

## SAFETY DATA SHEET

(according to Regulation (EC) No 1907/2006 (REACH), ANNEX II)

# AMMONIUM SULPHATE

Revision date: 01.05.2020 Version 4.2

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

#### 1.1 Product identifier

Trade name:	Ammonium Sulphate
Other names:	Sulfuric Acid Diammonium Salt
Name IUPAC/international chemical name	Diammonium Sulphate/Ammonium Sulphate
INDEX No. and name as listed in Annex VI of CLP:	Not listed
CAS No.:	7783-20-2
EINECS No.:	231-984-1
REACH registration No.:	01-2119455044-46-0050
Molecular formula:	H3N.1/2H2O4S

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

Relevant identified uses:	Fertilisers Intermediates Laboratory chemicals Manufacture of formulations – fertilizers <i>Remarks: Generally the substance is used in industrial and/or professional settings</i>
Uses advised against:	None

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

Only Representative:	OSTCHEM GERMANY GmbH Erdmannstr. 10 222765 Hamburg, Germany Phone: +49 40 5300 300 Fax: +49 40 5300 30 33 www.ostchem.com E-mail: <a href="mailto:Irene.Nasdala@ebicon.de">Irene.Nasdala@ebicon.de</a>
Manufacturer:	PrJSC "AZOT" 72, Heroiv Kholodnoho Yaru Str., Cherkasy, Ukraine Tel.: +38 0472 39-63-03 +38 0472 39-23-33 URL website: <a href="http://www.azot.ck.ua">http://www.azot.ck.ua</a> Email: <a href="mailto:let@azot.ck.ua">let@azot.ck.ua</a> <a href="mailto:sale@azot.ck.ua">sale@azot.ck.ua</a>
E-mail address of the person responsible for this Safety Data Sheet	PrJSC "AZOT" REACH Department <a href="mailto:onr@azot.ck.ua">onr@azot.ck.ua</a>
National contact:	Not available

#### 1.4 Emergency telephone number

Emergency phone number:	Tel: + 49 405 300 300 Opening hours: 9-18 (CET) Languages of the phone service: German, English, Russian Tel: + 38 (0472) 39 61 17 Opening hours: 0-24 Languages of the phone service: Russian, Ukrainian
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### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance

The substance is not classified as hazardous in accordance with Regulation 1272/2008 (CLP).

**Remarks:** May be harmful if swallowed. Coughing. Sore throat, shortness of breath/breathing difficulty

#### 2.2 Label elements

Hazard pictogram(s):	Not applicable
Signal word:	No signal word
Hazard statements:	Not applicable
<b>Precautionary statements</b>	
Prevention:	Not applicable
Response:	Not applicable
Storage:	Not applicable
Disposal:	Not applicable

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<b>2.3 Other hazards:</b>		
Substance meets the criteria for PBT according to Regulation (EC) No.1207/2006, Annex XIII	Not applicable	
Substance meets the criteria for vPvB according to Regulation (EC) No.1207/2006, Annex XIII	Not applicable	
Other hazards which do not result in classification	Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.	
<b>SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS</b>		
<b>3.1 Substances</b>		
According to the REACH Regulation the product is a mono-constituent		
<b>Name</b>	<b>INDEX No. as listed in Annex VI of CLP</b>	<b>Weight % content (or range)</b>
Ammonium Sulphate	Not listed	Not less than 97 % (w/w)
<b>SECTION 4: FIRST-AID MEASURES</b>		
<b>4.1 Description of first aid measures</b>		
General notes:	Remove contaminated clothing.	
Following eye contact:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs	
Following skin contact:	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur	
Following ingestion:	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur	
Following inhalation:	<i>After inhalation of dust:</i> Fresh air. If difficulties occur: Seek medical attention. <i>After inhalation of decomposition products:</i> Keep patient calm, remove to fresh air, seek medical attention. The exposed person may need to be kept under medical surveillance for 48 hours.	
Self-protection for the first aider:	None	
<b>4.2 Most important symptoms and effects, both acute and delayed</b>		
<b>Potential acute health effects</b>		
Eye contact:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes	
Inhalation:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure	
Skin contact:	No known significant effects or critical hazards	
Ingestion:	No known significant effects or critical hazards	
<b>Over-exposure signs/symptoms</b>		
Eye contact:	Adverse symptoms may include the following: irritation redness	
Inhalation:	Adverse symptoms may include the following: respiratory tract irritation coughing	
Skin contact:	No specific data	
Ingestion:	No specific data. May be harmful if swallowed. Nausea, vomiting, diarrhoea.	
<b>Delayed effects</b>	Risk of pulmonary edema	
<b>4.3 Indication of any immediate medical attention and special treatment needed</b>		
<i>Note to physician:</i> In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.  <i>Treatment:</i> No specific treatment.		
<b>SECTION 5: FIRE-FIGHTING MEASURES</b>		
<b>5.1 Extinguishing media</b>		
Suitable extinguishing media:	Non-combustible. Use extinguishing media suitable for surrounding materials	
Unsuitable extinguishing media:	None	

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<b>5.2 Special hazards arising from the substance or mixture</b>	
Hazards from the substance or mixture:	Fine dust clouds may form explosive mixtures with air. At temperatures of 235°C can be emitted: ammonia
Hazardous combustion products:	Decomposition products may include the following materials: nitrogen oxides, sulfur oxides, ammonia, amines
<b>5.3 Advice for firefighters</b>	
Special precautions for fire-fighters:	No special measures required
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for firefighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents
<b>Remarks</b> : References: SECTION 9: Physical and chemical properties	
<b>SECTION 6: ACCIDENTAL RELEASE MEASURES</b>	
<b>6.1 Personal precautions, protective equipment and emergency procedures</b>	
6.1.1 <i>For non-emergency personnel</i> <u>Protective equipment</u> : Put on appropriate personal protective equipment. <u>Emergency procedures</u> : Avoid breathing dust. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. No flares, smoking or flames in hazard area.	
6.1.2 <i>For emergency responders</i> : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".	
<b>6.2 Environmental precautions:</b>	
Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).	
<b>6.3 Methods and material for containment and cleaning up</b>	
6.3.1 <i>For containment</i> : Avoid creating dusty conditions and prevent wind dispersal.	
6.3.2 <i>For cleaning up</i> : Vacuum or sweep up and place into approved containers for later disposal.	
6.3.3 <i>Other information</i> : Dispose of via a licensed waste disposal contractor.	
<b>6.4 Reference to other sections</b>	
See section 8 for personal protective equipment and section 13 for waste disposal.	
<b>SECTION 7: HANDLING AND STORAGE</b>	
<b>7.1 Precautions for safe handling</b>	
<u>Protective measures</u> : Put on appropriate personal protective equipment (see Section 8). Avoid breathing dust. Avoid contact with eyes. Avoid repeated or prolonged contact with skin or clothing. <u>Measures to prevent fire</u> : Keep away from heat. Keep away from sources of ignition. <u>Measures to prevent aerosol and dust generation</u> : Use with adequate ventilation and local exhaust extraction in work place. <u>Measures to protect the environment</u> : Keep containers closed. Prevent dispersion of dust. Do not let the material enter sewage systems and waterways. <u>Advice on general occupational hygiene</u> : Do not eat, drink or smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.	
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	
Technical measures/Storage conditions:	Store under cool dry conditions. Protect against moisture. The substance/product may cake under the influence of moisture.
Packing materials:	Polypropylene
Requirements for storage rooms and vessels:	
Storage class:	13
Further information on storage conditions:	None
Incompatible products:	Strong reducing agents, strong acids, finely powdered metals, organic matter, chlorides (chlorates), combustible materials. Ammonium sulfate can react with sodium nitrite at temperatures as low as room temperature producing flames or even explosions. When alkaline substances (metal) are added, ammonia is liberated.
<b>7.3 Specific end use(s):</b>	None
<b>SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION</b>	
<b>8.1 Control parameters</b>	
8.1.1 <i>National occupational exposure limit values</i> : Not available	
8.1.2 <i>National biological limit values</i> : Not available	
8.1.3 <i>PNEC (Predicted No Effect Concentration)</i> :	

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<u>Environmental protection target</u>	<u>PNEC</u>																												
Aqua – freshwater	0.312 mg/L																												
Aqua - marine water	0.0312 mg/L																												
Aqua – intermittent releases	0.53 mg/L																												
Sediment	0.063 mg/kg sediment dw																												
Soil	62.6 mg/kg soil dw																												
Sewage treatment plant	16.18 mg/L																												
Food chain: oral (secondary poisoning)	Since the substance exhibits a low log Pow , secondary poisoning is unlikely to be a relevant exposure route.																												
Air	Due to the ionic nature of ammonium sulphate and its physical chemical properties (negligible vapor pressure and high solubility in water) the atmospheric compartment is considered to be of no relevance.																												
8.1.4 DNEL:	<p style="text-align: center;"><b>ACUTE</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Route</th> <th colspan="2">Derived No Effect Level (DNEL)</th> </tr> <tr> <th>Workers</th> <th>General population</th> </tr> </thead> <tbody> <tr> <td>Oral</td> <td>Not applicable</td> <td>Not applicable</td> </tr> <tr> <td>Dermal</td> <td>Not applicable</td> <td>Not applicable</td> </tr> <tr> <td>Inhalation</td> <td>Not applicable</td> <td>Not applicable</td> </tr> </tbody> </table> <p style="text-align: center;"><b>LONG TERM (Systemic effects)</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Route</th> <th colspan="2">Derived No Effect Level (DNEL)</th> </tr> <tr> <th>Workers</th> <th>General population</th> </tr> </thead> <tbody> <tr> <td>Oral</td> <td>Not applicable</td> <td>6.4 mg/kg bw/day</td> </tr> <tr> <td>Dermal</td> <td>42.667 mg/kg bw/day</td> <td>12.8 mg/kg bw/day</td> </tr> <tr> <td>Inhalation</td> <td>11.167 mg/m<sup>3</sup></td> <td>1.667 mg/m<sup>3</sup></td> </tr> </tbody> </table> <p>Acute/short-term DNELs were not calculated as they are covered by calculation of long-term DNELs. No local dermal or irritating effects were observed in repeated dose studies</p>	Route	Derived No Effect Level (DNEL)		Workers	General population	Oral	Not applicable	Not applicable	Dermal	Not applicable	Not applicable	Inhalation	Not applicable	Not applicable	Route	Derived No Effect Level (DNEL)		Workers	General population	Oral	Not applicable	6.4 mg/kg bw/day	Dermal	42.667 mg/kg bw/day	12.8 mg/kg bw/day	Inhalation	11.167 mg/m <sup>3</sup>	1.667 mg/m <sup>3</sup>
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8.1.5 Monitoring procedures:	Not available																												
<b>8.2 Exposure controls</b>																													
8.2.1 Appropriate engineering controls:																													
Substance/mixture related measures to prevent exposure during identified uses: The usual precautions for the handling of chemicals must be observed. Before direct contact with the substance use personal protection equipment.																													
Technical measures to prevent exposure: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits																													
8.2.2 Personal protection equipment:																													
8.2.2.1 Respiratory protection:	Wear dust protection mask, suitable protective equipment																												
8.2.2.2 Eye and face protection:	Safety glasses with side shields, suitable protective equipment																												
8.2.2.3 Skin protection: Hand protection: Other skin protection:	4-8 hours (breakthrough time): Butyl rubber. PVC  Working clothes																												
8.2.2.4 Thermal hazards:	None																												
8.2.3 Environmental exposure controls:	Dispose of rinse water in accordance with local and national regulations																												
<b>Advice on personal protection is applicable for high exposure levels. Select proper personal protection based on a risk assessment of the actual exposure situation</b>																													
<b>SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES</b>																													
<b>9.1 Information on basic physical and chemical properties</b>																													
Appearance	Solid crystals or granules, white																												
Odour:	Odourless																												
Odour threshold:	Not available																												
pH:	Not available																												
Melting/Freezing point:	> 235 °C (decomposes)																												
Initial boiling point and boiling range:	Not applicable, decomposes before the boiling point is reached																												
Evaporation rate:	Not available																												

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Flash-point:	Not applicable, the substance is inorganic and solid.				
Flammability (solid, gas):	Non-flammable				
Auto-ignition temperature	Not applicable, the substance is a solid and self-heating of the substance up to 400° C is excluded.				
Upper/lower flammability or explosive limits	Not applicable.				
Oxidising properties	None				
Vapour pressure:	0.000000004053 hPa at 25°C				
Vapour density:	Not available				
Relative density:	1.77 at 25°C				
Solubility in water:	767 g/l at 25°C				
Partition coefficient n-octanol/water:	Not applicable				
Decomposition temperature:	Not available				
Viscosity:	Not applicable				
Explosive properties:	Non explosive. There are no chemical groups associated with explosive properties present in the molecule.				
<b>9.2 Other information</b>					
Molecular weight: 132.14 g/mole					
<b>SECTION 10: STABILITY AND REACTIVITY</b>					
<b>10.1 Reactivity</b>					
No specific test data related to reactivity available for this product or its ingredients.					
<b>10.2 Chemical stability</b>					
Stable under recommended storage and handling conditions (see section 7, handling and storage).					
<b>10.3 Possibility of hazardous reactions</b>					
No hazardous reaction when handled and stored according to these provisions (see section 7, handling and storage).					
<b>10.4 Conditions to avoid</b>					
Excess moisture and heat, aerosols and dust generation.					
<b>10.5 Incompatible materials</b>					
Oxidizing substances and bases. Alkali metals, chlorates, nitrites (potassium chlorate, potassium nitrite, potassium nitrate, ammonium nitrate).					
<b>10.6 Hazardous decomposition products</b>					
Under normal conditions of storage and use, hazardous decomposition products should not be produced. However, oxides of sulfur, nitrogen oxides (NO <sub>x</sub> ) and ammonia (NH <sub>3</sub> ) can be emitted.					
<b>SECTION 11: TOXICOLOGICAL INFORMATION</b>					
<b>11.1 Information on toxicological effects</b>					
<b>11.1.1 Acute toxicity</b>					
<i>Route of exposure</i>	<i>Species</i>	<i>Method</i>	<i>Effective dose</i>	<i>Exposure time</i>	<i>Results</i>
Oral:	rat (Gassner) male/female	oral: gavage equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity)	–	–	LD <sub>50</sub> : 4250 mg/kg bw
Dermal:	rat (Wistar) male/female, mouse (ddY) male/female	Coverage: open OECD Guideline 434 (Acute Dermal Toxicity – Fixed Dose Procedure)	–	–	LD <sub>50</sub> : 2000 mg/kg bw
Inhalation:	rat (Sprague-Dawley) male	inhalation: aerosol (nose only) equivalent or similar to OECD Guideline 433 (Acute Inhalation Toxicity: Fixed Concentration Procedure)	–	8 h/d	LC <sub>50</sub> : 1000 mg/mi air
<b>11.1.2 Skin corrosion/irritation:</b>		Not irritating			
<b>11.1.3 Serious eye damage/irritation:</b>		Not irritating			
<b>11.1.4 Respiratory or skin sensitization:</b>		Not sensitizing			
<b>11.1.5 Germ cell mutagenicity:</b>		Negative			
<b>11.1.6 Reproductive toxicity:</b>		Negative			
<b>11.1.7 Carcinogenicity:</b>		Not carcinogenic			
<b>11.1.8 Aspiration hazard:</b>		Reason for no classification: data lacking			

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11.1.9 STOT-single exposure	Not available
11.1.10 STOT-repeated exposure	Not available
<b>SECTION 12: ECOLOGICAL INFORMATION</b>	
<b>12.1 Toxicity</b>	
Fish (freshwater, short-term):	Acute harmful to fish
Fish (freshwater, long-term):	EC20 = 1.35 mg N/L EC10 = 1.12 mg N/L = 5.29 mg/l
Freshwater invertebrates (short-term):	With high probability acute not harmful to aquatic invertebrates
Freshwater invertebrates (long-term):	EC10 of 3.12 mg/l
Freshwater algae:	With high probability acute not harmful to algae
Terrestrial plants:	The substance is widely used as a plant nutrient (N-source) in fertilizer, hence toxicity is unlikely
Soil macro-organisms:	The substance is widely used as a plant nutrient (N-source) in fertilizer, hence toxicity is unlikely
Birds:	No information on acute or chronic effects on birds is available. However, since the substance exhibits a low log Pow, secondary poisoning is unlikely to be a relevant exposure route.
Mammals:	Not available
<b>12.2 Persistence and degradability</b>	
<i>Abiotic degradation</i>	
Hydrolysis:	According to structural properties, hydrolysis is not expected/probable.
<i>Phototransformation/photolysis</i>	
Phototransformation in air:	Degradation by photolytic processes can be excluded.
Phototransformation in water:	Due to the rapid ionization in aqueous solution, phototransformation in water is not expected.
Phototransformation in soil:	Due to the rapid ionization in aqueous solution, phototransformation in soil is not expected.
<i>Biodegradation:</i>	Inorganic substance, biodegradation testing is not applicable
<b>12.3 Bioaccumulative potential</b>	
Due to the low log Kow value ammonium sulphate is not likely to undergo bioaccumulation	
<b>12.4 Mobility in soil</b>	
Known or predicted distribution to environmental compartments:	Based on the physico-chemical properties of ammonium sulfate, water is expected to be the main target compartment. Based on the high water solubility a low geoaccumulation potential and high mobility in soil is to be expected. However, due to ion-ion interactions it is to be expected that mobility in soil is significantly reduced. Ammonium sulfate will not volatilise from soil.
Surface tension	Based on chemical structure, no surface activity is to be expected.
Adsorption/Desorption	Adsorption to solid soil phase is possible.
<b>12.5 Results of PBT and vPvB assessment</b>	
The PBT and vPvB criteria of Annex XIII to the Regulation do not apply to inorganic substances.	
<b>12.6 Other adverse effects:</b> None	
<b>12.7 Additional information:</b> None	
<b>SECTION 13: DISPOSAL CONSIDERATIONS</b>	
<b>13.1 Waste treatment methods</b>	
13.1.1 Product / Packaging disposal:	Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
Waste codes / waste designations according to LoW (Commission Decision 2001/118/EC):	06 10 99 Wastes not otherwise specified
13.1.2 Waste treatment-relevant information:	The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.
13.1.3 Sewage disposal-relevant information:	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
13.1.4 Other disposal recommendations:	Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

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### SECTION 14: TRANSPORT INFORMATION

Ammonium sulphate is not classified as a dangerous substance when carried by road (ADR), train (RID) or maritime (IMDG)				
	ADR/RID	ADN/ADNR	IMDG	IATA
<b>14.1 UN number</b>	Not regulated	Not regulated	Not regulated	Not regulated
<b>14.2 UN proper shipping name</b>	–	–	–	–
<b>14.3 Transport hazard class(es)</b>	–	–	–	–
<b>14.4 Packing group</b>	–	–	–	–
<b>14.5 Environmental hazards</b>	No	No	No	No
<b>14.6 Special precautions for user</b>	Not available	Not available	Not available	Not available
<b>Additional information</b>	–	–	–	–
<b>14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>				
Not available				

### SECTION 15: REGULATORY INFORMATION

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

##### EU Regulations

##### Authorisations and/or restrictions on use:

##### Authorisation:

EU Regulation (EC) No. 1907/2006 (REACH)  
Annex XIV - List of substances subject to authorisation  
Substances of very high concern

None of the components are listed

##### Restrictions on use:

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable

National regulations (*country*): Not available

#### 15.2 Chemical safety assessment:

In accordance with REACH Article 14 a Chemical Safety Assessment has been carried out for this substance.

### SECTION 16: OTHER INFORMATION

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

#### 16.1 Indication of changes:

v. 3.0: Changes were made to comply with the Guidance on the compilation of safety data sheets (version 1.1)  
v. 3.1: Changes were made to comply with Article 61 (CLP)  
v. 4.0: Change of contact details

v. 3.0: Page header; 1.1; 1.3; 1.4; 3.1; 4.1; 6.1; 6.3; 7.1; 7.2; 7.3; 8.1; 8.2; 9.1; 11.1; 12.2; 12.4; 12.6; 12.7; 13.1; 15.1  
v. 3.1: Page header; 2.1; 16.2  
v. 4.0: Page header; 1.3  
v. 4.1: Page header; 1.3  
v. 4.2: Page header; 1.3

#### 16.2 Abbreviations and acronyms:

- ADN - European Agreement concerning the International Carriage of Dangerous Goods on Inland Waterway
- ADNR - ADN Rhine
- ADR - Agreement on Dangerous Goods by Road
- CAS - Chemical Abstracts Service
- CLP - Classification, Labelling and Packaging of chemicals
- EC - European Commission
- EC10 – 10% of maximal effective concentration
- EC20 – 20% of maximal effective concentration
- EINECS - European Inventory of Existing Commercial Chemical Substances
- EU – European Union
- IATA - International Air Transport Association

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- IBC Code - International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
- IMDG - International Maritime Dangerous Goods
- IUPAC - International Union of Pure and Applied Chemistry
- LC50 - Lethal Concentration
- LD50 - Lethal Dose
- LoW - List of Wastes
- MARPOL - International Convention for the Prevention of Pollution From Ships
- OECD - Organization for Economic Co-operation and Development
- PBT - Persistent, bioaccumulative, toxic chemical
- PJSC - Public Joint-Stock Company
- PVC - Polyvinyl chloride
- REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals
- RID - International Rule for Transport of Dangerous Substances by Railway
- STOT - Specific Target Organ Toxicity
- UN - United Nations
- vPvB - very persistent, very bioaccumulative

**16.3 Key literature references and sources for data:** CSR (Chemical Safety Report), Guidance on safe use etc.

**16.4 Training advice:** In accordance with the local regulations

**16.5 Further information:** None