

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



Vazo™ 67

Version	Revision Date:	SDS Number:	Date of last issue: 18.10.2022
2.1	13.01.2023	10572924-00003	Date of first issue: 19.07.2022

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	:	Vazo™ 67
SDS-Identcode	:	130000000273
REACH Registration Number	:	01-2119970183-38-0000
Substance name	:	2,2'-Azodi(2-methylbutyronitrile)
EC-No.	:	236-740-8

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

Use of the Sub- stance/Mixture	:	Intermediate
Recommended restrictions on use	:	For industrial use only.

1.3 Details of the supplier of the safety data sheet

Company	:	Chemours Netherlands B.V. Baanhoekweg 22 3313 LA Dordrecht Netherlands
Telephone	:	+31-(0)-78-630-1011
Telefax	:	+31-78-6163737
E-mail address of person responsible for the SDS	:	sds-support@chemours.com

1.4 Emergency telephone number

+(44)-870-8200418 (CHEMTREC - Recommended)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Self-reactive substances and mixtures, Type D	H242: Heating may cause a fire.
Acute toxicity, Category 4	H302: Harmful if swallowed.

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2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms :



Signal word : Danger

Hazard statements : H242 Heating may cause a fire.
H302 Harmful if swallowed.

Precautionary statements :

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P235 Keep cool.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Storage:

P411 Store at temperatures not exceeding 24 °C/ 75 °F.
P420 Store separately.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Risk of explosion if heated under confinement.

Dust contact with the eyes can lead to mechanical irritation.

Contact with dust can cause mechanical irritation or drying of the skin.

May form explosive dust-air mixture.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : 2,2'-Azodi(2-methylbutyronitrile)

EC-No. : 236-740-8

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
2,2'-Azodi(2-methylbutyronitrile)	13472-08-7 236-740-8	>= 90 - <= 100

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SECTION 4: First aid measures

4.1 Description of first aid measures

- | | |
|----------------------------|---|
| General advice | : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice. |
| Protection of first-aiders | : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8). |
| If inhaled | : If inhaled, remove to fresh air.
Get medical attention if symptoms occur. |
| In case of skin contact | : Wash with water and soap.
Get medical attention if symptoms occur. |
| In case of eye contact | : If in eyes, rinse well with water.
Get medical attention if irritation develops and persists. |
| If swallowed | : If swallowed, DO NOT induce vomiting unless directed to do so by medical personnel.
Get medical attention.
Rinse mouth thoroughly with water.
Never give anything by mouth to an unconscious person. |

4.2 Most important symptoms and effects, both acute and delayed

- | | |
|----------|---|
| Symptoms | : Eye contact may provoke the following symptoms
Irritation
Pain
tearing
Impairment of vision

Ingestion may provoke the following symptoms:
Tremors
Lack of coordination
Lethargy
central nervous system effects |
| Risks | : Harmful if swallowed.

Contact with dust can cause mechanical irritation or drying of the skin.
Dust contact with the eyes can lead to mechanical irritation. |

4.3 Indication of any immediate medical attention and special treatment needed

- | | |
|-----------|---|
| Treatment | : Treat symptomatically and supportively. |
|-----------|---|

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
Do not use a solid water stream as it may scatter and spread fire.
The product burns violently.
Exposure to combustion products may be a hazard to health.

Hazardous combustion products : Nitrogen oxides (NOx)
Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Remove all sources of ignition.
Use personal protective equipment.
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

6.2 Environmental precautions

Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
Retain and dispose of contaminated wash water.

If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

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6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Clear spills immediately.
Take any precaution to avoid mixing with combustibles.
Soak up with inert absorbent material.
Remove mechanically and with care (e.g. with clean polyethylene plastic shovel).
Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).
Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.
Isolate waste and do not reuse.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : Static electricity may accumulate and ignite suspended dust causing an explosion.
Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.

Local/Total ventilation : Use only with adequate ventilation.
If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Advice on safe handling : Do not breathe decomposition products.

Do not breathe dust.
Do not swallow.
Avoid contact with eyes.
Avoid prolonged or repeated contact with skin.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Non-sparking tools should be used.
Prevent pressure build-up
Protect container from physical shock.
Protect from contamination.
Minimize dust generation and accumulation.
Keep container closed when not in use.

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Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep away from clothing and other combustible materials.
Take precautionary measures against static discharges.
Do not eat, drink or smoke when using this product.
Keep only in original packaging.
Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep in properly labelled containers. Store in original container. Keep in a dry, cool and well-ventilated place. Protect from sunlight. Adhere to recommended storage temperature. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition.

Advice on common storage : Store away from other materials.

Recommended storage temperature : < 24 °C

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
2,2'-Azodi(2-methylbutyronitrile)	13472-08-7	TWA	5 mg/m ³ (Cyanide)	GB EH40
Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.				

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Hydrogen cyanide	74-90-8	TWA	0.9 ppm 1 mg/m ³	GB EH40
Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will				

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		lead to systemic toxicity.		
		STEL	4.5 ppm 5 mg/m ³	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		STEL	4.5 ppm 5 mg/m ³ (Cyanide)	2017/164/EU
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		TWA	0.9 ppm 1 mg/m ³ (Cyanide)	2017/164/EU
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
Carbon monoxide	630-08-0	TWA	30 ppm 35 mg/m ³	GB EH40
		STEL	200 ppm 232 mg/m ³	GB EH40
		TWA	20 ppm 23 mg/m ³	GB EH40
		STEL	100 ppm 117 mg/m ³	GB EH40
		STEL	100 ppm 117 mg/m ³	2017/164/EU
	Further information: Indicative			
		TWA	20 ppm 23 mg/m ³	2017/164/EU
	Further information: Indicative			
Carbon dioxide	124-38-9	TWA	5,000 ppm 9,150 mg/m ³	GB EH40
		STEL	15,000 ppm 27,400 mg/m ³	GB EH40
		TWA	5,000 ppm 9,000 mg/m ³	2006/15/EC
	Further information: Indicative			

Derived No Effect Level (DNEL):

Substance name	End Use	Exposure routes	Potential health effects	Value
2,2'-Azodi(2-methylbutyronitrile)	Workers	Inhalation	Long-term systemic effects	0.35 mg/m ³
	Workers	Skin contact	Long-term systemic effects	485.4 mg/kg bw/day

Predicted No Effect Concentration (PNEC):

Substance name	Environmental Compartment	Value
2,2'-Azodi(2-methylbutyronitrile)	Fresh water	0.052 mg/l
	Marine water	0.005 mg/l
	Intermittent use/release	0.519 mg/l
	Fresh water sediment	0.84 mg/kg dry

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		weight (d.w.)
	Fresh water sediment	0.084 mg/kg dry weight (d.w.)
	Sewage treatment plant	117 mg/l
	Soil	0.14 mg/kg dry weight (d.w.)

8.2 Exposure controls

Engineering measures

Processing may form hazardous compounds (see section 10).

Ensure adequate ventilation, especially in confined areas.

Minimize workplace exposure concentrations.

Apply measures to prevent dust explosions.

Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Personal protective equipment

Eye/face protection : Wear the following personal protective equipment:
Safety goggles
Equipment should conform to BS EN 166

Hand protection
Material : Neoprene

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday. Breakthrough time is not determined for the product. Change gloves often!

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Wear the following personal protective equipment:
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Equipment should conform to BS EN 137

Filter type : Self-contained breathing apparatus

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: solid, crystalline
Colour	: white
Odour	: odourless
Odour Threshold	: No data available
pH	: 7
Melting point/freezing point	: 49.4 °C Do not attempt to verify melting point; decomposition can be violent.
Initial boiling point and boiling range	: No data available
Flash point	: Not applicable
Evaporation rate	: Not applicable
Flammability (solid, gas)	: May form explosive dust-air mixture.
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: 0.03 - 0.04 %(V)
Vapour pressure	: 0.00354 hPa (25 °C)
Relative vapour density	: Not applicable
Relative density	: 1.1 (25 °C)
Bulk density	: 400 kg/m ³
Solubility(ies) Water solubility	: < 10 g/l
Partition coefficient: n-octanol/water	: log Pow: 2.07 (20 °C)
Auto-ignition temperature	: 185 °C
Decomposition temperature	: The product is a self-reactive substance or mixture classified as type D.

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Viscosity		
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Extreme risk of explosion by shock, friction, fire or other sources of ignition.
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

9.2 Other information

Self-Accelerating decomposition temperature (SADT)	:	45 °C
Particle size	:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Heating may cause a fire.

10.2 Chemical stability

Follow precautionary advice and avoid incompatible materials and conditions

10.3 Possibility of hazardous reactions

Hazardous reactions	:	May form explosive dust-air mixture. Oxidizing material can cause a reaction. Hazardous decomposition products will be formed at elevated temperatures. May explode under confinement.
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10.4 Conditions to avoid

Conditions to avoid	:	Heat, flames and sparks. Protect from contamination. Avoid dust formation. Temperatures greater than recommended storage temperature. Contact with incompatible substances can cause decomposition at or below SADT.
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10.5 Incompatible materials

Materials to avoid	:	Oxidizing agents Avoid impurities (e.g. rust, dust, ash), risk of decomposition. Flammable materials
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10.6 Hazardous decomposition products

Thermal decomposition	:	Hydrogen cyanide Nitrogen Carbon monoxide Carbon dioxide
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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Harmful if swallowed.

Product:

Acute oral toxicity : Acute toxicity estimate: 338.35 mg/kg
Method: Calculation method

Components:

2,2'-Azodi(2-methylbutyronitrile):

Acute oral toxicity : LD50 (Rat): 337 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 8.9 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

Skin corrosion/irritation

Not classified based on available information.

Components:

2,2'-Azodi(2-methylbutyronitrile):

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:

2,2'-Azodi(2-methylbutyronitrile):

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Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

2,2'-Azodi(2-methylbutyronitrile):

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative
Test Type	:	Local lymph node assay (LLNA)
Exposure routes	:	Skin contact
Species	:	Mouse
Method	:	OECD Test Guideline 429
Result	:	negative
Remarks	:	Based on data from similar materials

Germ cell mutagenicity

Not classified based on available information.

Components:

2,2'-Azodi(2-methylbutyronitrile):

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative Remarks: Based on data from similar materials
		Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative Remarks: Based on data from similar materials
		Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: negative Remarks: Based on data from similar materials
Germ cell mutagenicity- Assessment	:	Weight of evidence does not support classification as a germ cell mutagen.

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Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Not classified based on available information.

Components:

2,2'-Azodi(2-methylbutyronitrile):

Exposure routes	:	Ingestion
Assessment	:	No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less
Exposure routes	:	inhalation (dust/mist/fume)
Assessment	:	No significant health effects observed in animals at concentrations of 5.0 mg/l/4h or less
Exposure routes	:	Skin contact
Assessment	:	No significant health effects observed in animals at concentrations of 2000 mg/kg bw or less

STOT - repeated exposure

Not classified based on available information.

Components:

2,2'-Azodi(2-methylbutyronitrile):

Exposure routes	:	Ingestion
Assessment	:	No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

Repeated dose toxicity

Components:

2,2'-Azodi(2-methylbutyronitrile):

Species	:	Rat, male and female
NOAEL	:	10 mg/kg
LOAEL	:	50 mg/kg
Application Route	:	Ingestion
Exposure time	:	42 Days
Method	:	OECD Test Guideline 422
Remarks	:	Based on data from similar materials

Aspiration toxicity

Not classified based on available information.

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SECTION 12: Ecological information

12.1 Toxicity

Components:

2,2'-Azodi(2-methylbutyronitrile):

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): 580 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 51.9 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 67 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (green algae)): 12.5 mg/l Exposure time: 3 d Method: OECD Test Guideline 201
Toxicity to fish (Chronic toxicity)	:	NOEC: > 10 mg/l Exposure time: 14 d Species: Oryzias latipes (Japanese medaka) Method: OECD Test Guideline 204 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 2.2 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 Remarks: Based on data from similar materials

12.2 Persistence and degradability

Components:

2,2'-Azodi(2-methylbutyronitrile):

Biodegradability	:	Result: Not readily biodegradable. Method: OECD Test Guideline 301D Remarks: Based on data from similar materials
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12.3 Bioaccumulative potential

Components:

2,2'-Azodi(2-methylbutyronitrile):

Bioaccumulation	:	Remarks: Bioaccumulation is unlikely.
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12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : 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.

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADN : UN 3236

ADR : UN 3236

RID : UN 3236
Not permitted for transport

IMDG : UN 3236

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IATA : UN 3236
Not permitted for transport

14.2 UN proper shipping name

ADN : SELF-REACTIVE SOLID TYPE D, TEMPERATURE
CONTROLLED (2,2'-AZODI(2-METHYLBUTYRONITRILE))

ADR : SELF-REACTIVE SOLID TYPE D, TEMPERATURE
CONTROLLED (2,2'-AZODI(2-METHYLBUTYRONITRILE))

RID : SELF-REACTIVE SOLID TYPE D, TEMPERATURE
CONTROLLED (2,2'-AZODI(2-METHYLBUTYRONITRILE))
Not permitted for transport

IMDG : SELF-REACTIVE SOLID TYPE D, TEMPERATURE
CONTROLLED (2,2'-AZODI(2-METHYLBUTYRONITRILE))

IATA : SELF-REACTIVE SOLID TYPE D, TEMPERATURE
CONTROLLED (2,2'-AZODI (2-METHYLBUTYRONITRILE))
Not permitted for transport

14.3 Transport hazard class(es)

ADN : 4.1

ADR : 4.1

RID : Not permitted for transport

IMDG : 4.1

IATA : Not permitted for transport

14.4 Packing group

ADN
Packing group : Not assigned by regulation
Classification Code : SR2
Labels : 4.1

ADR
Packing group : Not assigned by regulation
Classification Code : SR2
Labels : 4.1
Tunnel restriction code : (D)

RID : Not permitted for transport

IMDG
Packing group : Not assigned by regulation
Labels : 4.1
EmS Code : F-F, S-K

IATA (Cargo) : Not permitted for transport

IATA (Passenger) : Not permitted for transport

14.5 Environmental hazards

ADN
Environmentally hazardous : no

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ADR

Environmentally hazardous : no

RID

: Not permitted for transport

IMDG

Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

UK REACH List of restrictions (Annex 17) : Not applicable

UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation : Not applicable

The Persistent Organic Pollutants Regulations (retained Regulation (EU) 2019/1021 as amended for Great Britain) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

UK REACH List of substances subject to authorisation (Annex XIV) : Not applicable

GB Export and import of hazardous chemicals - Prior Informed Consent (PIC) Regulation : Not applicable

Control of Major Accident Hazards Regulations 2015 (COMAH)

P6b	SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC PEROXIDES	Quantity 1 50 t	Quantity 2 200 t
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15.2 Chemical safety assessment

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

SECTION 16: Other information

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Chemours™ and the Chemours Logo are trademarks of The Chemours Company.
Before use read Chemours safety information.
For further information contact the local Chemours office or nominated distributors.
Samples of 100 grams or less per package may ship as UN3226 without temperature control per CA-1998100007.

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Full text of other abbreviations

2006/15/EC	: Europe. Indicative occupational exposure limit values
2017/164/EU	: Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
GB EH40	: UK. EH40 WEL - Workplace Exposure Limits
2006/15/EC / TWA	: Limit Value - eight hours
2017/164/EU / STEL	: Short term exposure limit
2017/164/EU / TWA	: Limit Value - eight hours
GB EH40 / TWA	: Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL	: Short-term exposure limit (15-minute reference period)

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;

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SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

GB / EN

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Annex: Exposure Scenarios

Table of Contents

Number	Title
ES1	Industrial use; Manufacture of fine chemicals (SU9).; Manufacture of plastics products, including compounding and conversion (SU12); Free radical initiators.; Processing aid - Polymerisation.

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ES 1: Industrial use; Manufacture of fine chemicals (SU9).; Manufacture of plastics products, including compounding and conversion (SU12); Free radical initiators.; Processing aid - Polymerisation.

1.1. Title section

Exposure Scenario name	: Industrial, Free radical initiators, Processing aid - Polymerisation
Structured Short Title	: Industrial use; Manufacture of fine chemicals (SU9).; Manufacture of plastics products, including compounding and conversion (SU12); Free radical initiators.; Processing aid - Polymerisation.

Environment		
CS 1	Free radical initiators, Polymerisation	ERC6a
Worker		
CS 2	Transfer with LEV (Local Exhaust Ventilation)., Dedicated facility	PROC8b
CS 3	Transfer with RPE (Respiratory Protective Equipment)., Dedicated facility	PROC8b
CS 4	Transfer with RPE (Respiratory Protective Equipment)., Transfer with LEV (Local Exhaust Ventilation)., Dedicated facility	PROC8b
CS 5	Material transfers, Closed systems	PROC1
CS 6	Mixing operations, Closed systems, Mixing	PROC1
CS 7	Mixing operations	PROC5
CS 8	Transfer with RPE (Respiratory Protective Equipment)., Non-dedicated facility	PROC8a
CS 9	Mixing operations, Closed systems, Continuous process	PROC2
CS 10	Mixing operations, Batch process, Closed systems, Small scale	PROC3
CS 11	Product sampling	PROC8b
CS 12	Material transfers, Polymerisation	PROC1
CS 13	Laboratory activities	PROC15
CS 14	Mixing operations, Batch process, Closed systems, Large scale	PROC3

1.2. Conditions of use affecting exposure

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

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Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: solid
Amount used (or contained in articles), frequency and duration of use/exposure	
Annual use rate (tonnes/year)	: 150 tonnes/year
Annual amount per site	: 75 tonnes/year
Daily amount per site	: 1875 kg/day
Release type	: Continuous release
Emission days	: 40
Technical and organisational conditions and measures	
Air cyclones for dust collection Two stage dust filter	
Limit release rate to waste water to (kg/day): 0.75 kg/day Wastewater emissions generated from equipment cleaning with water.	
Conditions and measures related to sewage treatment plant	
STP type	: Onsite Sewage Treatment Plant
STP sludge treatment	: Controlled application of sewage sludge to agricultural soil
STP effluent	: 2,000 m3/d
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: This substance is consumed during use and no waste of the substance is generated. Hazardous Waste Incineration
Other conditions affecting environmental exposure	
Receiving surface water flow	: 18,000 m3/d

1.2.2. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: solid

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Amount used (or contained in articles), frequency and duration of use/exposure
Use frequency : Avoid using product more than 1 hours/day
Technical and organisational conditions and measures
Local exhaust ventilation
Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.
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 %
For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor or outdoor use : Indoor use
Temperature : Covers use at ambient temperatures.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
Good housekeeping

1.2.3. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : solid
Amount used (or contained in articles), frequency and duration of use/exposure
Use frequency : Avoid using product more than 1 hours/day
Technical and organisational conditions and measures
Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable respiratory protection.

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Inhalation - minimum efficiency of 95 %
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %
For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor or outdoor use : Indoor use
Temperature : Covers use at ambient temperatures.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
Good housekeeping

1.2.4. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : solid
Amount used (or contained in articles), frequency and duration of use/exposure
Use frequency : Avoid using product more than 4 hours/day
Technical and organisational conditions and measures
Local exhaust ventilation
Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 %
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %
For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor or outdoor use : Indoor use
Temperature : Covers use at ambient temperatures.

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Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Good housekeeping

1.2.5. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : solid

Amount used (or contained in articles), frequency and duration of use/exposure

Use frequency : Avoid using product more than 4 hours/day

Technical and organisational conditions and measures

Ensure operatives are trained to minimise exposures.
For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.

Conditions and measures related to personal protection, hygiene and health evaluation

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Covers use at ambient temperatures.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Good housekeeping

1.2.6. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics

Covers concentrations up to 50 %

Physical form of product : Liquid

Amount used (or contained in articles), frequency and duration of use/exposure

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Use frequency	: Avoid using product more than 4 hours/day
Technical and organisational conditions and measures	
Regular inspection and maintenance of equipment and machines	
Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.	
Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).	
Vessel Opening Medium containment with receiving vessel docked or sealed to the source vessel to prevent direct contact with the product. < 0.3 m2 Inhalation - minimum efficiency of 99 %	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 30 m ³
Temperature	: 25 °C
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
Good housekeeping	

1.2.7. Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteristics	
Covers concentrations up to 50 %	
Physical form of product	: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure	
Use frequency	: Avoid using product more than 1 hours/day
Technical and organisational conditions and measures	
Regular inspection and maintenance of equipment and machines	
Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.	

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Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).
Local exhaust ventilation Inhalation - minimum efficiency of 50 %
Vessel Opening Assumes a good basic standard of occupational hygiene is implemented < 0.3 m2
Conditions and measures related to personal protection, hygiene and health evaluation
For further specification, refer to section 8 of the SDS.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %
Other conditions affecting workers exposure
Indoor or outdoor use : Indoor use
Room size : 100 m³
Temperature : 25 °C
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
Good housekeeping

1.2.8. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : solid
Amount used (or contained in articles), frequency and duration of use/exposure
Use frequency : Avoid using product more than 1 hours/day
Technical and organisational conditions and measures
Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable respiratory protection. Inhalation - minimum efficiency of 95 %
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

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Dermal - minimum efficiency of 90 %
For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor or outdoor use : Indoor use
Temperature : Covers use at ambient temperatures.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
Good housekeeping

1.2.9. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristics
Covers concentrations up to 50 %
Physical form of product : Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Use frequency : Avoid using product more than 4 hours/day
Technical and organisational conditions and measures
Regular inspection and maintenance of equipment and machines
Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.
Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).
Vessel Opening Medium containment with receiving vessel docked or sealed to the source vessel to prevent direct contact with the product. < 0.3 m ² Inhalation - minimum efficiency of 99 %
Conditions and measures related to personal protection, hygiene and health evaluation
For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor or outdoor use : Indoor use
Room size : 30 m ³

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Temperature	: 25 °C
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
Good housekeeping	

1.2.10. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Product (article) characteristics
Covers concentrations up to 50 %
Physical form of product : Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Use frequency : Avoid using product more than 1 hours/day
Technical and organisational conditions and measures
Regular inspection and maintenance of equipment and machines
Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.
Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).
Vessel Opening Low containment using loose lids on vessels. < 0.3 m ² Inhalation - minimum efficiency of 90 %
Conditions and measures related to personal protection, hygiene and health evaluation
For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor or outdoor use : Indoor use
Room size : 30 m ³
Temperature : 25 °C
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
Good housekeeping

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1.2.11. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics	
Covers concentrations up to 50 %	
Physical form of product	: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure	
Use frequency	: Avoid using product more than 15 min/day
Technical and organisational conditions and measures	
Regular inspection and maintenance of equipment and machines	
Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.	
Low application rate (0.03 - 0.3 l/minute)	
Reduce contact between product and air	
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 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Room size	: 30 m ³
Temperature	: 25 °C
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
Good housekeeping	

1.2.12. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics	
Covers concentrations up to 50 %	
Physical form of product	: Liquid

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Amount used (or contained in articles), frequency and duration of use/exposure
Use frequency : Avoid using product more than 6 hours/day
Technical and organisational conditions and measures
Regular inspection and maintenance of equipment and machines
Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.
Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).
Vessel Opening Medium containment with receiving vessel docked or sealed to the source vessel to prevent direct contact with the product. < 0.1 m2 Inhalation - minimum efficiency of 99 %
Conditions and measures related to personal protection, hygiene and health evaluation
For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor or outdoor use : Indoor use
Room size : 30 m ³
Temperature : 150 °C
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
Good housekeeping

1.2.13. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics
Covers concentrations up to 50 %
Physical form of product : Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Use frequency : 30 min/day
Technical and organisational conditions and measures
Regular inspection and maintenance of equipment and machines

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Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.
Reduce contact between product and air
Moderate application rate (0.3 - 3 l/minute)
Submerged loading.
Conditions and measures related to personal protection, hygiene and health evaluation
For further specification, refer to section 8 of the SDS.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 90 %
Other conditions affecting workers exposure
Indoor or outdoor use : Indoor use
Room size : 30 m ³
Temperature : 25 °C
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
Good housekeeping

1.2.14. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Product (article) characteristics
Covers concentrations up to 50 %
Physical form of product : Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Use frequency : Avoid using product more than 1 hours/day
Technical and organisational conditions and measures
Regular inspection and maintenance of equipment and machines
Ensure operatives are trained to minimise exposures. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.
Ensure that the task is being carried out outside the breathing zone of a worker (distance head-product greater than 1m).

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Vessel Opening

Low containment using loose lids on vessels. < 0.3 m²
Inhalation - minimum efficiency of 90 %

Conditions and measures related to personal protection, hygiene and health evaluation

For further specification, refer to section 8 of the SDS.

Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Room size : 300 m³

Temperature : 25 °C

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

Good housekeeping

1.3. Exposure estimation and reference to its source

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

Protection Target	Exposure estimate	RCR
Freshwater	0.0369 mg/L (ECETOC TRA environment v2.0)	0.7
Marine water	0.00369 mg/L (ECETOC TRA environment v2.0)	0.7
Freshwater sediment	0.594 mg/kg dry weight (ECETOC TRA environment v2.0)	0.7
Marine sediment	0.0594 mg/kg dry weight (ECETOC TRA environment v2.0)	0.7
Agricultural soil	0.0813 mg/kg dry weight (ECETOC TRA environment v2.0)	0.6
Grassland	0.0263 mg/kg dry weight (ECETOC TRA environment v2.0)	0.2
Sewage treatment plant	0.369 mg/L (ECETOC TRA environment v2.0)	0.003

1.3.2. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indica-	Exposure esti-	RCR
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		tor	mate	
inhalative	systemic	long-term	0.05 mg/m ³ (ECETOC TRA worker v2.0)	0.1
dermal	systemic	long-term	0.686 mg/kg bw/day (ECETOC TRA worker v2.0)	0.001

1.3.3. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.05 mg/m ³ (ECETOC TRA worker v2.0)	0.1
dermal	systemic	long-term	0.686 mg/kg bw/day (ECETOC TRA worker v2.0)	0.001

1.3.4. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.015 mg/m ³ (ECETOC TRA worker v2.0)	0.04
dermal	systemic	long-term	0.686 mg/kg bw/day (ECETOC TRA worker v2.0)	0.001

1.3.5. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.006 mg/m ³ (ECETOC TRA worker v2.0)	0.02
dermal	systemic	long-term	0.343 mg/kg bw/day (ECETOC TRA worker v2.0)	< 0.001

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1.3.6. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.001 mg/m ³ (ECETOC TRA worker v2.0)	0.003
dermal	systemic	long-term	0.343 mg/kg bw/day (ART v1.0)	< 0.001

1.3.7. Worker exposure: Mixing or blending in batch processes (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.0022 mg/m ³ (ECETOC TRA worker v2.0)	0.006
dermal	systemic	long-term	1.37 mg/kg bw/day (ART v1.0)	0.003

1.3.8. Worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.05 mg/m ³ (ECETOC TRA worker v2.0)	0.1
dermal	systemic	long-term	1.37 mg/kg bw/day (ECETOC TRA worker v2.0)	0.003

1.3.9. Worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.001 mg/m ³ (ECETOC TRA worker v2.0)	0.003
dermal	systemic	long-term	1.37 mg/kg bw/day (ART v1.0)	0.003

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1.3.10. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.0026 mg/m ³ (ECETOC TRA worker v2.0)	0.007
dermal	systemic	long-term	0.343 mg/kg bw/day (ART v1.0)	< 0.001

1.3.11. Worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.0023 mg/m ³ (ECETOC TRA worker v2.0)	0.007
dermal	systemic	long-term	0.686 mg/kg bw/day (ART v1.0)	0.001

1.3.12. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.00048 mg/m ³ (ECETOC TRA worker v2.0)	0.001
dermal	systemic	long-term	0.343 mg/kg bw/day (ART v1.0)	< 0.001

1.3.13. Worker exposure: Use as laboratory reagent (PROC15)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.00046 mg/m ³ (ECETOC TRA worker v2.0)	0.001
dermal	systemic	long-term	0.0343 mg/kg bw/day (ART v1.0)	< 0.001

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1.3.14. Worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.00034 mg/m ³ (ECETOC TRA worker v2.0)	0.001
dermal	systemic	long-term	0.343 mg/kg bw/day (ART v1.0)	< 0.001

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

For further information, please contact sds-support@chemours.com.