

## SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

### N,N-dimethylformamide

Creation date	12th September 2019	Version	5.0
Revision date	26th October 2023		

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

##### 1.1. Product identifier

Substance / mixture	N,N-dimethylformamide
Chemical name	substance
CAS number	N, N-dimethylformamide
Index number	68-12-2
EC (EINECS) number	616-001-00-X
Registration number	200-679-5
Other substance name	01-2119475605-32-0001

N,N-Dimethylamid kyseliny mravenčí, Dimethylformamid

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

###### Substance's intended use

Chemical production, analytical chemistry, laboratory synthesis, industrial applications.

###### Substance uses advised against

The product should not be used in ways other than those referred in Section 1.

##### 1.3. Details of the supplier of the safety data sheet

###### Supplier

Name or trade name	Ing. Petr Švec - PENTA s.r.o.
Address	Radiová 1122/1, Praha 10, 102 00
	Czech Republic
Identification number (CRN)	02096013
VAT Reg No	CZ02096013
Phone	+420 226 060 681
E-mail	info@pentachemicals.eu
Web address	www.pentachemicals.eu

###### Competent person responsible for the safety data sheet

Name	Ing. Petr Švec - PENTA s.r.o.
E-mail	info@pentachemicals.eu

##### 1.4. Emergency telephone number

European emergency number: 112 112

#### SECTION 2: Hazards identification

##### 2.1. Classification of the substance or mixture

###### Classification of the substance in accordance with Regulation (EC) No 1272/2008

The substance is classified as dangerous.

Flam. Liq. 3, H226  
Acute Tox. 4, H312+H332  
Eye Irrit. 2, H319  
Repr. 1B, H360D

###### Most serious adverse physico-chemical effects

Flammable liquid and vapour.

###### Most serious adverse effects on human health and the environment

Causes serious eye irritation. May damage the unborn child. Harmful in contact with skin or if inhaled.

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**2.2. Label elements****Hazard pictogram****Signal word**

Danger

**Dangerous substance**

N, N-dimethylformamide

(Index: 616-001-00-X; CAS: 68-12-2)

**Hazard statements**

H226	Flammable liquid and vapour.
H319	Causes serious eye irritation.
H360D	May damage the unborn child.
H312+H332	Harmful in contact with skin or if inhaled.

**Precautionary statements**

P201	Obtain special instructions before use.
P280	Wear protective gloves.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.

**Supplemental information**

Restricted to professional users.

**2.3. Other hazards**

The substance does not have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605. Substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of Regulation (EC) No. 1907/2006 (REACH) as amended.

**SECTION 3: Composition/information on ingredients****3.1. Substances****Chemical characterization**

The substance specified below.

Identification numbers	Substance name	Content in % weight	Classification according to Regulation (EC) No 1272/2008	Note
Index: 616-001-00-X CAS: 68-12-2 EC: 200-679-5 Registration number: 01-2119475605-32-0001	<b>substance main component</b> N, N-dimethylformamide	≥99	Flam. Liq. 3, H226 Acute Tox. 4, H312+H332 Eye Irrit. 2, H319 Repr. 1B (***), H360D	1, 2, 3

**Notes**

\*\*\* reproductive toxicity: supplementary letters specify whether fetal harm (d) or fertility harm (f) may occur

- 1 A substance for which exposure limits are set.
- 2 Substance of very high concern - SVHC.
- 3 The use of the substance is restricted by Annex XVII of REACH Regulation

Full text of all classifications and hazard statements is given in the section 16.

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#### SECTION 4: First aid measures

##### 4.1. Description of first aid measures

Take care of your own safety. If any health problems are manifested or if in doubt, inform a doctor and show him information from this safety data sheet. If unconscious, put the person in the stabilized (recovery) position on his side with his head slightly bent backwards and make sure that airways are free; never induce vomiting. If the person vomits by himself, make sure that the vomit is not inhaled. In life threatening conditions first of all provide resuscitation of the affected person and ensure medical assistance. Respiratory arrest - provide artificial respiration immediately. Cardiac arrest - provide indirect cardiac massage immediately.

##### If inhaled

Terminate the exposure immediately; move the affected person to fresh air. Protect the person against growing cold. Provide medical treatment if irritation, dyspnoea or other symptoms persist.

##### If on skin

Remove contaminated clothes. Wash the affected area with plenty of water, lukewarm if possible. Soap, soap solution or shampoo should be used if there is no skin injury. Provide medical treatment if skin irritation persists. Rinse skin with water or shower.

##### If in eyes

Rinse eyes immediately with a flow of running water, open the eyelids (also using force if needed); remove contact lenses immediately if worn by the affected person. Rinsing should continue at least for 10 minutes. Provide medical treatment, specialized if possible.

##### If swallowed

Rinse out the mouth with clean water. Provide medical treatment. For persons with no symptoms, call the Toxicological Information Centre to decide about the need of medical treatment; provide information about the substances or composition of the product from the original packaging or the Safety Data Sheet of the product.

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

##### If inhaled

Cough, headache.

##### If on skin

not available

##### If in eyes

Causes serious eye irritation.

##### If swallowed

Irritation, nausea.

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

Symptomatic treatment.

#### SECTION 5: Firefighting measures

##### 5.1. Extinguishing media

##### Suitable extinguishing media

Alcohol-resistant foam, carbon dioxide, powder, water spray jet, water mist.

##### Unsuitable extinguishing media

Water - full jet.

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

In the event of fire, carbon monoxide, carbon dioxide and other toxic gases may arise. Inhalation of hazardous degradation (pyrolysis) products may cause serious health damage.

##### 5.3. Advice for firefighters

Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit only where personal (close) contact is likely. Use a self-contained breathing apparatus and full-body protective clothing. Closed containers with the product near the fire should be cooled with water. Do not allow run-off of contaminated fire extinguishing material to enter drains or surface and ground water.

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#### SECTION 6: Accidental release measures

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

Provide sufficient ventilation. The substance is flammable. Remove all ignition sources. Use personal protective equipment for work. Follow the instructions in the Sections 7 and 8. Do not inhale mist/vapours/spray. Prevent contact with skin and eyes.

##### 6.2. Environmental precautions

Prevent contamination of the soil and entering surface or ground water.

##### 6.3. Methods and material for containment and cleaning up

Spilled product should be covered with suitable (non-flammable) absorbing material (sand, diatomaceous earth, earth and other suitable absorption materials); to be contained in well closed containers and removed as per the Section 13. In the event of leakage of the substantial amount of the product, inform fire brigade and other competent bodies. After removal of the product, wash the contaminated site with plenty of water. Do not use solvents.

##### 6.4. Reference to other sections

See the Section 7, 8 and 13.

#### SECTION 7: Handling and storage

##### 7.1. Precautions for safe handling

Prevent formation of gases and vapours in flammable or explosive concentrations and concentrations exceeding the occupational exposure limits. The product should be used only in the areas where it is not in contact with open fire and other ignition sources. Use non-sparking tools. Use of antistatic clothes and footwear is recommended. Do not inhale mist/vapours/spray. Prevent contact with skin and eyes. No smoking. Obtain special instructions before use. Wash hands and exposed parts of the body thoroughly after handling. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area. Use personal protective equipment as per Section 8. Observe valid legal regulations on safety and health protection. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Take action to prevent static discharges.

##### 7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in cold, dry and well ventilated areas designated for this purpose. Do not expose to sunlight. Store locked up. Keep container tightly closed.

Storage class

3B - Flammable liquids (VbF hazard class A III)

##### The specific requirements or rules relating to the substance/mixture

Solvent vapours are heavier than air and accumulate especially near the floor where they may form an explosive mixture with the air.

##### 7.3. Specific end use(s)

not available

#### SECTION 8: Exposure controls/personal protection

##### 8.1. Control parameters

###### European Union

###### Commission Directive 2009/161/EU

Substance name (component)	Type	Value	Note
N, N-dimethylformamide (CAS: 68-12-2)	OEL 8 hours	15 mg/m <sup>3</sup>	Skin
	OEL 8 hours	5 ppm	
	OEL 15 minutes	30 mg/m <sup>3</sup>	
	OEL 15 minutes	10 ppm	

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#### DNEL

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Workers / consumers	Route of exposure	Value	Effect	Value determination	Source
Workers	Dermal	1.1 mg/kg	Chronic effects systemic		
Workers	Inhalation	6 mg/m <sup>3</sup>	Chronic effects systemic		
Consumers	Inhalation	1.1 mg/m <sup>3</sup>	Chronic effects systemic		
Consumers	Oral	0.16 mg/kg	Chronic effects systemic		

#### PNEC

N, N-dimethylformamide			
Route of exposure	Value	Value determination	Source
Sea sediments	11.1 mg/kg		

#### 8.2. Exposure controls

Take off contaminated clothing and wash before reuse. Follow the usual measures intended for health protection at work and especially for good ventilation. This can be achieved only by local suction or efficient general ventilation. Do not eat, drink and smoke during work. Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

##### Eye/face protection

Protective goggles.

##### Skin protection

Hand protection: Protective gloves resistant to the product (butyl rubber, nitrile rubber). When choosing appropriate thickness, material and permeability of the gloves, observe recommendations of their particular manufacturer. Contaminated skin should be washed thoroughly.

##### Respiratory protection

Halfmask with a filter against organic vapours or a self-contained breathing apparatus as appropriate if exposure limit values of substances are exceeded or in a poorly ventilated environment.

##### Thermal hazard

Not available.

##### Environmental exposure controls

Observe usual measures for protection of the environment, see Section 6.2.

## SECTION 9: Physical and chemical properties

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

Physical state	liquid
Colour	colourless
Odour	specific
Melting point/freezing point	-61 °C
Boiling point or initial boiling point and boiling range	153 °C
Flammability	Flammable liquid and vapour.
Lower and upper explosion limit	
bottom	2.2 %
upper	16.2 %
Flash point	57.5 °C
Auto-ignition temperature	410 °C
Decomposition temperature	data not available
pH	6-8 (200 g/l% solution at 20 °C)
Kinematic viscosity	data not available
Viscosity	0.86 mPa.s

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Solubility in water	data not available		
Solubility in fats	data not available		
Partition coefficient n-octanol/water (log value)	-0.85		
Vapour pressure	4 hPa at 20 °C		
Density and/or relative density			
Density	0.948 g/cm <sup>3</sup> at 20 °C		
Relative density	data not available		
Relative vapour density	data not available		
Particle characteristics	data not available		
<b>9.2. Other information</b>			
Evaporation rate	data not available		

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The substance is flammable.

### 10.2. Chemical stability

The product is stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Unknown.

### 10.4. Conditions to avoid

The product is stable and no degradation occurs under normal use. Protect against flames, sparks, overheating and against frost.

### 10.5. Incompatible materials

Protect against strong acids, bases and oxidizing agents.

### 10.6. Hazardous decomposition products

Not developed under normal uses. Dangerous outcomes such as carbon monoxide and carbon dioxide are formed at high temperature and in fire.

## SECTION 11: Toxicological information

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

No toxicological data is available for the substance. Inhalation of solvent vapors above values exceeding exposure limits for working environment may result in acute inhalation poisoning, depending on the level of concentration and exposure time.

#### Acute toxicity

Harmful in contact with skin or if inhaled.

#### Skin corrosion/irritation

No data available for the substance. Based on available data the classification criteria are not met.

#### Serious eye damage/irritation

Causes serious eye irritation.

#### Respiratory or skin sensitisation

No data available for the substance. Based on available data the classification criteria are not met.

#### Germ cell mutagenicity

No data available for the substance. Based on available data the classification criteria are not met.

#### Carcinogenicity

No data available for the substance. Based on available data the classification criteria are not met.

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#### Reproductive toxicity

May damage the unborn child.

#### Toxicity for specific target organ - single exposure

No data available for the substance. Based on available data the classification criteria are not met.

#### Toxicity for specific target organ - repeated exposure

No data available for the substance. Based on available data the classification criteria are not met.

#### Aspiration hazard

No data available for the substance. Based on available data the classification criteria are not met.

#### 11.2. Information on other hazards

The substance does not have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

### SECTION 12: Ecological information

#### 12.1. Toxicity

No data available for the substance. Based on available data the classification criteria are not met.

#### 12.2. Persistence and degradability

The following data are available.

##### Biodegradability

N,N-dimethylformamide				
Parameter	Value	Exposure time	Environment	Result
				Easily biodegradable

#### 12.3. Bioaccumulative potential

No data available for the substance.

#### 12.4. Mobility in soil

No data available for the substance.

#### 12.5. Results of PBT and vPvB assessment

Product does not contain any substance meeting the criteria for PBT or vPvB in accordance with the Annex XIII of Regulation (EC) No 1907/2006 (REACH) as amended.

#### 12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms as it does not meet the criteria set out in section B of Regulation (EU) No 2017/2100.

#### 12.7. Other adverse effects

Not available.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Hazard of environmental contamination; dispose of the waste in accordance with the local and/or national regulations. Proceed in accordance with valid regulations on waste disposal. Any unused product and contaminated packaging should be put in labelled containers for waste collection and submitted for disposal to a person authorised for waste removal (a specialized company) that is entitled for such activity. Do not empty unused product in drainage systems. The product must not be disposed of with municipal waste. Empty containers may be used at waste incinerators to produce energy or deposited in a dump with appropriate classification. Perfectly cleaned containers can be submitted for recycling.

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#### Waste management legislation

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste, as amended.  
Decision 2000/532/EC establishing a list of wastes, as amended.

#### SECTION 14: Transport information

##### 14.1. UN number or ID number

UN 2265

##### 14.2. UN proper shipping name

N,N-DIMETHYL-FORMAMIDE

##### 14.3. Transport hazard class(es)

3 Flammable liquids

##### 14.4. Packing group

III

##### 14.5. Environmental hazards

not relevant

##### 14.6. Special precautions for user

Reference in the Sections 4 to 8.

##### 14.7. Maritime transport in bulk according to IMO instruments

not relevant

##### Additional information

Hazard identification No.

30

UN number

2265

Classification code

F1

Safety signs

3



Tunnel restriction code

(D/E)

##### Air transport - ICAO/IATA

Packaging instructions passenger

355

Cargo packaging instructions

366

##### Marine transport - IMDG

EmS (emergency plan)

F-E, S-D

#### SECTION 15: Regulatory information

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

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).



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#### Restrictions pursuant to Annex XVII of Regulation (EC) No. 1907/2006 (REACH), as amended

N, N-dimethylformamide

Restriction	Conditions of restriction
30	<p>Without prejudice to the other parts of this Annex the following shall apply to entries 28 to 30:</p> <p>1. Shall not be placed on the market, or used,</p> <ul style="list-style-type: none"> <li>— as substances,</li> <li>— as constituents of other substances, or,</li> <li>— in mixtures, for supply to the general public when the individual concentration in the substance or mixture is equal to or greater than: <ul style="list-style-type: none"> <li>— either the relevant specific concentration limit specified in Part 3 of Annex VI to Regulation (EC) No 1272/2008, or,</li> <li>— the relevant generic concentration limit specified in Part 3 of Annex I of Regulation (EC) No 1272/2008.</li> </ul> </li> </ul> <p>Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows:</p> <p>"Restricted to professional users".</p> <p>2. By way of derogation, paragraph 1 shall not apply to:</p> <ul style="list-style-type: none"> <li>(a) medicinal or veterinary products as defined by Directive 2001/82/EC and Directive 2001/83/EC;</li> <li>(b) cosmetic products as defined by Directive 76/768/EEC;</li> <li>(c) the following fuels and oil products: <ul style="list-style-type: none"> <li>— motor fuels which are covered by Directive 98/70/EC,</li> <li>— mineral oil products intended for use as fuel in mobile or fixed combustion plants,</li> <li>— fuels sold in closed systems (e.g. liquid gas bottles);</li> </ul> </li> <li>(d) artists' paints covered by Regulation (EC) No 1272/2008;</li> <li>(e) the substances listed in Appendix 11, column 1, for the applications or uses listed in Appendix 11, column 2. Where a date is specified in column 2 of Appendix 11, the derogation shall apply until the said date.</li> <li>(f) devices covered by Regulation (EU) 2017/745.</li> </ul>

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#### N, N-dimethylformamide

Restriction	Conditions of restriction
72	<p>1. Shall not be placed on the market after 1 November 2020 in any of the following:</p> <ul style="list-style-type: none"> <li>(a) clothing or related accessories;</li> <li>(b) textiles other than clothing which, under normal or reasonably foreseeable conditions of use, come into contact with human skin to an extent similar to clothing;</li> <li>(c) footwear;</li> </ul> <p>if the clothing, related accessory, textile other than clothing or footwear is for use by consumers and the substance is present in a concentration, measured in homogeneous material, equal to or greater than that specified for that substance in Appendix 12.</p> <p>2. By way of derogation, in relation to the placing on the market of formaldehyde [CAS No 50-00-0] in jackets, coats or upholstery, the relevant concentration for the purposes of paragraph 1 shall be 300 mg/kg during the period between 1 November 2020 and 1 November 2023. The concentration specified in Appendix 12 shall apply thereafter.</p> <p>3. Paragraph 1 shall not apply to:</p> <ul style="list-style-type: none"> <li>(a) clothing, related accessories or footwear, or parts of clothing, related accessories or footwear, made exclusively of natural leather, fur or hide;</li> <li>(b) non-textile fasteners and non-textile decorative attachments;</li> <li>(c) second-hand clothing, related accessories, textiles other than clothing or footwear</li> <li>(d) wall-to-wall carpets and textile floor coverings for indoor use, rugs and runners.</li> </ul> <p>4. Paragraph 1 shall not apply to clothing, related accessories, textiles other than clothing, or footwear within the scope of Regulation (EU) 2016/425 of the European Parliament and of the Council (*) or Regulation (EU) 2017/745 of the European Parliament and of the Council (**).</p> <p>5. Paragraph 1(b) shall not apply to disposable textiles. 'Disposable textiles' means textiles that are designed to be used only once or for a limited time and are not intended for subsequent use for the same or a similar purpose.</p> <p>6. Paragraphs 1 and 2 shall apply without prejudice to the application of any stricter restrictions set out in this Annex or in other applicable Union legislation.</p> <p>7. The Commission shall review the exemption in paragraph 3(d) and, if appropriate, modify that point accordingly.</p> <p>(*) Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC (OJ L 81, 31.3.2016, p. 51).</p> <p>(**) Regulation (EU) 2017/745 of the European Parliament and of the Council of 5 April 2017 on medical devices, amending Directive 2001/83/EC, Regulation (EC) No 178/2002 and Regulation (EC) No 1223/2009 and repealing Council Directives 90/385/EEC and 93/42/EEC (OJ L 117, 5.5.2017, p. 1).</p>

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Restriction	Conditions of restriction
76	<p>1. Shall not be placed on the market as a substance on its own, as a constituent of other substances, or in mixtures in a concentration equal to or greater than 0,3 % after 12 December 2023 unless manufacturers, importers and downstream users have included in the relevant chemical safety reports and safety data sheets, Derived No-Effect Levels (DNELs) relating to exposure of workers of 6 mg/m<sup>3</sup> for exposure by inhalation and 1,1 mg/kg/day for dermal exposure.</p> <p>2. Shall not be manufactured, or used, as a substance on its own, as a constituent of other substances, or in mixtures in a concentration equal to or greater than 0,3 % after 12 December 2023 unless manufacturers and downstream users take the appropriate risk management measures and provide the appropriate operational conditions to ensure that exposure of workers is below the DNELs specified in paragraph 1.</p> <p>3. By way of derogation from paragraphs 1 and 2, the obligations laid down therein shall apply from 12 December 2024 in relation to placing on the market for use, or use, as a solvent in direct or transfer polyurethane coating processes of textiles and paper material or the production of polyurethane membranes, and from 12 December 2025 in relation to placing on the market for use, or use, as a solvent in the dry and wet spinning processes of synthetic fibres.</p>

#### 15.2. Chemical safety assessment

A Chemical Safety Assessment has been carried out.

#### SECTION 16: Other information

##### A list of standard risk phrases used in the safety data sheet

H226	Flammable liquid and vapour.
H319	Causes serious eye irritation.
H360D	May damage the unborn child.
H312+H332	Harmful in contact with skin or if inhaled.

##### Guidelines for safe handling used in the safety data sheet

P201	Obtain special instructions before use.
P280	Wear protective gloves.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.

##### Other important information about human health protection

The product must not be - unless specifically approved by the manufacturer/importer - used for purposes other than as per the Section 1. The user is responsible for adherence to all related health protection regulations.

##### Key to abbreviations and acronyms used in the safety data sheet

ADR	European agreement concerning the international carriage of dangerous goods by road
BCF	Bioconcentration Factor
CAS	Chemical Abstracts Service
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substance and mixtures
EC	Identification code for each substance listed in EINECS
EINECS	European Inventory of Existing Commercial Chemical Substances
EmS	Emergency plan
EU	European Union
EuPCS	European Product Categorisation System
IATA	International Air Transport Association
IBC	International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals
ICAO	International Civil Aviation Organization

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IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
INCI	International Nomenclature of Cosmetic Ingredients
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
log Kow	Octanol-water partition coefficient
OEL	Occupational Exposure Limits
PBT	Persistent, Bioaccumulative and Toxic
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Agreement on the transport of dangerous goods by rail
UN	Four-figure identification number of the substance or article taken from the UN Model Regulations
UVCB	Substances of unknown or variable composition, complex reaction products or biological materials
VOC	Volatile organic compounds
vPvB	Very Persistent and very Bioaccumulative
Acute Tox.	Acute toxicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquid
Repr.	Reproductive toxicity

#### Training guidelines

Inform the personnel about the recommended ways of use, mandatory protective equipment, first aid and prohibited ways of handling the product.

#### Recommended restrictions of use

not available

#### Information about data sources used to compile the Safety Data Sheet

REGULATION (EC) No. 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (REACH) as amended.  
REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Data from the manufacturer of the substance / mixture, if available - information from registration dossiers.

#### The changes (which information has been added, deleted or modified)

The version 5.0 replaces the SDS version from 06 September 2023. Changes were made in sections 2 and 16.

#### More information

Classification procedure - calculation method.

#### Statement

The safety data sheet provides information aimed at ensuring safety and health protection at work and environmental protection. The provided information corresponds to the current status of knowledge and experience and complies with valid legal regulations. The information should not be understood as guaranteeing the suitability and usability of the product for a particular application.