



## SAFETY DATA SHEET

### BacSan - Very Low Acid

According to Regulation (EC) No 1907/2006, Annex II, as amended. Commission Regulation (EU) No 2015/830 of 28 May 2015.

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

##### 1.1. Product identifier

**Product name** BacSan - Very Low Acid  
**Product number** 1101

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

**Identified uses** Water treatment.  
**Uses advised against** No specific uses advised against are identified.

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

**Supplier**  
 WDP Group Ltd.  
 Unit 11, Wheatear Industrial Estate  
 Perry Road  
 Witham  
 Essex  
 CM8 3YY  
 +44 (0) 20 7100 4321 (09:00 - 18:00)  
 contact@wdpgroupltd.com  
 +44 (0) 20 7100 3743

##### 1.4. Emergency telephone number

**Emergency telephone** OHES Environmental Ltd 24-7  
 Tel. 0333 333 9939 (24 hour)

#### SECTION 2: Hazards identification

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

###### Classification (EC 1272/2008)

**Physical hazards** Not Classified  
**Health hazards** Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Dam. 1 - H318 STOT SE 3 - H335  
**Environmental hazards** Aquatic Chronic 3 - H412

##### 2.2. Label elements

###### Pictogram



**Signal word** Danger

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<b>Hazard statements</b>	H302 Harmful if swallowed. H315 Causes skin irritation. H318 Causes serious eye damage. H335 May cause respiratory irritation. H412 Harmful to aquatic life with long lasting effects.
<b>Precautionary statements</b>	P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P302+P352 IF ON SKIN: Wash with plenty of water. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P332+P313 If skin irritation occurs: Get medical advice/ attention. P501 Dispose of contents/ container in accordance with national regulations.
<b>Contains</b>	COPPER II NITRATE TRIHYDRATE, ZINC NITRATE HEXAHYDRATE, ALUMINIUM NITRATE NONAHYDRATE, NITRIC ACID 2%
<b>Supplementary precautionary statements</b>	P261 Avoid breathing vapour/ spray. P264 Wash contaminated skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P301+P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P310 Immediately call a POISON CENTER/ doctor. P321 Specific treatment (see medical advice on this label). P330 Rinse mouth. P362+P364 Take off contaminated clothing and wash it before reuse. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.

### 2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

<b>COPPER II NITRATE TRIHYDRATE</b>	<b>10-30%</b>
CAS number: 10031-43-3	EC number: 221-838-5
	REACH registration number: 01-2119969290-34-0000
M factor (Acute) = 1	
<b>Classification</b>	<b>Classification (67/548/EEC or 1999/45/EC)</b>
Ox. Sol. 3 - H272	Xn;R22. Xi;R36/38. O;R8. N;R50/53.
Acute Tox. 4 - H302	
Skin Irrit. 2 - H315	
Eye Irrit. 2 - H319	
STOT SE 3 - H335	
Aquatic Acute 1 - H400	

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<b>ZINC NITRATE HEXAHYDRATE</b> <span style="float: right;"><b>5-10%</b></span>		
CAS number: 10196-18-6		
<b>Classification</b> Ox. Sol. 3 - H272 Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 STOT SE 3 - H335		
<b>ALUMINIUM NITRATE NONAHYDRATE</b> <span style="float: right;"><b>1-5%</b></span>		
CAS number: 7784-27-2	EC number: 236-751-8	REACH registration number: 01-2119979577-14-0000
<b>Classification</b> Ox. Sol. 3 - H272 Skin Irrit. 2 - H315 Eye Dam. 1 - H318		
<b>NITRIC ACID 2%</b> <span style="float: right;"><b>2.0%</b></span>		
CAS number: 7697-37-2	EC number: 231-714-2	REACH registration number: 01-2119487297-23-0000
<b>Classification</b> Ox. Liq. 3 - H272 Met. Corr. 1 - H290 Skin Corr. 1A - H314 Eye Dam. 1 - H318	<b>Classification (67/548/EEC or 1999/45/EC)</b> O;R8 C;R35	
<b>SILVER NITRATE</b> <span style="float: right;"><b>&lt;1%</b></span>		
CAS number: 7761-88-8	EC number: 231-853-9	REACH registration number: 01-2119513705-43-0000
M factor (Acute) = 1000	M factor (Chronic) = 100	
<b>Classification</b> Ox. Sol. 2 - H272 Skin Corr. 1B - H314 Eye Dam. 1 - H318 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	<b>Classification (67/548/EEC or 1999/45/EC)</b> O;R8 C;R34 N;R50/53	
<b>GOLD (III) HYDROXIDE</b> <span style="float: right;"><b>&lt;1%</b></span>		
CAS number: 1303-52-2	EC number: 215-120-0	
<b>Classification</b> Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 STOT SE 3 - H335		

## BacSan - Very Low Acid

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

<b>General information</b>	Get medical attention immediately. Show this Safety Data Sheet to the medical personnel.
<b>Inhalation</b>	Remove affected person from source of contamination. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Place unconscious person on their side in the recovery position and ensure breathing can take place.
<b>Ingestion</b>	Rinse mouth thoroughly with water. Remove any dentures. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Place unconscious person on their side in the recovery position and ensure breathing can take place. Maintain an open airway. Loosen tight clothing such as collar, tie or belt.
<b>Skin contact</b>	Rinse with water.
<b>Eye contact</b>	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 10 minutes.
<b>Protection of first aiders</b>	First aid personnel should wear appropriate protective equipment during any rescue. If it is suspected that volatile contaminants are still present around the affected person, first aid personnel should wear an appropriate respirator or self-contained breathing apparatus. Wash contaminated clothing thoroughly with water before removing it from the affected person, or wear gloves. It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

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

<b>General information</b>	See Section 11 for additional information on health hazards. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
<b>Inhalation</b>	A single exposure may cause the following adverse effects: Irritation of nose, throat and airway. Difficulty in breathing. Coughing.
<b>Ingestion</b>	May cause discomfort if swallowed. Stomach pain. Nausea, vomiting.
<b>Skin contact</b>	Redness. Irritating to skin.
<b>Eye contact</b>	Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.

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

<b>Notes for the doctor</b>	Treat symptomatically.
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### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

<b>Suitable extinguishing media</b>	The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.

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

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<b>Specific hazards</b>	Containers can burst violently or explode when heated, due to excessive pressure build-up. This product is toxic.
<b>Hazardous combustion products</b>	Thermal decomposition or combustion products may include the following substances: Toxic gases or vapours.
<b>5.3. Advice for firefighters</b>	
<b>Protective actions during firefighting</b>	Avoid breathing fire gases or vapours. Evacuate area. Keep upwind to avoid inhalation of gases, vapours, fumes and smoke. Ventilate closed spaces before entering them. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapours and protect men stopping the leak. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.
<b>Special protective equipment for firefighters</b>	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

### SECTION 6: Accidental release measures

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

<b>Personal precautions</b>	No action shall be taken without appropriate training or involving any personal risk. Keep unnecessary and unprotected personnel away from the spillage. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Wash thoroughly after dealing with a spillage. Ensure procedures and training for emergency decontamination and disposal are in place. Do not touch or walk into spilled material. Avoid inhalation of vapours and spray/mists. Use suitable respiratory protection if ventilation is inadequate.
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#### 6.2. Environmental precautions

<b>Environmental precautions</b>	Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment.
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#### 6.3. Methods and material for containment and cleaning up

<b>Methods for cleaning up</b>	Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Provide adequate ventilation. Small Spillages: Collect spillage. Large Spillages: Absorb spillage with non-combustible, absorbent material. The contaminated absorbent may pose the same hazard as the spilled material. Collect and place in suitable waste disposal containers and seal securely. Label the containers containing waste and contaminated materials and remove from the area as soon as possible. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. Neutralise with alkali. Caution. May generate heat. Dangerous for the environment. Do not empty into drains. For waste disposal, see Section 13.
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#### 6.4. Reference to other sections

<b>Reference to other sections</b>	For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.
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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

## BacSan - Very Low Acid

<b>Usage precautions</b>	Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Handle all packages and containers carefully to minimise spills. Keep container tightly sealed when not in use. Avoid the formation of mists. Avoid discharge to the aquatic environment. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.
<b>Advice on general occupational hygiene</b>	Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Change work clothing daily before leaving workplace.

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

<b>Storage precautions</b>	Store away from incompatible materials (see Section 10). Store away from the following materials: Alkalis. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage. Bund storage facilities to prevent soil and water pollution in the event of spillage. The storage area floor should be leak-tight, jointless and not absorbent.
<b>Storage class</b>	Acids.

### 7.3. Specific end use(s)

<b>Specific end use(s)</b>	The identified uses for this product are detailed in Section 1.2.
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## SECTION 8: Exposure Controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

##### **NITRIC ACID 2%**

Long-term exposure limit (8-hour TWA): WEL

Short-term exposure limit (15-minute): WEL 1 ppm 2.6 mg/m<sup>3</sup>

##### **SILVER NITRATE**

Long-term exposure limit (8-hour TWA): WEL 0.01 As Ag mg/m<sup>3</sup>

WEL = Workplace Exposure Limit

#### **NITRIC ACID 2% (CAS: 7697-37-2)**

<b>DNEL</b>	Workers - Inhalation; Long term local effects: 2.6 mg/m <sup>3</sup> Workers - Inhalation; Short term local effects: 2.6 mg/m <sup>3</sup> General population - Inhalation; Long term local effects: 1.3 mg/m <sup>3</sup> General population - Inhalation; Short term local effects: 1.3 mg/m <sup>3</sup>
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#### **SILVER NITRATE (CAS: 7761-88-8)**

<b>DNEL</b>	Workers - Inhalation; Long term systemic effects: 0.016 mg/m <sup>3</sup> General population - Inhalation; Long term systemic effects: 0.006 mg/m <sup>3</sup> General population - Oral; Long term systemic effects: 0.02 mg/kg/day
<b>PNEC</b>	- Fresh water; 0.00004 mg/l - Marine water; 0.00086 mg/l - STP; 0.025 mg/l - Sediment (Freshwater); 438.13 mg/kg - Sediment (Marinewater); 438.13 mg/kg - Soil; 1.41 mg/kg

### 8.2. Exposure controls

## BacSan - Very Low Acid

### Protective equipment



### Appropriate engineering controls

Provide adequate ventilation. Personal, workplace environment or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimise worker exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by the engineering control measures. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimise exposure.

### Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with European Standard EN166. Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

### Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with European Standard EN374. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.

### Other skin and body protection

Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.

### Hygiene measures

Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Preventive industrial medical examinations should be carried out. Warn cleaning personnel of any hazardous properties of the product.

### Respiratory protection

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with European Standard EN14387. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.

### Environmental exposure controls

Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. Store in a demarcated bunded area to prevent release to drains and/or watercourses.

## SECTION 9: Physical and Chemical Properties

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

Appearance	Clear liquid.
Colour	Blue.
Odour	Almost odourless.

## BacSan - Very Low Acid

<b>pH</b>	pH (concentrated solution): <7
<b>Melting point</b>	Not determined.
<b>Initial boiling point and range</b>	Not determined.
<b>Flash point</b>	Not applicable.
<b>Vapour pressure</b>	Not determined.
<b>Relative density</b>	~ 1.2
<b>Solubility(ies)</b>	Miscible with water.
<b>Partition coefficient</b>	Not determined.
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition Temperature</b>	Not determined.
<b>Explosive properties</b>	Not considered to be explosive.
<b>Oxidising properties</b>	Does not meet the criteria for classification as oxidising.

### 9.2. Other information

**Other information** None.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

**Reactivity** See the other subsections of this section for further details.

### 10.2. Chemical stability

**Stability** Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.

### 10.3. Possibility of hazardous reactions

**Possibility of hazardous reactions** No potentially hazardous reactions known.

### 10.4. Conditions to avoid

**Conditions to avoid** There are no known conditions that are likely to result in a hazardous situation.

### 10.5. Incompatible materials

**Materials to avoid** Alkalis. Amines.

### 10.6. Hazardous decomposition products

**Hazardous decomposition products** Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Toxic gases or vapours.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Acute toxicity - oral

**Notes (oral LD<sub>50</sub>)** Acute Tox. 4 - H302 Harmful if swallowed.

**ATE oral (mg/kg)** 1,905.49

#### Acute toxicity - dermal

**Notes (dermal LD<sub>50</sub>)** Based on available data the classification criteria are not met.



## BacSan - Very Low Acid

### Acute toxicity - inhalation

**Notes (inhalation LC<sub>50</sub>)** Based on available data the classification criteria are not met.

### Skin corrosion/irritation

**Animal data** Irritating.

**Extreme pH** ≤ 2 Corrosive.

### Serious eye damage/irritation

**Serious eye damage/irritation** Eye Dam. 1 - H318 Causes serious eye damage.

### Respiratory sensitisation

**Respiratory sensitisation** Based on available data the classification criteria are not met.

### Skin sensitisation

**Skin sensitisation** Based on available data the classification criteria are not met.

### Germ cell mutagenicity

**Genotoxicity - in vitro** Based on available data the classification criteria are not met.

### Carcinogenicity

**Carcinogenicity** Based on available data the classification criteria are not met.

**IARC carcinogenicity** None of the ingredients are listed or exempt.

### Reproductive toxicity

**Reproductive toxicity - fertility** Based on available data the classification criteria are not met.

**Reproductive toxicity - development** Based on available data the classification criteria are not met.

### Specific target organ toxicity - single exposure

**STOT - single exposure** STOT SE 3 - H335 May cause respiratory irritation.

**Target organs** Respiratory system, lungs

### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** Not classified as a specific target organ toxicant after repeated exposure.

### Aspiration hazard

**Aspiration hazard** Based on available data the classification criteria are not met.

### **General information**

The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

### **Inhalation**

A single exposure may cause the following adverse effects: Irritation of nose, throat and airway. Difficulty in breathing. Coughing.

### **Ingestion**

May cause discomfort if swallowed. Stomach pain. Nausea, vomiting.

### **Skin contact**

Redness. Irritating to skin.

### **Eye contact**

Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.

### **Route of entry**

Ingestion Inhalation Skin and/or eye contact

### **Target organs**

Respiratory system, lungs

## COPPER II NITRATE TRIHYDRATE

## BacSan - Very Low Acid

### Acute toxicity - oral

ATE oral (mg/kg) 500.0

**Inhalation** Dust may irritate the respiratory system. Symptoms following overexposure may include the following: Coughing.

**Ingestion** Nausea, vomiting.

**Skin contact** Irritating to skin.

**Eye contact** Severely irritating to eyes. A single exposure may cause the following adverse effects: Corneal damage.

### ZINC NITRATE HEXAHYDRATE

### Acute toxicity - oral

ATE oral (mg/kg) 500.0

### NITRIC ACID 2%

### Acute toxicity - oral

**Notes (oral LD<sub>50</sub>)** No information available.

### Acute toxicity - dermal

**Notes (dermal LD<sub>50</sub>)** No information available.

### Acute toxicity - inhalation

**Notes (inhalation LC<sub>50</sub>)** 4 hour LC50 = 2.65 mg/l, Inhalation, Rat

### Skin corrosion/irritation

**Skin corrosion/irritation** Corrosive to skin.

### Serious eye damage/irritation

**Serious eye damage/irritation** Corrosive to eyes.

### Respiratory sensitisation

**Respiratory sensitisation** No information available.

### Skin sensitisation

**Skin sensitisation** Scientifically unjustified.

### Germ cell mutagenicity

**Genotoxicity - in vitro** No information available.

**Genotoxicity - in vivo** No information available.

### Carcinogenicity

**Carcinogenicity** Not available.

### Reproductive toxicity

**Reproductive toxicity - fertility** Scientifically unjustified.

**Reproductive toxicity - development** Not available.

## BacSan - Very Low Acid

### Specific target organ toxicity - single exposure

**STOT - single exposure** Not available.

### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** No information available.

**Target organs** Inhalation: Respiratory system, lungs

**Inhalation** This product is strongly irritating. Corrosive to the respiratory tract.

**Ingestion** This product is strongly corrosive. Causes severe burns. Nausea, vomiting. Small amounts may cause serious damage.

**Skin contact** This product is strongly corrosive. Causes severe burns.

**Eye contact** Causes severe burns. Risk of serious damage to eyes.

### SILVER NITRATE

**Toxicological effects** Based on information from tests with silver nano particles.

### Acute toxicity - oral

**Notes (oral LD<sub>50</sub>)** LD<sub>50</sub> >2000 mg/kg, Oral, Rat

### Acute toxicity - dermal

**Notes (dermal LD<sub>50</sub>)** LD<sub>50</sub> >2000 mg/kg, Dermal, Rat

### Acute toxicity - inhalation

**Notes (inhalation LC<sub>50</sub>)** LC<sub>50</sub> > 0.75 mg/m<sup>3</sup>, Inhalation, Rat

### Skin corrosion/irritation

**Skin corrosion/irritation** Corrosive to skin.

### Serious eye damage/irritation

**Serious eye damage/irritation** Causes serious eye damage.

**Inhalation** Irritating to respiratory system. Burns can occur.

**Ingestion** Corrosive. Causes severe burns.

**Skin contact** Causes severe burns.

**Eye contact** Causes serious eye damage.

## SECTION 12: Ecological Information

### COPPER II NITRATE TRIHYDRATE

**Ecotoxicity** Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### NITRIC ACID 2%

## BacSan - Very Low Acid

**Ecotoxicity** The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

### SILVER NITRATE

**Ecotoxicity** Very toxic to aquatic life with long lasting effects.

#### 12.1. Toxicity

**Toxicity** Aquatic Chronic 3 - H412 Harmful to aquatic life with long lasting effects.

### COPPER II NITRATE TRIHYDRATE

#### Acute aquatic toxicity

**LE(C)<sub>50</sub>** 0.1 < L(E)C<sub>50</sub> ≤ 1

**M factor (Acute)** 1

### NITRIC ACID 2%

**Acute toxicity - fish** , 96 hours: Median lethal pH 3 - 3.5 , Onchorhynchus mykiss (Rainbow trout)

**Acute toxicity - aquatic invertebrates** LC<sub>50</sub>, 48 hours: 490 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** Not available.

**Acute toxicity - microorganisms** Not available.

**Acute toxicity - terrestrial** Not available.

**Chronic toxicity - fish early life stage** Not available.

**Short term toxicity - embryo and sac fry stages** Not available.

**Chronic toxicity - aquatic invertebrates** Not available.

### SILVER NITRATE

#### Acute aquatic toxicity

**LE(C)<sub>50</sub>** 0.0001 < L(E)C<sub>50</sub> ≤ 0.001

**M factor (Acute)** 1000

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: 0.00012 (Silver) mg/l, Pimephales promelas (Fat-head Minnow)

**Acute toxicity - aquatic invertebrates** LC<sub>50</sub>, 48 hours: 0.00022 (Silver) mg/l, Daphnia magna

**Acute toxicity - microorganisms** NOEC, : 0.025 (Silver) mg/l, Activated sludge

#### Chronic aquatic toxicity

**M factor (Chronic)** 100

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**Chronic toxicity - fish early life stage** , 217 days: EC10 = 0.19µg/L Silver ,

**Chronic toxicity - aquatic invertebrates** , 21 days: EC10 = 2.14µg/L Silver , Daphnia magna

### 12.2. Persistence and degradability

**Persistence and degradability** The degradability of the product is not known.

#### NITRIC ACID 2%

<b>Phototransformation</b>	Not available.
<b>Stability (hydrolysis)</b>	Scientifically unjustified.
<b>Biodegradation</b>	Scientifically unjustified.
<b>Biological oxygen demand</b>	Not relevant.
<b>Chemical oxygen demand</b>	Not relevant.

#### SILVER NITRATE

<b>Persistence and degradability</b>	There are no data on the degradability of this product. The product contains only inorganic substances which are not biodegradable.
<b>Stability (hydrolysis)</b>	Scientifically unjustified.

### 12.3. Bioaccumulative potential

<b>Bioaccumulative potential</b>	No data available on bioaccumulation.
<b>Partition coefficient</b>	Not determined.

#### NITRIC ACID 2%

<b>Bioaccumulative potential</b>	The product is not bioaccumulating.
<b>Partition coefficient</b>	Not available.

#### SILVER NITRATE

<b>Bioaccumulative potential</b>	BCF: ~ 70, Cyprinus carpio (Common carp)
<b>Partition coefficient</b>	Scientifically unjustified.

### 12.4. Mobility in soil

**Mobility** The product is water-soluble and may spread in water systems. The product is non-volatile.

#### NITRIC ACID 2%

<b>Adsorption/desorption coefficient</b>	Scientifically unjustified.
<b>Henry's law constant</b>	Not available.
<b>Surface tension</b>	Not available.

#### SILVER NITRATE

## BacSan - Very Low Acid

**Adsorption/desorption coefficient** Soil - : Kd = 4023 L/kg (Median) @ °C

### 12.5. Results of PBT and vPvB assessment

**Results of PBT and vPvB assessment** This product does not contain any substances classified as PBT or vPvB.

#### NITRIC ACID 2%

**Results of PBT and vPvB assessment** This substance is not classified as PBT or vPvB according to current EU criteria.

#### SILVER NITRATE

**Results of PBT and vPvB assessment** This substance is not classified as PBT or vPvB according to current EU criteria.

### 12.6. Other adverse effects

**Other adverse effects** None known.

#### SILVER NITRATE

**Other adverse effects** Dangerous for the environment.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**General information** The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

**Disposal methods** Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

## SECTION 14: Transport information

**General** The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

### 14.1. UN number

Not applicable.

### 14.2. UN proper shipping name

Not applicable.

### 14.3. Transport hazard class(es)

## BacSan - Very Low Acid

### Transport labels

No transport warning sign required.

### 14.4. Packing group

Not applicable.

### 14.5. Environmental hazards

#### Environmentally hazardous substance/marine pollutant

No.

### 14.6. Special precautions for user

Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78  
and the IBC Code

## SECTION 15: Regulatory information

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

#### National regulations

Health and Safety at Work etc. Act 1974 (as amended).  
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"].  
EH40/2005 Workplace exposure limits.

#### EU legislation

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).  
Commission Regulation (EU) No 2015/830 of 28 May 2015.  
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

### Inventories

#### EU - EINECS/ELINCS

None of the ingredients are listed or exempt.

## SECTION 16: Other information

## BacSan - Very Low Acid

<b>Abbreviations and acronyms used in the safety data sheet</b>	<p>ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.</p> <p>ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.</p> <p>RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.</p> <p>IATA: International Air Transport Association.</p> <p>ICAO-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air.</p> <p>IMDG: International Maritime Dangerous Goods.</p> <p>CAS: Chemical Abstracts Service.</p> <p>ATE: Acute Toxicity Estimate.</p> <p>LC<sub>50</sub>: Lethal Concentration to 50 % of a test population.</p> <p>LD<sub>50</sub>: Lethal Dose to 50% of a test population (Median Lethal Dose).</p> <p>EC<sub>50</sub>: 50% of maximal Effective Concentration.</p> <p>PBT: Persistent, Bioaccumulative and Toxic substance.</p> <p>vPvB: Very Persistent and Very Bioaccumulative.</p>
<b>Classification abbreviations and acronyms</b>	<p>Acute Tox. = Acute toxicity</p> <p>Eye Dam. = Serious eye damage</p> <p>Skin Irrit. = Skin irritation</p> <p>STOT SE = Specific target organ toxicity-single exposure</p> <p>Aquatic Chronic = Hazardous to the aquatic environment (chronic)</p>
<b>General information</b>	<p>This datasheet is not intended to be a replacement for a full risk assessment, these should always be carried out by competent persons. Only trained personnel should use this material.</p>
<b>Key literature references and sources for data</b>	<p>Source: European Chemicals Agency, <a href="http://echa.europa.eu/">http://echa.europa.eu/</a> Raw material safety data sheets.</p>
<b>Classification procedures according to Regulation (EC) 1272/2008</b>	<p>Acute Tox. 4 - H302: Eye Dam. 1 - H318: STOT SE 3 - H335: Skin Irrit. 2 - H315: : Calculation method. Aquatic Chronic 3 - H412: : Calculation method.</p>
<b>Training advice</b>	<p>Read and follow manufacturer's recommendations. Only trained personnel should use this material.</p>
<b>Revision comments</b>	<p>This is first issue.</p>
<b>Revision date</b>	<p>19/12/2017</p>
<b>Revision</b>	<p>2</p>
<b>Supersedes date</b>	<p>30/05/2017</p>
<b>SDS number</b>	<p>21743</p>
<b>Hazard statements in full</b>	<p>H272 May intensify fire; oxidiser.</p> <p>H290 May be corrosive to metals.</p> <p>H302 Harmful if swallowed.</p> <p>H314 Causes severe skin burns and eye damage.</p> <p>H315 Causes skin irritation.</p> <p>H318 Causes serious eye damage.</p> <p>H319 Causes serious eye irritation.</p> <p>H335 May cause respiratory irritation.</p> <p>H400 Very toxic to aquatic life.</p> <p>H410 Very toxic to aquatic life with long lasting effects.</p> <p>H412 Harmful to aquatic life with long lasting effects.</p>



## BacSan - Very Low Acid

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

## Annex: Exposure Scenarios

### Index

#### 1. Manufacture of substance, Industrial applications

SU3; SU3, SU4, SU8, SU9, SU10, SU12, SU14, SU15, SU16; ERC1, ERC2, ERC4, ERC6a, ERC6b, ERC6d, ERC7; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC15; PC7, PC12, PC14, PC15, PC19, PC20, PC33, PC35, PC37, PC0

#### 2. Professional applications

SU22; SU1, SU22; ERC8a, ERC8b, ERC8e; PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC15, PROC19; PC12, PC14, PC15, PC20, PC21, PC35

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### 1. Short title of exposure scenario

Manufacture of substance, Industrial applications

SU3; SU3, SU4, SU8, SU9, SU10, SU12, SU14, SU15, SU16; ERC1, ERC2, ERC4, ERC6a, ERC6b, ERC6d, ERC7; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC15; PC7, PC12, PC14, PC15, PC19, PC20, PC33, PC35, PC37, PC0

### Control of exposure and risk management measures

<b>Contributing exposure scenario</b>	
<b>Use descriptors covered</b>	PROC1: Use in closed process, no likelihood of exposure. PROC2: Use in closed, continuous process with occasional controlled exposure. Use domain: industrial
<b>Operational conditions</b>	
Concentration of the substance	nitric acid...% Content: >= 0 % - <= 75 %
Physical state	liquid
Vapour pressure of the substance during use	61 hPa
Duration and Frequency of activity	Application duration: 480 min 5 days per week
<b>Risk Management Measures</b>	
Avoid frequent and direct contact with substance. Ensure that the task is not carried out overhead. Ensure minimization of manual phases	
Use suitable eye protection. Use suitable chemically resistant gloves. Wear suitable working clothes.	
Risk Management Measures are based on qualitative risk characterisation.	
<b>Exposure estimate and reference to its source</b>	

Assessment method	MEASE
	Worker - inhalative, long-term - local
Exposure estimate	0.001 mg/m <sup>3</sup>
Risk Characterization Ratio (RCR)	0.0008
Assessment method	Qualitative assessment
	Worker - dermal
<b>Guidance to Downstream Users</b>	
For scaling see: <a href="http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php">http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php</a>	

<b>Contributing exposure scenario</b>	
<b>Use descriptors covered</b>	<p>PROC3: Use in closed batch process (synthesis or formulation). PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises. PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring. PROC14: Production of preparations or articles by tableting, compression, extrusion, pelettisation. PROC15: Use a laboratory reagent.</p> <p>Use domain: industrial</p>
<b>Operational conditions</b>	
Concentration of the substance	nitric acid...% Content: >= 0 % - <= 75 %
Physical state	liquid
Vapour pressure of the substance during use	61 hPa
Duration and Frequency of activity	Application duration: 480 min 5 days per week
<b>Risk Management Measures</b>	
Avoid frequent and direct contact with substance. Ensure that the task is not carried out overhead. Ensure minimization of manual phases	
Use suitable eye protection. Use suitable chemically resistant gloves. Wear suitable working clothes.	
Risk Management Measures are based on qualitative risk characterisation.	
<b>Exposure estimate and reference to its source</b>	
PROC3, PROC8b, PROC9, PROC13, PROC14, PROC15	
Assessment method	MEASE

	Worker - inhalative, long-term - local
Exposure estimate	0.01 mg/m <sup>3</sup>
Risk Characterization Ratio (RCR)	0.0077
Assessment method	Qualitative assessment
	Worker - dermal
PROC4, PROC5, PROC8a, PROC10	
Assessment method	MEASE
	Worker - inhalative, long-term - local
Exposure estimate	0.05 mg/m <sup>3</sup>
Risk Characterization Ratio (RCR)	0.0385
<b>Guidance to Downstream Users</b>	
For scaling see: <a href="http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php">http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php</a>	

<b>Contributing exposure scenario</b>	
<b>Use descriptors covered</b>	Substance will disassociate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk

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## 2. Short title of exposure scenario

Professional applications

SU22; SU1, SU22; ERC8a, ERC8b, ERC8e; PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC15, PROC19; PC12, PC14, PC15, PC20, PC21, PC35

## Control of exposure and risk management measures

<b>Contributing exposure scenario</b>	
<b>Use descriptors covered</b>	PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring. PROC14: Production of preparations or articles by tableting, compression, extrusion, pelettisation. PROC15: Use a laboratory reagent. PROC19: Hand-mixing with intimate contact and only PPE available. Use domain: professional
<b>Operational conditions</b>	
Concentration of the substance	nitric acid...% Content: >= 0 % - <= 75 %
Physical state	liquid

Vapour pressure of the substance during use	61 hPa
Duration and Frequency of activity	Application duration: 480 min 5 days per week
Indoor/Outdoor	Indoor
<b>Risk Management Measures</b>	
Wear suitable respiratory protection.	
Personal measures have to be applied in case of potential exposure towards spray or dust only.	
Avoid frequent and direct contact with substance. Avoid skin contact. Ensure minimization of manual phases	
Use suitable chemically resistant gloves. Use suitable eye protection. Wear suitable working clothes.	
Risk Management Measures are based on qualitative risk characterisation.	
<b>Exposure estimate and reference to its source</b>	
PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC19	
Assessment method	MEASE
	Worker - inhalative, long-term - local
Exposure estimate	0.05 mg/m <sup>3</sup>
Risk Characterization Ratio (RCR)	0.04
Assessment method	Qualitative assessment
	Worker - dermal
PROC5, PROC14	
Assessment method	MEASE
	Worker - inhalative, long-term - local
Exposure estimate	0.1 mg/m <sup>3</sup>
Risk Characterization Ratio (RCR)	0.08
PROC15	
Assessment method	MEASE
	Worker - inhalative, long-term - local
Exposure estimate	0.01 mg/m <sup>3</sup>
Risk Characterization Ratio (RCR)	0.01
<b>Guidance to Downstream Users</b>	
For scaling see: <a href="http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php">http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php</a>	

<b>Contributing exposure scenario</b>	
<b>Use descriptors covered</b>	PROC11: Non industrial spraying Use domain: professional
<b>Operational conditions</b>	
Concentration of the substance	nitric acid...% Content: >= 0 % - <= 75 %
	nitric acid...% Content: >= 0 % - <= 75 %

Physical state	liquid
Vapour pressure of the substance during use	61 hPa
Duration and Frequency of activity	Application duration: 480 min 5 days per week
<b>Risk Management Measures</b>	
Wear suitable respiratory protection.	Effectiveness: 97 %
Avoid frequent and direct contact with substance. Avoid skin contact. Ensure minimization of manual phases	
Use suitable chemically resistant gloves. Use suitable eye protection. Wear suitable working clothes.	
Risk Management Measures are based on qualitative risk characterisation.	
<b>Exposure estimate and reference to its source</b>	
Assessment method	MEASE
	Worker - inhalative, long-term - local
Exposure estimate	0.5 mg/m <sup>3</sup>
Risk Characterization Ratio (RCR)	0.38
Assessment method	Qualitative assessment
	Worker - dermal
<b>Guidance to Downstream Users</b>	
For scaling see: <a href="http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php">http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php</a>	

<b>Contributing exposure scenario</b>	
<b>Use descriptors covered</b>	PROC11: Non industrial spraying Use domain: professional
<b>Operational conditions</b>	
Concentration of the substance	nitric acid...% Content: >= 0 % - <= 75 %
Physical state	liquid
Vapour pressure of the substance during use	61 hPa
Duration and Frequency of activity	Application duration: 240 min 5 days per week
<b>Risk Management Measures</b>	
Wear suitable respiratory protection.	Effectiveness: 95 %
Avoid frequent and direct contact with substance. Avoid skin contact. Ensure minimization of manual phases	
Use suitable chemically resistant gloves. Use suitable eye protection. Wear suitable working clothes.	
Risk Management Measures are based on qualitative risk characterisation.	

<b>Exposure estimate and reference to its source</b>	
Assessment method	MEASE
	Worker - inhalative, long-term - local
Exposure estimate	0.6 mg/m <sup>3</sup>
Risk Characterization Ratio (RCR)	0.46
Assessment method	Qualitative assessment
	Worker - dermal
<b>Guidance to Downstream Users</b>	
For scaling see: <a href="http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php">http://www.ebrc.de/industrial-chemicals-reach/projects-and-references/mease.php</a>	

<b>Contributing exposure scenario</b>	
<b>Use descriptors covered</b>	Substance will disossciate upon contact with water, the only effect is the pH effect, therefore after passing through the STP exposure is considered negligible and with no risk

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