

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 05.07.2022

Version number 30

Revision: 05.07.2022

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

- **1.1 Product identifier**
- **Molecular formula:** C<sub>3</sub> H<sub>7</sub> N O
- **Structure formula:** H C O - N - (C H<sub>3</sub>)<sub>2</sub>
- **Trade name:** dimethyl formamide
- **SDS number:** CH0019
- **CAS Number:**  
68-12-2
- **EC number:**  
200-679-5
- **Index number:**  
616-001-00-X
- **Application of the substance / the mixture** Chemicals products for laboratory
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
CARLO ERBA REAGENTS  
Chaussée du Vexin  
Parc d'Affaires des Portes - BP616  
27106 VAL DE REUIL Cedex  
Téléphone: +33 (0)2 32 09 20 00  
Télécopie: +33 (0)2 32 09 20 20
- **Further information obtainable from:**  
Q.A / Normative  
email: MSDS\_CER-SDS@cer.dgroup.it
- **1.4 Emergency telephone number:**  
Ireland - Tel : 00 353 1 8092568 - 00 353 1 8379964 (24h/24)  
EU Tel : 112  
National Poisons Information Centre: +353 (1) 809 2166 (8.00 a.m. to 10.00 p.m. 7 days a week)  
Healthcare Professionals: +353 (1) 809 2566 (24 hour service)  
Members of the public seeking specific information on poisons should contact:  
In England and Wales: NHS 111 - dial 111  
In Scotland: NHS 24 - dial 111

**SECTION 2: Hazards identification**

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



flame

Flam. Liq. 3 H226 Flammable liquid and vapour.



health hazard

Repr. 1B H360D May damage the unborn child.



Acute Tox. 4 H312 Harmful in contact with skin.

Acute Tox. 4 H332 Harmful if inhaled.

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*Eye Irrit. 2 H319 Causes serious eye irritation.*

#### · 2.2 Label elements

##### · Labelling according to Regulation (EC) No 1272/2008

*The substance is classified and labelled according to the GB CLP regulation.*

##### · Hazard pictograms



GHS02

GHS07

GHS08

##### · Signal word *Danger*

##### · Hazard statements

*H226 Flammable liquid and vapour.*

*H312+H332 Harmful in contact with skin or if inhaled.*

*H319 Causes serious eye irritation.*

*H360D May damage the unborn child.*

##### · Precautionary statements

*P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.*

*P241 Use explosion-proof [electrical/ventilating/lighting] equipment.*

*P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.*

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

*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.*

##### · Additional information:

*Restricted to professional users.*

##### · 2.3 Other hazards

##### · Results of PBT and vPvB assessment

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

## SECTION 3: Composition/information on ingredients

#### · 3.1 Chemical characterisation: Substances

##### · CAS No. Description

CAS: 68-12-2 dimethyl formamide

##### · Identification number(s)

· **EC number:** 200-679-5

· **Index number:** 616-001-00-X

##### · SVHC

CAS: 68-12-2	dimethyl formamide
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### SECTION 4: First aid measures

#### · 4.1 Description of first aid measures

##### · **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

##### · **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

##### · **After skin contact:**

Immediately wash with water and soap and rinse thoroughly. Wash contaminated clothing before reuse. If skin irritation continues, consult a doctor.

##### · **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor. Seek immediate medical advice.

##### · **Information for doctor:** Show the doctor this Material Safety Data Sheet.

#### · 4.2 Most important symptoms and effects, both acute and delayed No further relevant information available.

#### · 4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

### SECTION 5: Firefighting measures

#### · 5.1 Extinguishing media

##### · **Suitable extinguishing agents:**

CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

##### · **For safety reasons unsuitable extinguishing agents:** Water with full jet.

#### · 5.2 Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Nitrogen oxides (NO<sub>x</sub>)

Carbon monoxide and carbon dioxide

In the absence of oxygen: Ammonia (NH<sub>3</sub>).

#### · 5.3 Advice for firefighters

##### · **Protective equipment:**

In closed rooms wear a self contained breathing apparatus.

Do not inhale gases in case of fire or combustion.

##### · **Additional information** Keep receptacles cool with water spray.

### SECTION 6: Accidental release measures

#### · 6.1 Personal precautions, protective equipment and emergency procedures

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Ensure adequate ventilation

#### · 6.2 Environmental precautions:

Do not allow to penetrate the ground/soil.

Dilute with plenty of water after collecting the liquid.

Do not allow to enter sewers/ surface or ground water.

#### · 6.3 Methods and material for containment and cleaning up:

Collect the liquid with vacuum in a suitable container and absorb the remainder with a porous material (diatomite, acid binders, universal binders, etc).

Ensure adequate ventilation.

Dispose contaminated material as waste according to item 13.

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- **6.4 Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**  
Store in cool, dry place in tightly closed receptacles.  
Ensure good ventilation/exhaustion at the workplace.  
Wear suitable respiratory protective device when decanting larger quantities without extractor facilities.  
Pneumatic conveyance only with nitrogen or other inert gases.
- **Information about fire - and explosion protection:**



Keep ignition sources away - Do not smoke.

- Protect against electrostatic charges.  
Do not spray onto a naked flame or any incandescent material.  
Keep respiratory protective device available.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Suitable material for receptacles and pipes: steel or stainless steel.  
Suitable material for receptacles and pipes: Aluminium.  
Suitable material for receptacles : glass bottles.  
Store in a cool location.  
Use only receptacles specifically permitted for this substance/product.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Store in cool, dry conditions in well sealed receptacles.
- **Maximum storage temperature:** <math>< 50^{\circ}\text{C}</math>
- **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Additional information about design of technical facilities:**  
Safety shower and eye bath. Mechanical exhaust required.  
No further data; see item 7.

· **Ingredients with limit values that require monitoring at the workplace:**

**CAS: 68-12-2 dimethyl formamide**

WEL	Short-term value: 30 mg/m <sup>3</sup> , 10 ppm
	Long-term value: 15 mg/m <sup>3</sup> , 5 ppm
Sk	

· **DNELs**

Dermal	DNEL (workers-systemic chronic effects)	3.31 mg/kg
Inhalative	DNEL (workers-systemic chronic effects)	15 mg/m <sup>3</sup>

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**· PNECs**

PNEC (Fresh water)	30 mg/l
PNEC (Freshwater sediment)	25.05 mg/kg
PNEC (Marine water)	3 mg/l
PNEC (STP)	123 mg/l
PNEC (Soil)	16.24 mg/kg

· **Additional information:** The lists valid during the making were used as basis.

**· 8.2 Exposure controls**
**· Personal protective equipment:**
**· General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

Keep away from foodstuffs, beverages and feed.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Pregnant women should strictly avoid inhalation or skin contact.

Clean skin thoroughly immediately after handling the product.

**· Respiratory protection:**

Use suitable respiratory protective device only when aerosol or mist is formed.



In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Filter P2

Use suitable respiratory protective device in case of insufficient ventilation.

**· Protection of hands:**

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation



Protective gloves

Rubber gloves

**· Material of gloves**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**· Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**· For the permanent contact gloves made of the following materials are suitable:**

Butyl rubber, BR

Recommended thickness of the material:  $\geq 0.7$  mm

**· Eye protection:**


Tightly sealed goggles

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- **Limitation and supervision of exposure into the environment**  
In case of unintended release of the product: See section 6 of the Safety Data Sheet.
- **Risk management measures** Keep good industrial hygiene.

### SECTION 9: Physical and chemical properties

#### · 9.1 Information on basic physical and chemical properties

- |  |                                   |
|--|-----------------------------------|
| Molecular weight                           | 73.1 g                            |
| · Appearance:                              |                                   |
| Form:                                      | Fluid                             |
| Colour:                                    | Colourless                        |
| Odour:                                     | Amine-like                        |
| Odour threshold:                           | Not determined.                   |
| · pH-value: 7                              |                                   |
| · Change in condition                      |                                   |
| Melting point/freezing point:              | -61 °C                            |
| Initial boiling point and boiling range:   | 153 °C                            |
| Flash point:                               | 58 °C                             |
| Flammability (solid, gas):                 | Not applicable.                   |
| Ignition temperature:                      | 440 °C                            |
| Decomposition temperature:                 | Not determined.                   |
| Auto-ignition temperature:                 | Not determined.                   |
| Explosive properties:                      | Not determined.                   |
| Explosion limits:                          |                                   |
| Lower:                                     | 2.2 Vol %                         |
| Upper:                                     | 16 Vol %                          |
| Vapour pressure at 20 °C:                  | 3.5 hPa                           |
| Vapour pressure (2) at 50 °C:              | 22.9 hPa                          |
| Density at 20 °C:                          | 0.95 g/cm <sup>3</sup>            |
| Relative density                           | Not determined.                   |
| Vapour density                             | Not determined.                   |
| Evaporation rate                           | Not determined.                   |
| Solubility in / Miscibility with water:    | Fully miscible.                   |
| organic solvents:                          | Soluble in many organic solvents. |
| Partition coefficient: n-octanol/water:    | -0.85078                          |
| · Viscosity:                               |                                   |
| Dynamic at 20 °C:                          | 0.86 mPas                         |
| Kinematic:                                 | Not determined.                   |
| · 9.2 Other information                    |                                   |
| No further relevant information available. |                                   |

### SECTION 10: Stability and reactivity

- 10.1 Reactivity See 10.3
- 10.2 Chemical stability
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- 10.3 Possibility of hazardous reactions Reacts with strong oxidising agents.
- 10.4 Conditions to avoid  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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- **10.5 Incompatible materials:**
  - Nitrates
  - Strong Oxidant.
- **10.6 Hazardous decomposition products:**
  - Formaldehyde
  - Carbon monoxide, Carbon dioxide.
  - Nitrogen oxides (NO<sub>x</sub>)

### SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity**  
Harmful in contact with skin or if inhaled.

- **LD/LC50 values relevant for classification:**

Oral	LD50	2,800 mg/kg (rat)
Dermal	LD50	5,000 mg/kg (rbt)
Inhalative	LC50/4 h	9,400 mg/L (mouse)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation**  
Strong irritant with the danger of severe eye injury.  
Causes serious eye irritation.
- **Ingestion:** It can be harmful if swallowed.
- **Inhalation:** Harmful if inhaled.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Other information (about experimental toxicology):** No further relevant information available.
- **Target organ information**
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity**  
May damage the unborn child.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

### SECTION 12: Ecological information

- **12.1 Toxicity**

- **Aquatic toxicity:**

NOEC	1,500 mg/L (Daphnia) (21d)
EC50/48h	13,100 mg/l (Daphnia)
EC50	>1,000 mg/L (algae) (72h)
LC50/96h	7,100 mg/l (fishes)

- **12.2 Persistence and degradability** Easily biodegradable
- **Method**
- **Ecological information** Not available
- **Other information:** The product is easily biodegradable.
- **12.3 Bioaccumulative potential** Non significant accumulation in organisms
- **12.4 Mobility in soil** No further relevant information available.

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- **Additional ecological information:**
- **General notes:**  
Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water  
Do not allow product to reach ground water, water course or sewage system.  
Danger to drinking water if even small quantities leak into the ground.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

**SECTION 13: Disposal considerations**

- **13.1 Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.  
Reutilise if possible or contact a waste processors for recycling or safe disposal.
- **Uncleaned packaging:**  
The containers and packaging materials contaminated with dangerous substances or preparations, have the same treatment of products.  
Directive 94/62/EC of the European Parliament and the Council of 20 December 1994 on packaging and packaging waste.
- **Recommendation:**  
Disposal must be made according to official regulations.  
Wash with solvents to be incinerated.  
Packagings that may not be cleansed are to be disposed of in the same manner as the product.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

**SECTION 14: Transport information**

- |   |   |
|---|---|
| · <b>14.1 UN-Number</b>                     |   |
| · <b>ADR/RID, IMDG, IATA</b>                | UN2265  |
| · <b>14.2 UN proper shipping name</b>       |   |
| · <b>ADR/RID</b>                            | 2265 N,N-DIMETHYLFORMAMIDE  |
| · <b>IMDG</b>                               | N,N-DIMETHYLFORMAMIDE   |
| · <b>IATA</b>                               | N,N-Dimethylformamide   |
| · <b>14.3 Transport hazard class(es)</b>    |   |
| · <b>ADR/RID</b>                            |   |
|   |  |
| · <b>Class</b>                              | 3 (F1) Flammable liquids.   |
| · <b>Label</b>                              | 3   |
| <hr style="border-top: 1px dashed black;"/> |   |
| · <b>IMDG, IATA</b>                         |   |
|   |  |
| · <b>Class</b>                              | 3 Flammable liquids.  |

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· <b>Label</b>	3
· <b>14.4 Packing group</b> · <b>ADR/RID, IMDG, IATA</b>	III
· <b>14.5 Environmental hazards:</b> · <b>Marine pollutant:</b>	No
· <b>14.6 Special precautions for user</b> · <b>Hazard identification number (Kemler code):</b> · <b>EMS Number:</b> · <b>Stowage Category</b>	Warning: Flammable liquids. 30 F-E,S-D A
· <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR/RID</b>	
· <b>Excepted quantities (EQ):</b>	E1
· <b>Limited quantities (LQ)</b>	5L
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>Transport category</b>	3
· <b>Tunnel restriction code</b>	D/E
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	5L
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>UN "Model Regulation":</b>	UN 2265 N,N-DIMETHYLFORMAMIDE, 3, III

### SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **SARA Section 355 (extremely hazardous substances)** Substance is not listed.
- **SARA Section 313 (specific toxic chemical listings)** Substance is listed.
- **Prop 65 - Chemicals known to cause cancer** Substance is listed.
- **Chemical safety assessment**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **Seveso category P5c FLAMMABLE LIQUIDS**
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t
- **National regulations:**
- **Waterhazard class: Water hazard class 2 (Assessment by list):** hazardous for water.

#### · **Other regulations, limitations and prohibitive regulations**

#### · **Substances of very high concern (SVHC) according to UK REACH**

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- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

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### SECTION 16: Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Training hints** Deploy only trained chemical workers.

· **Department issuing SDS:** Q.A./Normative

· **Abbreviations and acronyms:**

*RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)*

*ICAO: International Civil Aviation Organisation*

*RCR : Risk Characterisation Ratio*

*ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*IATA: International Air Transport Association*

*GHS: Globally Harmonised System of Classification and Labelling of Chemicals*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*DNEL: Derived No-Effect Level (UK REACH)*

*PNEC: Predicted No-Effect Concentration (UK REACH)*

*LC50: Lethal concentration, 50 percent*

*LD50: Lethal dose, 50 percent*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*IMO : International Maritime Organization*

*Flam. Liq. 3: Flammable liquids – Category 3*

*Acute Tox. 4: Acute toxicity – Category 4*

*Eye Irrit. 2: Serious eye damage/eye irritation – Category 2*

*Repr. 1B: Reproductive toxicity – Category 1B*

· **Sources**

*Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006, UK REACH, in latest valid version.*

*Regulation (EC) N° 1272/2008 of the European Parliament and of the Council of 16 December 2008, GB CLP, in the latest valid version.*

*Globally Harmonized System, GHS*

*ADR/RID, IMDG, IATA*

*PubChem : an open chemistry database at the National Institutes of Health (NIH)*

*ECHA : European CHEmicals Agency*

*GESTIS : Information system on hazardous substances of the German Social Accident Insurance*

· **\* Data compared to the previous version altered. .**

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### Annex: Exposure scenario 1

- **Short title of the exposure scenario**
- **Sector of Use** Industrial use.
- **Process category**  
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
- **Environmental release category**  
ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)  
ERC6a Use of intermediate
- **Description of the activities / processes covered in the Exposure Scenario**  
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use**  
According to directions for use.  
Customary application according to section 1.
- **Duration and frequency** 8hrs (full working shift).
- **Worker** 8hrs (full working shift).
- **Physical parameters**  
The data on the physical - chemical properties in the Exposure Scenario is based on the properties of the preparation.
- **Physical state** Fluid
- **Concentration of the substance in the mixture** Raw material.
- **Used amount per time or activity** According to directions for use.
- **Other operational conditions** Observe the general safety regulations when handling chemicals.
- **Other operational conditions affecting environmental exposure**  
No special measures required.  
Observe section 6 of the Safety Data Sheet (Accidental release measures).
- **Other operational conditions affecting worker exposure**  
Avoid contact with eyes.  
Avoid contact with the skin.  
Do not breathe gas/vapour/aerosol.  
Take precautionary measures against static discharge.  
Keep away from sources of ignition - No smoking.
- **Other operational conditions affecting consumer exposure** No special measures required.
- **Other operational conditions affecting consumer exposure during the use of the product** Not applicable.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**  
Keep good industrial hygiene.  
Deploy only trained chemical workers.  
Ensure that activities are executed by specialists or authorised personnel only.  
No special measures required.  
Provide sufficient washing facilities.  
Work clothes must not consist of textiles that exhibit dangerous melting behaviour in case of fire.
- **Technical protective measures**  
Ensure that suitable extractors are available on processing machines  
Ensure good ventilation/exhaustion at the workplace.
- **Personal protective measures**  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the skin.  
Avoid contact with the eyes.  
Pregnant women should strictly avoid inhalation or skin contact.  
Tightly sealed goggles  
Use suitable respiratory protective device only when aerosol or mist is formed.  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure

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use self-contained respiratory protective device.

Filter P2

Use suitable respiratory protective device in case of insufficient ventilation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Protective gloves

Rubber gloves

Tightly sealed goggles

The usual precautionary measures are to be adhered to when handling chemicals.

Detailed measures on hand protection according to Safety Data Sheet, section 8.

· **Measures for consumer protection** Ensure adequate labelling.

· **Environmental protection measures**

· **Notes** In case of unintended release of the product: See section 6 of the Safety Data Sheet.

· **Disposal measures**

Disposal must be made according to official regulations.

Ensure that waste is collected and contained.

· **Disposal procedures**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Waste type** Partially emptied and uncleaned packaging

· **Exposure estimation**

· **Worker (dermal)**

The highest dermal exposure to be expected is 0.0171 mg / kg / day.

The exposure estimation was carried out in accordance with ECETOC TRA.

· **Worker (inhalation)**

The highest inhalative exposure to be expected is 1.7731 ppm.

The exposure estimation was carried out in accordance with ECETOC TRA.

· **Consumer** Not relevant for this Exposure Scenario.

· **Guidance for downstream users**

Whether the downstream user acts within the scope of the Exposure Scenario can be verified based on the information in sections 1 to 8.

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**Annex: Exposure scenario 2**

- **Short title of the exposure scenario** Formulation or re-packing
- **Sector of Use** Industrial use.
- **Product category** PC0 Other
- **Process category**  
  - PROC5 Mixing or blending in batch processes
  - PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
  - PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
- **Environmental release category** ERC2 Formulation into mixture
- **Description of the activities / processes covered in the Exposure Scenario**  
See section 1 of the annex to the Safety Data Sheet.
- **Conditions of use** Customary application according to section 1.
- **Duration and frequency** 5 workdays/week.
- **Physical parameters**  
The data on the physical - chemical properties in the Exposure Scenario is based on the properties of the preparation.
- **Physical state** Fluid
- **Concentration of the substance in the mixture** Raw material.
- **Other operational conditions** Observe the general safety regulations when handling chemicals.
- **Other operational conditions affecting environmental exposure** No special measures required.
- **Other operational conditions affecting worker exposure**  
  - Avoid contact with eyes.
  - Avoid contact with the skin.
  - Do not breathe gas/vapour/aerosol.
  - Take precautionary measures against static discharge.
  - Keep away from sources of ignition - No smoking.
- **Other operational conditions affecting consumer exposure during the use of the product** Not applicable.
- **Risk management measures**
- **Worker protection**
- **Organisational protective measures**  
  - Keep good industrial hygiene.
  - Deploy only trained chemical workers.
  - Ensure that activities are executed by specialists or authorised personnel only.
  - Provide sufficient washing facilities.
  - Work clothes must not consist of textiles that exhibit dangerous melting behaviour in case of fire.
- **Technical protective measures** Ensure good ventilation/exhaustion at the workplace.
- **Personal protective measures**  
  - Avoid contact with the skin.
  - Avoid contact with the eyes.
  - Pregnant women should strictly avoid inhalation or skin contact.
  - Use suitable respiratory protective device only when aerosol or mist is formed.
  - In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
  - Filter P2
  - Use suitable respiratory protective device in case of insufficient ventilation.
  - Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
  - Protective gloves
  - Rubber gloves
  - Avoid direct contact with the chemical/ the product/ the preparation by organisational measures.
  - Tightly sealed goggles
  - The usual precautionary measures are to be adhered to when handling chemicals.
  - Detailed measures on hand protection according to Safety Data Sheet, section 8.

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**Safety data sheet**  
according to 1907/2006/EC, Article 31

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*Protective work clothing*

· **Environmental protection measures**

· **Notes** In case of unintended release of the product: See section 6 of the Safety Data Sheet.

· **Disposal measures** Ensure that waste is collected and contained.

· **Disposal procedures**

*Must not be disposed together with household garbage. Do not allow product to reach sewage system.*

· **Waste type** Partially emptied and uncleaned packaging

· **Exposure estimation**

· **Worker (dermal)**

*The highest dermal exposure to be expected is 0.6857 mg / kg / day.*

*The exposure estimation was carried out in accordance with ECETOC TRA.*

· **Worker (inhalation)**

*The highest inhalative exposure to be expected is 0.5319 ppm.*

*The exposure estimation was carried out in accordance with ECETOC TRA.*

· **Consumer** Not relevant for this Exposure Scenario.

· **Guidance for downstream users**

*Whether the downstream user acts within the scope of the Exposure Scenario can be verified based on the information in sections 1 to 8.*