0,06
combined routes				0,77

10.3.11. Worker exposure: Ad hoc manual application via trigger sprays, dipping, etc., Rolling, Brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	5,49 mg/kg bw/day (ECETOC TRA worker v2.0)	0,03
inhalative	systemic	long-term	262,79 mg/m³	0,71
combined routes				0,74

10.3.12. Worker exposure: Ad hoc manual application via trigger sprays, dipping, etc., Rolling, Brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	27,43 mg/kg bw/day (ECETOC TRA worker v2.0)	0,15
inhalative	systemic	long-term	75,08 mg/m³	0,20
combined routes				0,35

10.3.13. Worker exposure: Cleaning, Surfaces, Manual, Spraying (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	5,49 mg/kg bw/day (ECETOC TRA worker v2.0)	0,03
inhalative	systemic	long-term	262,79 mg/m³	0,71
combined routes				0,74

10.3.14. Worker exposure: Application of cleaning products in closed systems (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	187,87 mg/m³ (ECETOC TRA worker v2.0)	0,51
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,55

10.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES11: Use in cleaning agents

11.1. Title section

Structured Short Title	:	Consumer use; Washing and cleaning products (PC35).
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)**	ERC8a, ERC8d
Consumer		
CS2	**Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)**	PC35
CS3	**Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)**	PC35

11.2. Conditions of use affecting exposure

11.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	0,03 kg/day
Release type	:	Continuous release
Emission days	:	365
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

11.2.2. Control of consumer exposure: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (PC35)

Product (article) characteristics

Avoid using at a product concentration greater than 10 %		
Physical form of product	:	Liquid, vapour pressure > 10 Pa
Amount used (or contained in articles), frequency and duration of use/exposure		
For each use event, covers use amounts up to	:	0,016 kg
Duration	:	Covers use up to 60 min
Other conditions affecting consumers exposure		
Room size	:	Covers use in room size of 15 m3
Temperature	:	Covers use at ambient temperatures.

11.2.3. Control of consumer exposure: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (PC35)

Product (article) characteristics		
Avoid using at a product concentration greater than 10 %		
Physical form of product	:	Liquid, vapour pressure > 10 Pa
Amount used (or contained in articles), frequency and duration of use/exposure		
For each use event, covers use amounts up to	:	0,048 kg
Duration	:	Covers use up to 180 min
Other conditions affecting consumers exposure		
Room size	:	Covers use in room size of 15 m3
Temperature	:	Covers use at ambient temperatures.

11.3. Exposure estimation and reference to its source

11.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Protection Target	Exposure estimate	RCR
Fresh water	0,029 mg/L (EUSES)	0,003
Fresh water sediment	0,12 mg/kg dry weight (d.w.)	0,003

Marine water	0,003 mg/L	0,003
Marine sediment	0,0157 mg/kg dry weight (d.w.)	0,003
Soil	0,028 mg/kg dry weight (d.w.)	0,006

11.3.2. Consumer exposure: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (PC35)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	1,48 mg/m³ (ConsExpo)	0,03
dermal	systemic	long-term	0,3 mg/kg bw/day	0,04
combined routes				0,04
oral	systemic	short-term	0,001 mg/kg bw/day	0,0

11.3.3. Consumer exposure: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (PC35)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	4,44 mg/m³ (ConsExpo)	0,10
dermal	systemic	long-term	0,9 mg/kg bw/day	0,01
combined routes				0,11
oral	systemic	short-term	0,004 mg/kg bw/day	0,0

11.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES12: Use in agrochemicals

12.1. Title section

Structured Short Title	:	Widespread use by professional workers
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)**	ERC8d
Worker		
CS2	**Transfer from/pouring from containers, Dedicated facility**	PROC8b
CS3	**Mixing operations (open systems), Outdoor**	PROC4
CS4	**Spraying/ fogging by manual application, Outdoor**	PROC11
CS5	**Spraying/ fogging by machine application**	PROC11
CS6	**Ad hoc manual application via trigger sprays, dipping, etc.**	PROC13
CS7	**Equipment cleaning and maintenance**	PROC8a
CS8	**Disposal of wastes, Outdoor**	PROC8a
CS9	**Storage, Outdoor**	PROC2

12.2. Conditions of use affecting exposure

12.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	0,03 kg/day
Release type	:	Intermittent release
Emission days	:	2
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Dispose of waste or used sacks/containers according to local regulations.
Other conditions affecting environmental exposure		

Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

12.2.2. Control of worker exposure: Transfer from/pouring from containers, Dedicated facility (PROC8b)

Product (article) characteristics		
Covers concentrations up to 25 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

12.2.3. Control of worker exposure: Mixing operations (open systems), Outdoor (PROC4)

Product (article) characteristics		
Covers concentrations up to 25 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

12.2.4. Control of worker exposure: Spraying/ fogging by manual application, Outdoor (PROC11)

Product (article) characteristics		
Covers concentrations up to 25 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 80 %		
Wear a respirator conforming to EN140 with Type A filter or better. Inhalation - minimum efficiency of 90 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

12.2.5. Control of worker exposure: Spraying/ fogging by machine application (PROC11)

Product (article) characteristics		
Covers concentrations up to 25 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
Carry out in a vented booth or extracted enclosure. Inhalation - minimum efficiency of 80 %		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.

Assumes a good basic standard of occupational hygiene is implemented

12.2.6. Control of worker exposure: Ad hoc manual application via trigger sprays, dipping, etc. (PROC13)

Product (article) characteristics		
Covers concentrations up to 25 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

12.2.7. Control of worker exposure: Equipment cleaning and maintenance (PROC8a)

Product (article) characteristics		
Covers concentrations up to 25 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

12.2.8. Control of worker exposure: Disposal of wastes, Outdoor (PROC8a)

Product (article) characteristics		
Covers concentrations up to 25 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

12.2.9. Control of worker exposure: Storage, Outdoor (PROC2)

Product (article) characteristics		
Covers concentrations up to 25 %		
Physical form of product	:	Liquid, vapour pressure 0.5 - 10 kPa at STP
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers daily exposures up to 8 hours
Technical and organisational conditions and measures		
No other specific measures identified.		
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Assumes a good basic standard of occupational hygiene is implemented		

12.3. Exposure estimation and reference to its source

12.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Protection Target	Exposure estimate	RCR
Fresh water	0,185 mg/L (EUSES)	0,019
Fresh water sediment	0,970 mg/kg dry weight (d.w.)	0,019
Marine water	0,0192 mg/L	0,006
Marine sediment	0,101 mg/kg dry weight (d.w.)	0,019
Soil	0,0280 mg/kg dry weight (d.w.)	0,019

12.3.2. Worker exposure: Transfer from/pouring from containers, Dedicated facility (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	112,63 mg/m³ (ECETOC TRA worker v2.0)	0,31
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,34

12.3.3. Worker exposure: Mixing operations (open systems), Outdoor (PROC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	112,63 mg/m³ (ECETOC TRA worker v2.0)	0,31
dermal	systemic	long-term	6,86 mg/kg bw/day	0,04
combined routes				0,34

12.3.4. Worker exposure: Spraying/ fogging by manual application, Outdoor (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	112,63 mg/m³ (ECETOC TRA worker v2.0)	0,31
dermal	systemic	long-term	21,43 mg/kg bw/day	0,12
combined routes				0,42

12.3.5. Worker exposure: Spraying/ fogging by machine application (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	225,25 mg/kg bw/day	0,61
dermal	systemic	long-term	2,14 mg/m³	0,01
combined routes				0,62

12.3.6. Worker exposure: Ad hoc manual application via trigger sprays, dipping, etc. (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	225,25 mg/m³ (ECETOC TRA worker v2.0)	0,61
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,69

12.3.7. Worker exposure: Equipment cleaning and maintenance (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	225,25 mg/m³	0,61
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,69

12.3.8. Worker exposure: Disposal of wastes, Outdoor (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	225,25 mg/m³ (ECETOC TRA worker v2.0)	0,61
dermal	systemic	long-term	13,71 mg/kg bw/day	0,07
combined routes				0,69

12.3.9. Worker exposure: Storage, Outdoor (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR

inhalative	systemic	long-term	45,05 mg/m³ (ECETOC TRA worker v2.0)	0,12
dermal	systemic	long-term	1,37 mg/kg bw/day	0,01
combined routes				0,13

12.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES13: Use in coatings

13.1. Title section

Structured Short Title	:	Consumer use; Coatings and paints, thinners, paint removers (PC9a).
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)**	ERC8a, ERC8d
Consumer		
CS2	**Solvent rich, high solid, water borne paint**	PC9a

13.2. Conditions of use affecting exposure

13.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Amount used (or contained in articles), frequency and duration of use/exposure		
Release type	:	Continuous release
Emission days	:	300
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Retain drain downs in sealed storage pending disposal or for subsequent recycle. Prevent leaks and prevent soil / water pollution caused by leaks.		

13.2.2. Control of consumer exposure: Solvent rich, high solid, water borne paint (PC9a)

Product (article) characteristics		
Avoid using at a product concentration greater than 10 %		
Physical form of product	:	Liquid, vapour pressure > 10 Pa
Amount used (or contained in articles), frequency and duration of use/exposure		
For each use event, covers use amounts up to	:	0,5 kg
Use frequency	:	Covers frequency up to: 1 uses per day
Duration	:	Covers use up to 66 min
Other conditions affecting consumers exposure		
Ventilation rate	:	Avoid using in room with closed doors.

13.3. Exposure estimation and reference to its source

13.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Protection Target	Exposure estimate	RCR
Fresh water	0,0229 mg/L (EUSES)	0,002
Fresh water sediment	0,120 mg/kg dry weight (d.w.)	0,002
Marine water	0,003 mg/L	0,003
Marine sediment	0,0157 mg/kg dry weight (d.w.)	0,003
Soil	0,028 mg/kg dry weight (d.w.)	0,006

13.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES14: Use in de-icing and anti-icing fluids

14.1. Title section

Structured Short Title	:	Consumer use; Anti-freeze and de-icing products (PC4).
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)**	ERC8a, ERC8d
Consumer		
CS2	Anti-freeze and de-icing products	PC4

14.2. Conditions of use affecting exposure

14.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	21,02 kg/day
Release type	:	Continuous release
Emission days	:	365
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

14.2.2. Control of consumer exposure: Anti-freeze and de-icing products (PC4)

Product (article) characteristics		
Avoid using at a product concentration greater than 30 %		
Physical form of product	:	Liquid, vapour pressure > 10 Pa

Amount used (or contained in articles), frequency and duration of use/exposure		
For each use event, covers use amounts up to	:	0,5 kg
Use frequency	:	Covers frequency up to: 1 uses per day
Duration	:	Covers use up to 30 min

14.3. Exposure estimation and reference to its source

14.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Protection Target	Exposure estimate	RCR
Fresh water	0,0234 mg/L (EUSES)	0,002
Fresh water sediment	0,123 mg/kg dry weight (d.w.)	0,002
Marine water	0,00305 mg/L	0,003
Marine sediment	0,0160 mg/kg dry weight (d.w.)	0,003
Soil	0,0282 mg/kg dry weight (d.w.)	0,006

14.3.2. Consumer exposure: Anti-freeze and de-icing products (PC4)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	12,9 mg/m³ (ConsExpo)	0,29
dermal	systemic	long-term	3,3 mg/kg bw/day	0,04
combined routes				0,34

14.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES15: Uses in cosmetics/personal care products, perfumes and fragrances

15.1. Title section

Structured Short Title	:	Consumer use
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)**	ERC8a

15.2. Conditions of use affecting exposure

15.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)

Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	0,04 kg/day
Release type	:	Continuous release
Emission days	:	365
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

15.3. Exposure estimation and reference to its source

15.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)

Protection Target	**Exposure estimate**	**RCR**
Fresh water	0,0230 mg/L (EUSES)	0,002
Fresh water sediment	0,120 mg/kg dry weight (d.w.)	0,002
Marine water	0,00300 mg/L	0,003
Marine sediment	0,0157 mg/kg dry weight (d.w.)	0,003

Soil	0,0280 mg/kg dry weight (d.w.)	0,006

15.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.

ES16: Use in agrochemicals

16.1. Title section

Structured Short Title	:	Consumer use; Biocidal products (PC8).
Substance	:	1-methoxy-2-propanol EC-No.: 203-539-1

Environment		
CS1	**Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)**	ERC8a
Consumer		
CS2	Biocidal products	PC8

16.2. Conditions of use affecting exposure

16.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)

Amount used (or contained in articles), frequency and duration of use/exposure		
Release type	:	Continuous release
Emission days	:	365
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

16.2.2. Control of consumer exposure: Biocidal products (PC8)

Product (article) characteristics		
Covers concentrations up to 1,4 %		
Amount used (or contained in articles), frequency and duration of use/exposure		
For each use event, covers use amounts up to	:	0,004 kg
Duration	:	Covers exposure up to 49,8 min

Other conditions affecting consumers exposure		
Temperature	:	Covers use at ambient temperatures.

16.3. Exposure estimation and reference to its source

16.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)

Protection Target	**Exposure estimate**	**RCR**
Fresh water	0,029 mg/L (EUSES)	0,003
Fresh water sediment	0,120 mg/kg dry weight (d.w.)	0,003
Marine water	0,003 mg/L	0,003
Marine sediment	0,0157 mg/kg dry weight (d.w.)	0,003
Soil	0,0280 mg/kg dry weight (d.w.)	0,006

16.3.2. Consumer exposure: Biocidal products (PC8)

Exposure route	**Health effect**	**Exposure indicator**	**Exposure estimate**	**RCR**
inhalative	systemic	long-term	0,064 mg/m³ (ConsExpo)	0,001

16.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health - Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
Environment - Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Further details on scaling and control technologies are provided in SpERC factsheet http://cefic.org/en/reach-for-industries-libraries.html.