SAFETY DATA SHEET

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 27-Jan-2010 **Revision Date** 02-May-2025 **Revision Number** 15

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

1.1. Product identifier

Product Description:	**Dichloromethane**
Cat No. :	**D/1852/08, D/1852/15, D/1852/17, D/1852/17X, D/1852/21, D/1852/24, D/1852/25, D/1852/27, D/1852/27SS, D/1852/DH25, D/1852/PB15, D/1852/PB15X, D/1852/PB17, D/1852/21RSS, D/1852/24RSS, D/1852/25RSS, D/1852/34RSS, D/1852/27RSS, D/1852/PC15, D/1852/10RSS**
Synonyms	Dichloromethane; DCM
Index No	602-004-00-3
CAS No	75-09-2
EC No	200-838-9
Molecular Formula	C H2 Cl2
REACH registration number	01-2119480404-41

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

Recommended Use	Laboratory chemicals.
Sector of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU5 - Manufacture of textiles, leather, fur SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen) SU24 - Scientific research and development
Product category	PC21 - Laboratory chemicals
Process categories	PROC15 - Use as a laboratory reagent see SECTION 16 for a complete list of uses for which an exposure scenario is provided as an annex
Environmental release category	ERC1 - Manufacture of substances ERC2 - Formulation of preparations ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC8a - Wide dispersive indoor use of processing aids in open systems
Uses advised against	SU21 - Consumer uses: Private households (= general public = consumers) REACH Annex XVII Restriction - refer to SECTION 15

1.3. Details of the supplier of the safety data sheet

Company

UK entity/business name
Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom

EU entity/business name
Thermo Fisher Scientific
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166
Chemtrec US: (800) 424-9300
Chemtrec EU: 001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Based on available data, the classification criteria are not met

Health hazards

Skin Corrosion/Irritation	Category 2 (H315)
Serious Eye Damage/Eye Irritation	Category 2 (H319)
Carcinogenicity	Category 2 (H351)
Specific target organ toxicity - (single exposure)	Category 3 (H336)

Environmental hazards
Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements

Signal Word **Warning**

Hazard Statements
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H351 - Suspected of causing cancer
The vapor has narcotic effect and in high concentrations induces unconsciousness which can be fatal

Precautionary Statements
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P284 - Wear respiratory protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and

easy to do. Continue rinsing
P312 - Call a POISON CENTER or doctor if you feel unwell

Additional EU labelling
Restricted to industrial use and to approved professionals

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)
Causes formation of carbon monoxide in the blood. Carbon monoxide may cause adverse effects on the cardiovascular system and the central nervous system
Do not use in areas without adequate ventilation.
The vapor has narcotic effect and in high concentrations induces unconsciousness which can be fatal
Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing
Decomposes in a fire, giving off toxic fumes: phosgene and hydrochloric acid, Carbon monoxide
Empty containers pose a potential fire and explosion hazard. Do not cut, puncture of weld containers
This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS No	EC No	Weight %	GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Methylene chloride	75-09-2	EEC No. 200-838-9	>99.5	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H336) Carc. 2 (H351)

Note
Stabilised with Amylene (CAS 513-35-9)

REACH registration number	01-2119480404-41

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Self-Protection of the First Aider Use personal protective equipment as required.

4.2. Most important symptoms and effects, both acute and delayed

Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Causes central nervous system depression: Continued or high exposures by inhalation will cause anaesthetic effects. This may result in a loss of consciousness and could prove fatal: Causes formation of carbon monoxide in the blood. Carbon monoxide may cause adverse effects on the cardiovascular system and the central nervous system

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician A patient adversely affected by exposure to this product should not be given adrenaline (epinephrine) or similar heart stimulant since these would increase the risk of cardiac arrhythmias. Treat symptomatically. Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons
No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO), Carbon dioxide (CO_2), Phosgene, Hydrogen chloride gas.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation. Avoid breathing vapors or mists. Wear respiratory protection.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Prevent further leakage or spillage if safe to do so. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Ventilate the area.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Vapors are heavier than air and may spread along floors. Handle product only in closed system or provide appropriate exhaust ventilation. Reacts with aluminum and its alloys.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store in aluminum containers.

Technical Rules for Hazardous Substances (TRGS) 510 Class 6.1D
Storage Class (LGK) (Germany)

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits
List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE -** 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
Methylene chloride	STEL: 200 ppm 15 min STEL: 706 mg/m³ 15 min TWA: 353 mg/m³ 8 hr TWA: 100 ppm 8 hr Skin	TWA: 353 mg/m³ (8h) TWA: 100 ppm (8h) STEL: 706 mg/m³ (15min) STEL: 200 ppm (15min) Skin	TWA: 100 ppm 8 hr. TWA: 353 mg/m³ 8 hr. STEL: 200 ppm 15 min STEL: 706 mg/m³ 15 min Skin

Biological limit values
List source(s): **UK** - Biological Monitoring Guidance Values provided by the UK's Health and Safety Executive (HSE) Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended) and EH40/2005.

Component	United Kingdom	European Union
Methylene chloride	Carbon monoxide: 30 ppm end-tidal breath post shift	

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)
See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
Methylene chloride 75-09-2 (>99.5)				DNEL = 12mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)

Methylene chloride 75-09-2 (>99.5)		DMEL = 132.14mg/m³		DNEL = 176mg/m³

Predicted No Effect Concentration (PNEC)
See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Methylene chloride 75-09-2 (>99.5)	PNEC = 130µg/L PNEC = 0.31mg/L	PNEC = 163µg/kg sediment dw PNEC = 2.57mg/kg sediment dw	PNEC = 0.27mg/L	PNEC = 26mg/L	PNEC = 173µg/kg soil dw PNEC = 0.33mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Methylene chloride 75-09-2 (>99.5)	PNEC = 130µg/L PNEC = 0.031mg/L	PNEC = 163µg/kg sediment dw PNEC = 0.26mg/kg sediment dw	PNEC = 0.027mg/L		

8.2. Exposure controls

Engineering Measures
Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Viton (R)	< 120 minutes	0.7 mm	EN 374	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
Nitrile rubber	< 4 minutes	0.38 mm		
PVA	> 360 minutes			

Skin and body protection Long sleeved clothing.

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Respiratory Protection In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use In case of insufficient ventilation, wear suitable respiratory equipment: Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive pressure mode:
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators: full face mask (DIN EN 136)
Recommended Filter type: low boiling organic solvent Type AX Brown conforming to EN371

Small scale/Laboratory use	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. **Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141 When RPE is used a face piece Fit Test should be conducted
Environmental exposure controls	No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance	Colorless	
Odor	sweet	
Odor Threshold	No data available	
Melting Point/Range	-97 °C / -142.6 °F	
Softening Point	No data available	
Boiling Point/Range	39 °C / 102.2 °F	
Flammability (liquid)	Not flammable	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	**Lower** 13 vol% **Upper** 22 vol%	
Flash Point	No information available	**Method -** No information available
Autoignition Temperature	556 °C / 1032.8 °F	
Decomposition Temperature	> 120°C	
pH	Not applicable	Insoluble in water
Viscosity	0.42 mPas @ 25°C	
Water Solubility	20 g/L (20°C)	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	**log Pow**	
Methylene chloride	1.25	
Vapor Pressure	350 mbar @ 20°C	
Density / Specific Gravity	1.33	
Bulk Density	Not applicable	Liquid
Vapor Density	2.93	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Molecular Formula	C H2 Cl2
Molecular Weight	84.93

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions. Decomposes on exposure to light.

10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	Forms a detonable mixture with nitric acid.

10.4. Conditions to avoid

Excess heat. Protect from direct sunlight.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Amines.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO_2). Phosgene. Hydrogen chloride gas.

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

(a) acute toxicity;

Oral Based on available data, the classification criteria are not met
Dermal Based on available data, the classification criteria are not met
Inhalation Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methylene chloride	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	53 mg/L (Rat) 6 h 76000 mg/m³ (Rat) 4 h

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

Respiratory Based on available data, the classification criteria are not met
Skin Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

Mutagenic effects have occured in microorganisms

(f) carcinogenicity; Category 2

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Methylene chloride				Group 2A

(g) reproductive toxicity; Based on available data, the classification criteria are not met

(h) STOT-single exposure; Category 3

Results / Target organs Central nervous system (CNS).

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

Target Organs None known.

(j) aspiration hazard; Based on available data, the classification criteria are not met

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Causes central nervous system depression. Continued or high exposures by inhalation will cause anaesthetic effects. This may result in a loss of consciousness and could prove fatal. Causes formation of carbon monoxide in the blood. Carbon monoxide may cause adverse effects on the cardiovascular system and the central nervous system.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects .

Component	Freshwater Fish	Water Flea	Freshwater Algae
Methylene chloride	Pimephales promelas: LC50:193 mg/L/96h	EC50: 140 mg/L/48h	EC50:>660 mg/L/96h

Component	Microtox	M-Factor
Methylene chloride	EC50: 1 mg/L/24 h EC50: 2.88 mg/L/15 min	

12.2. Persistence and degradability

Persistence Persistence is unlikely, based on information available.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Methylene chloride	1.25	6.4 - 40 dimensionless

12.4. Mobility in soil

The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces Will likely be mobile in the environment due to its volatility. Disperses rapidly in air

12.5. Results of PBT and vPvB assessment

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

12.6. Endocrine disrupting properties

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant This product does not contain any known or suspected substance

Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number	UN1593
14.2. UN proper shipping name	Dichloromethane
14.3. Transport hazard class(es)	6.1
14.4. Packing group	III

ADR

14.1. UN number	UN1593
14.2. UN proper shipping name	Dichloromethane
14.3. Transport hazard class(es)	6.1
14.4. Packing group	III

IATA

14.1. UN number	UN1593
14.2. UN proper shipping name	Dichloromethane
14.3. Transport hazard class(es)	6.1
14.4. Packing group	III

14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Methylene chloride	75-09-2	200-838-9	-	-	X	X	KE-23893	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Methylene chloride	75-09-2	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Methylene chloride	75-09-2	-	Use restricted. See entry 59. (see link for restriction details) Use restricted. See entry 75. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach
Restricted to industrial use and to approved professionals.

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Methylene chloride	75-09-2	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals
Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .
Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Methylene chloride	WGK2	Class I : 20 mg/m³ (Massenkonzentration)

Component	France - INRS (Tables of occupational diseases)
Methylene chloride	Tableaux des maladies professionnelles (TMP) - RG 12

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Methylene chloride 75-09-2 (>99.5)	Persistent Organic Pollutants (POPs) Prohibited and Restricted Substances	Group I	

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted

SECTION 16: OTHER INFORMATION

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

H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H351 - Suspected of causing cancer

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC - (Volatile Organic Compound)

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.
Chemical incident response training.

Creation Date 27-Jan-2010
Revision Date 02-May-2025

Revision Summary SDS sections updated, 2, 6, 7, 8, 9, 11, 15.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

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Disclaimer

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

End of Safety Data Sheet

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Dichloromethane - Exposure Scenarios

CAS No	REACH registration number	EC No
75-09-2	01-2119480404-41-xxxx	200-838-9

Exposure Scenarios Overview

Title	Sector of use	Process category(ies)	Environmental release category	ES Identifier
Manufacture, Recycling and Distribution (Industrial)	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals	1, 2, 3, 4, 8a, 8b, 9	ERC1 - Manufacture of substances	ES1-M1 DCM
Use as a process solvent / extraction medium	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU5 - Manufacture of textiles, leather, fur SU9 - Manufacture of fine chemicals	1, 2, 3, 4, 10, 15	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles	ES2-M2 DCM
Formulation of preparations and/or re-packaging	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)	3, 4, 5, 8a, 8b, 9, 15	ERC2 - Formulation of preparations	ES4-F1 DCM
Laboratory use	SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen) SU24 - Scientific research and development	10, 15	ERC8a - Wide dispersive indoor use of processing aids in open systems	ES5-L1 DCM

Exposure scenario

Methylene chloride - ES1-M1 DCM

Section 1 - Identification of the use

Main user group Industrial use

Type Worker

Processes, tasks, activities covered Manufacture; Includes recycling / recovery; Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities

Sector(s) of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 - Manufacture of fine chemicals

Process category(ies)

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

Environmental release category(ies) ERC1 - Manufacture of substances

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State	Liquid
pH	No information available
Water Solubility	Partially miscible; 13.2 g/L @ 25 °C
Vapor Pressure	325 mmHg @ 20°C
Volatility	High

Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)
ERC1 - Manufacture of substances

Control of environmental exposure
Readily biodegradable
Annual amount used in the EU 103000 t/a
Annual amount per site 25700 t/a

Environmental factors not influenced by risk management

Emission days	300
Receiving water dilution (fresh or marine)	18000 m3/d

Other operational conditions of use affecting environmental exposure

Emission days	300 (from ESVOC SPERC 1.1.v1)
Release fraction to air from process (initial release prior to RMM)	0.0000596
Release fraction to wastewater from process (initial release prior to RMM)	0.0000369
Release fraction to soil from process (initial release prior to RMM)	0.0

Technical onsite conditions and measures to reduce or limit discharges, air emissions
Technical onsite conditions and measures to reduce or limit discharges, air emissions
Negligible air emissions as process operates in a contained system.
Additional good practice advice beyond the REACH Chemical Safety Report
Bund storage facilities to prevent soil and water pollution in the event of spillage. Ensure all waste water is collected and treated via a WWTP.

Conditions and measures related to municipal sewage treatment plant

Remarks	Manufacturing plants will have on-site waste water treatment facilities and emission to the municipal STP will not occur.

Waste management

Air	No discharge. No air emission controls required.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of 93.5%

Conditions and measures related to external treatment of waste for disposal

Disposal	Waste resulting from on-site RMM to be disposed as chemical waste
Waste treatment methods	Hazardous waste incineration

Section 2.2 - Control of worker exposure

General information on risk management related to physicochemical hazard
Keep equipment under negative pressure. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

General information on exposure estimation
Manufactured and processed at industrial sites in closed continuous processes with either no likelihood of exposure or with only occasional opportunity for exposure in contolled conditions e.g. during maintenance, sampling or discharge of the material. Transfer of the substance is conducted at dedicated facilities using a closed-system with vapour return. Respiratory protection is not required except for certain critical activities where respiratory protective equipment is used, for example, cleaning tanks or reactors. Measured dermal exposure data are not available.

Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Amounts used	>1000 t/y
Exposure duration	< 8h hour(s)
Use frequency	220 days per year
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Handle substance within a closed system Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Technical conditions and measures to control dispersion from source towards the worker	Undertake operation under enclosed conditions
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

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Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Exposure duration	< 8h hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Handle substance within a closed system Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 90% (APF 10) Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

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Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Exposure duration	< 8 hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent	Handle substance within a predominantly closed system provided with extract ventilation

/limit releases, dispersion and exposure	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90% (APF 10)
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

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Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Exposure duration	< 8h hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Provide extract ventilation to points where emissions occur Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear a respirator providing a minimum efficiency of 90% (APF 10) Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

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Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Exposure duration	< 1 hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Drain or remove substance from equipment prior to break-in or maintenance Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear a respirator providing a minimum efficiency of 95% (APF 20) Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Assumes a good basic standard of occupational hygiene is implemented

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Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Exposure duration	< 8h hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Fill containers/cans at dedicated fill points supplied with local extract ventilation Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Assumes a good basic standard of occupational hygiene is implemented

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Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Exposure duration	< 8h hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Fill containers/cans at dedicated fill points supplied with local extract ventilation Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90%
Additional good practice advice beyond the REACH Chemical Safety Report	Assumes a good basic standard of occupational hygiene is implemented

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Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Exposure duration	< 8h hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Assumes a good basic standard of occupational hygiene is implemented

Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)

ERC1 - Manufacture of substances

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	0.31 mg/l	**Marine water**	0.031 mg/l
Fresh water sediment	2.57 mg/kg dw	**Marine water sediment**	0.26 mg/kg dw
Water Intermittent	0.27 mg/l	**Soil (Agriculture)**	0.33 mg/kg dw
Microorganisms in sewage treatment	25.9 mg/l		

Environment	Predicted exposure level	Risk characterization ratio (RCR)
Freshwater	5.17×10^{-3} mg/l	<0.01
Marine water	9.3×10^{-3} mg/l	<0.01
Freshwater sediment	4.16×10^{-4} mg/kg dw	<0.01
Marine sediment	7.49×10^{-4} mg/kg dw	<0.01
Soil	1.26×10^{-4} mg/kg dw	<0.01

Calculation method - EUSES 2.1

Remarks

No significant PEC values are indicated for the regional scale even under the conservative assumptions of the Tier 2 EUSES assessment. All derived PECs are below the relevant PNEC and so no further assessment or refinements are required.

Health

Derived No Effect Level (DNEL) - See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				12 mg/kg bw/d
Inhalation	706 mg/m³		353 mg/m³	

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative	0.01 ppm	<0.01
	Worker - dermal	0.07 mg/kg bw/day	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative	50 ppm	0.5
	Worker - dermal	0.27 mg/kg bw/day	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative	10 ppm	0.1
	Worker - dermal	1.37 mg/kg bw/day	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative	10 ppm	0.1
	Worker - dermal	1.37 mg/kg bw/day	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative	50 ppm	0.5
	Worker - dermal	2.74 mg/kg bw/day	< 0.01
PROC15 - Use as laboratory reagent	Worker - inhalative	50 ppm	0.5
	Worker - dermal	0.07 mg/kg bw/d	< 0.01

Calculation method Used ECETOC TRA model

Remarks
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used EUSES model
Used ECETOC TRA model
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)
Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented
ECHA guidance for downstream users

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Dichloromethane - Exposure Scenarios

CAS No	REACH registration number	EC No
75-09-2	01-2119480404-41-xxxx	200-838-9

Exposure scenario

Methylene chloride - ES2-M2 DCM

Section 1 - Identification of the use

Main user group Industrial use

Type Worker
Processes, tasks, activities covered Use as a Process Solvent / Extraction Medium (Industrial)

Sector(s) of use
SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 - Manufacture of fine chemicals

Process category(ies)
PROC1 - Use in closed process, no likelihood of exposure
PROC2 - Use in closed, continuous process with occasional controlled exposure
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC10 - Roller application or brushing
PROC15 - Use as laboratory reagent

Environmental release category(ies) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State Liquid
pH No information available
Water Solubility Partially miscible; 13.2 g/L @ 25 °C
Vapor Pressure 325 mmHg @ 20°C
Volatility High
Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)
ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

Control of environmental exposure
Readily biodegradable

Regional use tonnage 2410 t/a
Annual amount per site 2410 t/a

Environmental factors not influenced by risk management

Emission days	100
Receiving water dilution (fresh or marine)	18000 m3/d

Other operational conditions of use affecting environmental exposure

Emission days	100 (from ESVOC SPERC 1.1.v1)
Release fraction to air from process (initial release prior to RMM)	0.669
Release fraction to wastewater from process (initial release prior to RMM)	0.00154
Release fraction to soil from process (initial release prior to RMM)	0.0

Technical onsite conditions and measures to reduce or limit discharges, air emissions

Technical onsite conditions and measures to reduce or limit discharges, air emissions
Negligible air emissions as process operates in a contained system.
Additional good practice advice beyond the REACH Chemical Safety Report
Bund storage facilities to prevent soil and water pollution in the event of spillage. Ensure all waste water is collected and treated via a WWTP.

Conditions and measures related to municipal sewage treatment plant

Remarks	Manufacturing plants will have on-site waste water treatment facilities and emission to the municipal STP will not occur.

Waste management

Air	No discharge. No air emission controls required.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of 93.5%

Conditions and measures related to external treatment of waste for disposal

Disposal	Waste resulting from on-site RMM to be disposed as chemical waste
Waste treatment methods	Hazardous waste incineration

Section 2.2 - Control of worker exposure

General information on risk management related to physicochemical hazard

Keep equipment under negative pressure. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

General information on exposure estimation

Manufactured and processed at industrial sites in closed continuous processes with either no likelihood of exposure or with only occasional opportunity for exposure in contolled conditions e.g. during maintenance, sampling or discharge of the material. Transfer of the substance is conducted at dedicated facilities using a closed-system with vapour return. Respiratory protection is not required except for certain critical activities where respiratory protective equipment is used, for example, cleaning tanks or reactors.

Control of worker exposure

Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Covers concentrations up to	100%
Amounts used	>1000 t/y
Exposure duration	< 8h hour(s)
Use frequency	100 days per year
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Handle substance within a closed system Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Technical conditions and measures to control dispersion from source towards the worker	Undertake operation under enclosed conditions

Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

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Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100%
Exposure duration	< 8h hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Handle substance within a closed system Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Wear a respirator providing a minimum efficiency of 90% (APF 10) Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

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Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Exposure duration	< 8 hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Handle substance within a predominantly closed system provided with extract ventilation Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90% (APF 10)
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

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Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Exposure duration	< 8h hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Provide extract ventilation to points where emissions occur Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear a respirator providing a minimum efficiency of 90% (APF 10) Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

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Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Exposure duration	< 8h hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent	Provide extract ventilation to points where emissions occur Avoid direct skin contact with

/limit releases, dispersion and exposure	product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Assumes a good basic standard of occupational hygiene is implemented
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Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Exposure duration	< 8h hour(s)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90%

Control of consumer exposure	Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)

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

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	0.31 mg/l	**Marine water**	0.031 mg/l
Fresh water sediment	2.57 mg/kg dw	**Marine water sediment**	0.26 mg/kg dw
Water Intermittent	0.27 mg/l	**Soil (Agriculture)**	0.33 mg/kg dw
Microorganisms in sewage treatment	25.9 mg/l		

Environment	Predicted exposure level	Risk characterization ratio (RCR)
Freshwater	5.17×10^{-3} mg/l	<0.01
Marine water	9.3×10^{-3} mg/l	<0.01
Freshwater sediment	4.16×10^{-4} mg/kg dw	<0.01
Marine sediment	7.49×10^{-4} mg/kg dw	<0.01
Soil	1.26×10^{-4} mg/kg dw	<0.01

Calculation method - EUSES 2.1

Remarks

No significant PEC values are indicated for the regional scale even under the conservative assumptions of the Tier 2 EUSES assessment. All derived PECs are below the relevant PNEC and so no further assessment or refinements are required.

Health

Derived No Effect Level (DNEL) - See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				

Dermal			12 mg/kg bw/d
Inhalation	706 mg/m³	353 mg/m³	

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative	0.01 ppm	<0.01
	Worker - dermal	0.07 mg/kg bw/day	< 0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative	50 ppm	0.5
	Worker - dermal	0.27 mg/kg bw/day	< 0.01
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative	10 ppm	0.1
	Worker - dermal	1.37 mg/kg bw/day	< 0.01
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative	10 ppm	0.1
	Worker - dermal	1.37 mg/kg bw/day	< 0.01
PROC10 - Roller application or brushing	Worker - inhalative Worker - dermal	25 ppm 5.49 mg/kg bw/d	0.25 < 0.01
PROC15 - Use as laboratory reagent	Worker - inhalative Worker - dermal	50 ppm 0.07 mg/kg bw/d	0.5 < 0.01

Calculation method Used ECETOC TRA model

Remarks
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used EUSES model
Used ECETOC TRA model
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)
Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented
ECHA guidance for downstream users

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Dichloromethane - Exposure Scenarios

CAS No	REACH registration number	EC No
75-09-2	01-2119480404-41-xxxx	200-838-9

Exposure scenario

Methylene chloride - ES3-F1 DCM

Section 1 - Identification of the use

Main user group Industrial use

Type Worker
Processes, tasks, activities covered Use as a Process Solvent / Extraction Medium (Industrial)

Sector(s) of use
SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Process category(ies)
PROC3 - Use in closed batch process (synthesis or formulation)
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15 - Use as laboratory reagent

Environmental release category(ies) ERC2 - Formulation of preparations (mixtures)

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State	Liquid
pH	No information available
Water Solubility	Partially miscible; 13.2 g/L @ 25 °C
Vapor Pressure	325 mmHg @ 20°C
Volatility	High

Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)
ERC2 - Formulation of preparations (mixtures)

Control of environmental exposure
Readily biodegradable
Regional use tonnage 2810 t/a
Annual amount per site 239 t/a

Environmental factors not influenced by risk management

Emission days	300
Receiving water dilution (fresh or marine)	18000 m3/d

Other operational conditions of use affecting environmental exposure

Emission days	300 (from ESVOC SPERC 1.1.v1)
Release fraction to air from process (initial release prior to RMM)	0.025
Release fraction to wastewater from process (initial release prior to RMM)	0.02
Release fraction to soil from process (initial release prior to RMM)	0.0

Technical onsite conditions and measures to reduce or limit discharges, air emissions

Technical onsite conditions and measures to reduce or limit discharges, air emissions
Negligible air emissions as process operates in a contained system.
Additional good practice advice beyond the REACH Chemical Safety Report
Bund storage facilities to prevent soil and water pollution in the event of spillage. Ensure all waste water is collected and treated via a WWTP.

Conditions and measures related to municipal sewage treatment plant

Remarks	Manufacturing plants will have on-site waste water treatment facilities and emission to the municipal STP will not occur.

Waste management

Air	No discharge. No air emission controls required.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of 93.5%

Conditions and measures related to external treatment of waste for disposal

Disposal	Waste resulting from on-site RMM to be disposed as chemical waste
Waste treatment methods	Hazardous waste incineration

Section 2.2 - Control of worker exposure

General information on risk management related to physicochemical hazard

Keep equipment under negative pressure. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

General information on exposure estimation

Manufactured and processed at industrial sites in closed continuous processes with either no likelihood of exposure or with only occasional opportunity for exposure in contolled conditions e.g. during maintenance, sampling or discharge of the material. Transfer of the substance is conducted at dedicated facilities using a closed-system with vapour return. Respiratory protection is not required except for certain critical activities where respiratory protective equipment is used, for example, cleaning tanks or reactors. Measured dermal exposure data are not available.

Control of worker exposure

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Use frequency	300 days per year
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Handle substance within a predominantly closed system provided with extract ventilation Use of closed transfers of liquids from storage to production equipment (e.g. metered piped or pumped additions) Sample via a closed loop or other system to avoid exposure
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90% (APF 10)
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

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Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Provide extract ventilation to points where emissions occur Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear a respirator providing a minimum efficiency of 90% (APF 10) Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

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Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Provide extract ventilation to points where emissions occur Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear a respirator providing a minimum efficiency of 95% (APF 20) Wear chemically resistant gloves (tested to EN374) in combination with specific activity training
Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices

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Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Provide extract ventilation to points where emissions occur Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Fill containers/cans at dedicated fill points supplied with local extract ventilation Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Technical conditions and measures to control dispersion from source towards the worker	Provide extract ventilation to points where emissions occur
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training

Additional good practice advice beyond the REACH Chemical Safety Report	Workers involved in production, handling, sampling and transfer of materials are well-trained in these procedures as well as good industrial hygiene practices
Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90%

Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)

ERC2 - Formulation of preparations (mixtures)

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	0.31 mg/l	**Marine water**	0.031 mg/l
Fresh water sediment	2.57 mg/kg dw	**Marine water sediment**	0.26 mg/kg dw
Water Intermittent	0.27 mg/l	**Soil (Agriculture)**	0.33 mg/kg dw
Microorganisms in sewage treatment	25.9 mg/l		

Environment	Predicted exposure level	Risk characterization ratio (RCR)
Freshwater	5.17×10^{-3} mg/l	<0.01
Marine water	9.3×10^{-3} mg/l	<0.01
Freshwater sediment	4.16×10^{-4} mg/kg dw	<0.01
Marine sediment	7.49×10^{-4} mg/kg dw	<0.01
Soil	1.26×10^{-4} mg/kg dw	<0.01

Calculation method - EUSES 2.1

Remarks

No significant PEC values are indicated for the regional scale even under the conservative assumptions of the Tier 2 EUSES assessment. All derived PECs are below the relevant PNEC and so no further assessment or refinements are required.

Health

Derived No Effect Level (DNEL) - See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				12 mg/kg bw/d
Inhalation	706 mg/m³		353 mg/m³	

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative	10 ppm	0.1
	Worker - dermal	0.07 mg/kg bw/day	< 0.01
PROC4 - Use in batch and other process	Worker - inhalative	10 ppm	0.1

(synthesis) where opportunity for exposure arises			
	Worker - dermal	1.37 mg/kg bw/day	< 0.01
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative	25 ppm	0.3
	Worker - dermal	2.74 mg/kg bw/day	< 0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Worker - inhalative	4.5 mg/m^3	0.05
	Worker - dermal	1.37 mg/kg bw/day	< 0.01
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Worker - inhalative	20 mg/m^3	0.2
	Worker - dermal	1.37 mg/kg bw/day	< 0.01
PROC15 - Use as laboratory reagent	Worker - inhalative	50 ppm	0.5
	Worker - dermal	0.07 mg/kg bw/d	< 0.01

Calculation method Used ECETOC TRA model

Remarks
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used EUSES model
Used ECETOC TRA model
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html)
Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented
ECHA guidance for downstream users

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Dichloromethane - Exposure Scenarios

CAS No	REACH registration number	EC No
75-09-2	01-2119480404-41-xxxx	200-838-9

Exposure scenario

Methylene chloride - ES4-L1 DCM

Section 1 - Identification of the use

Main user group Industrial use

Type Worker
Processes, tasks, activities covered Laboratory use (Professional)

Sector(s) of use
SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Process category(ies)
PROC10 - Roller application or brushing
PROC15 - Use as laboratory reagent

Environmental release category(ies) ERC8a - Wide dispersive indoor use of processing aids in open systems

Section 2 - Operational Conditions and Risk Management Measures

Product characteristics

Physical State	Liquid
pH	No information available
Water Solubility	Partially miscible; 13.2 g/L @ 25 °C
Vapor Pressure	325 mmHg @ 20°C
Volatility	High

Covers concentrations up to 100 %

Section 2.1 - Control of environmental exposure

Environmental release category(ies)
ERC8a - Wide dispersive indoor use of processing aids in open systems

Control of environmental exposure
Readily biodegradable
Regional use tonnage 257 t/a
Annual amount per site 257 t/a

Environmental factors not influenced by risk management

Emission days	300
Receiving water dilution (fresh or marine)	18000 m3/d

Other operational conditions of use affecting environmental exposure

Emission days	300 (from ESVOC SPERC 1.1.v1)
Release fraction to air from process (initial release prior to RMM)	0.5

Release fraction to wastewater from process (initial release prior to RMM)	0.5
Release fraction to soil from process (initial release prior to RMM)	0.0

Technical onsite conditions and measures to reduce or limit discharges, air emissions

Technical onsite conditions and measures to reduce or limit discharges, air emissions
Negligible air emissions as process operates in a contained system.
Additional good practice advice beyond the REACH Chemical Safety Report
Bund storage facilities to prevent soil and water pollution in the event of spillage. Ensure all waste water is collected and treated via a WWTP.

Conditions and measures related to municipal sewage treatment plant

Remarks	Manufacturing plants will have on-site waste water treatment facilities and emission to the municipal STP will not occur.

Waste management

Air	No discharge. No air emission controls required.
Water	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of 93.5%

Conditions and measures related to external treatment of waste for disposal

Disposal	Waste resulting from on-site RMM to be disposed as chemical waste
Waste treatment methods	Hazardous waste incineration

Section 2.2 - Control of worker exposure

General information on risk management related to physicochemical hazard

Keep equipment under negative pressure. Segregate work area and mark with appropriate signs in accordance with local/regional/national legislation.

General information on exposure estimation

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Control of worker exposure

Process category(ies)	PROC15 - Use as laboratory reagent
Covers concentrations up to	100%
Exposure duration	>4 hours (default)
Use frequency	300 days per year
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop
Conditions and measures related to personal protection, hygiene and health evaluation	Use eye protection according to EN 166, designed to protect against liquid splashes Wear chemically resistant gloves (tested to EN374) in combination with specific activity training Wear a respirator providing a minimum efficiency of 90%

Process category(ies)	PROC10 - Roller application or brushing
Covers concentrations up to	100%
Exposure duration	Avoid carrying out activities involving exposure for more than 4 hours
Use frequency	300 days per year
Indoor/Outdoor use	Indoor
Assumes process temperature up to	<=40°C
Organisational measures to prevent /limit releases, dispersion and exposure	Provide extract ventilation to points where emissions occur Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur.

Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop

Control of consumer exposure Not intended for consumer use

Section 3 - Exposure estimation

Environment

Environmental release category(ies)
ERC8a - Wide dispersive indoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC) - See values below

Fresh water	0.31 mg/l	**Marine water**	0.031 mg/l
Fresh water sediment	2.57 mg/kg dw	**Marine water sediment**	0.26 mg/kg dw
Water Intermittent	0.27 mg/l	**Soil (Agriculture)**	0.33 mg/kg dw
Microorganisms in sewage treatment	25.9 mg/l		

Environment	Predicted exposure level	Risk characterization ratio (RCR)
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Freshwater sediment	4.16×10^{-4} mg/kg dw	<0.01
Marine sediment	7.49×10^{-4} mg/kg dw	<0.01
Soil	1.26×10^{-4} mg/kg dw	<0.01

Calculation method - EUSES 2.1

Remarks
No significant PEC values are indicated for the regional scale even under the conservative assumptions of the Tier 2 EUSES assessment. All derived PECs are below the relevant PNEC and so no further assessment or refinements are required.

Health

Derived No Effect Level (DNEL) - See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				12 mg/kg bw/d
Inhalation	706 mg/m³		353 mg/m³	

Process category(ies)	Exposure route	Predicted exposure level	Risk characterization ratio (RCR)
PROC10 - Roller application or brushing	Worker - inhalative	60 ppm	0.6
	Worker - dermal	5.49 mg/kg bw/d	< 0.01
PROC15 - Use as laboratory reagent	Worker - inhalative	50 ppm	0.5
	Worker - dermal	0.07 mg/kg bw/d	< 0.01

Calculation method Used ECETOC TRA model

Remarks
Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented

Section 4 - Guidance to check compliance with the exposure scenario

Used EUSES model
Used ECETOC TRA model
Further details on scaling and control technologies are provided in SpERC factsheet

(http://cefic.org/en/reach-for-industries-libraries.html)
Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented
ECHA guidance for downstream users