

This safety data sheet was created pursuant to the requirements of:  
UK REACH Regulations (SI 2019/758 as amended)

Revision date 06-Sep-2024

Revision Number 2

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

### 1.1. Product identifier

|                           |                                                                                       |
|---------------------------|---------------------------------------------------------------------------------------|
| Product Code(s)           | 66968                                                                                 |
| Safety data sheet number  | 66968                                                                                 |
| Product Name              | NITRIC ACID 30 -35% SOL                                                               |
| Index No                  | 007-004-00-1                                                                          |
| EC Number                 | 231-714-2                                                                             |
| CAS No                    | 7697-37-2                                                                             |
| Synonyms                  | NITRIC ACID 30% SOL, NITRIC ACID 33% SOL, NITRIC ACID 30% SOL ZW, NITRIC ACID 35% SOL |
| Pure substance/mixture    | Substance                                                                             |
| Contains NITRIC ACID ...% |                                                                                       |

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

|                 |                                                                                                                                                                                                                                                                                                                  |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommended use | Chemical intermediate<br>Metal surface treatment<br>Industrial use<br>Formulation of preparations (mixtures)<br>Use of non-reactive processing aid at industrial site (no inclusion into or onto article)<br>Professional use<br>Laboratory chemicals<br>For further information, see attached Exposure Scenario |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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

#### Supplier

Univar Solutions UK Ltd  
Aquarius House  
6 Mid Point Business Park  
Bradford  
GBR

For further information, please contact

|                                |                                   |
|--------------------------------|-----------------------------------|
| E-mail address                 | SDS.EMEA@univarsolutions.com      |
| Non-Emergency Telephone Number | +44 1274 267300 / +44 1274 267306 |

### 1.4. Emergency telephone number

|                     |                                |
|---------------------|--------------------------------|
| Emergency Telephone | SGS - +32 (0)3 575 55 55 (24h) |
|---------------------|--------------------------------|

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

|                                       |                                    |
|---------------------------------------|------------------------------------|
| Corrosive to metals                   | Category 1 - (H290)                |
| Acute toxicity - Inhalation (Vapours) | Category 3 - (H331)                |
| Skin corrosion/irritation             | Category 1 Sub-category A - (H314) |
| Serious eye damage/eye irritation     | Category 1 - (H318)                |

### 2.2. Label elements

Contains NITRIC ACID ...%



#### Signal word

Danger

#### Hazard statements

H314 - Causes severe skin burns and eye damage

H331 - Toxic if inhaled

H290 - May be corrosive to metals

EUH071 - Corrosive to the respiratory tract

#### Precautionary statements

P260 - Do not breathe dust/fume/gas/mist/vapours/spray

P280 - Wear protective gloves/protective clothing and eye/face protection

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

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

#### Additional information

This product requires child resistant fastenings if supplied to the general public. This product requires tactile warnings if supplied to the general public. Acquisition, possession or use by the general public is restricted.

### 2.3. Other hazards

No information available.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

| Chemical name                 | Weight-% | EC No (EU Index No) | UK REACH registration number | Classification according to GB CLP (SI 2020/1567 as amended)                                                 | Specific concentration limit (SCL)                                      | M-Factor | M-Factor (long-term) |
|-------------------------------|----------|---------------------|------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----------|----------------------|
| NITRIC ACID ...%<br>7697-37-2 | 30 - 35% | 231-714-2           | -                            | Skin Corr. 1A (H314)<br>Ox. Liq. 2 (H272)<br>Met. Corr. 1 (H290)<br>Eye Dam. 1 (H318)<br>Acute Tox. 3 (H331) | Ox. Liq. 2 ::<br>C>=99%<br>Ox. Liq. 3 ::<br>70%<=C<99%<br>Skin Corr. 1B | -        | -                    |

|  |  |  |  |  |                                                              |  |  |
|--|--|--|--|--|--------------------------------------------------------------|--|--|
|  |  |  |  |  | (H314) ::<br>5%≤C<20%<br>Skin Corr. 1A<br>(H314) ::<br>C≥20% |  |  |
|--|--|--|--|--|--------------------------------------------------------------|--|--|

**Full text of H- and EUH-phrases: see section 16**

This product does not contain candidate substances of very high concern at a concentration ≥ 0.1% (UK REACH Article 59)

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General advice</b>                     | Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Inhalation</b>                         | Inhale Corticosteroid dose aerosol. Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical attention. |
| <b>Eye contact</b>                        | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.                                                                                                                                                                                                                                                   |
| <b>Skin contact</b>                       | Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention. Chemical burns must be treated promptly by a physician.                                                                                                                                                                                                                                                                                                              |
| <b>Ingestion</b>                          | Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Drink plenty of water. If large quantities of this material are swallowed, call a doctor immediately.                                                                                                                                                                                     |
| <b>Self-protection of the first aider</b> | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Wear personal protective clothing (see section 8). No action shall be taken involving any personal risk or without suitable training.                                                                                         |

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

|                   |                                                                                           |
|-------------------|-------------------------------------------------------------------------------------------|
| <b>Symptoms</b>   | Burning sensation.                                                                        |
| <b>Inhalation</b> | Toxic if inhaled. Corrosive to the respiratory tract. Burning. Coughing and/ or wheezing. |
| <b>Eyes</b>       | Causes severe burns. Pain. Watering. Redness.                                             |
| <b>Dermal</b>     | Causes severe burns. Pain. Redness. Blistering.                                           |
| <b>Ingestion</b>  | Causes digestive tract burns Stomach pain                                                 |

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

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Note to doctors</b> | Product is a corrosive material. Use of gastric lavage or emesis is contra-indicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. 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. |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable Extinguishing Media** Carbon dioxide (CO<sub>2</sub>). Use extinguishing agent suitable for type of surrounding fire.

**Large Fire** CAUTION: Use of water spray when fighting fire may be inefficient.

**Unsuitable extinguishing media** Do not scatter spilled material with high pressure water streams.

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

**Specific hazards arising from the chemical** The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours. Reacts violently with water. Contact with metals may evolve flammable hydrogen gas. Closed containers can burst violently when heated, due to excess pressure build-up.

**Hazardous combustion products** Carbon oxides. Nitrogen oxides (NO<sub>x</sub>).

### 5.3. Advice for firefighters

**Special protective equipment and precautions for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Cool containers with flooding quantities of water until well after fire is out. Evacuate personnel to safe areas. No action shall be taken involving any personal risk or without suitable training.

## SECTION 6: Accidental release measures

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

**Personal precautions** Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. No action shall be taken involving any personal risk or without suitable training. Do not touch or walk through spilled material. Eliminate all ignition sources if safe to do so.

**Other information** Refer to protective measures listed in Sections 7 and 8.

**For emergency responders** Use personal protection recommended in Section 8.

### 6.2. Environmental precautions

**Environmental precautions** Local authorities should be advised if significant spillages cannot be contained. Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

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

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Bund material with inert material, carefully dilute with water spray to minimize fume emission and heat generation. Carefully neutralize using excess of slaked lime or soda ash to form a slurry. Take up slurry into plastic containers and hold for disposal.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

### 6.4. Reference to other sections

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

#### Advice on safe handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse. Avoid spilling. Keep away from heat, sparks and open flame. Ensure that eyewash stations and safety showers are close to the workstation location. Avoid contact with skin, eyes and inhalation of vapours. Use personal protection recommended in Section 8. Keep only in original container. Keep container closed when not in use. Keep away from contact with clothing and other combustible materials to avoid fire. Empty containers retain product residue and can be hazardous. Do not re-use container. Absorb spillage to prevent material damage. When diluting, always add the product to water. Never add water to the product.

#### General hygiene considerations

Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

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

#### Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials. Reducing agents. Keep away from heat, sparks and open flame. Protect from light. Suitable container/equipment material: stainless steel. Aluminium. Polyvinyl chloride (PVC). Unsuitable container/equipment material: Carbon Steel. See section 10 for more information. Store in accordance with local regulations. Keep only in original packaging. Store in corrosive resistant container with a resistant inner liner. Do not store near combustible materials. Keep containers upright. Keep in properly labelled containers. Bund storage facilities to prevent soil and water pollution in the event of spillage.

### 7.3. Specific end use(s)

#### Specific use(s)

See section 1 for more information.

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure Limits

| Chemical name                 | United Kingdom                             |
|-------------------------------|--------------------------------------------|
| NITRIC ACID ...%<br>7697-37-2 | STEL: 1 ppm<br>STEL: 2.6 mg/m <sup>3</sup> |

#### Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

#### Derived No Effect Level (DNEL) - Workers

| Chemical name    | Oral | Dermal | Inhalation                    |
|------------------|------|--------|-------------------------------|
| NITRIC ACID ...% |      |        | 2.6 mg/m <sup>3</sup> [5] [7] |

| Chemical name | Oral | Dermal | Inhalation                    |
|---------------|------|--------|-------------------------------|
| 7697-37-2     |      |        | 2.6 mg/m <sup>3</sup> [5] [6] |

[5] Local health effects.  
[7] Short term.

**Derived No Effect Level (DNEL) - General Public**

| Chemical name                 | Oral | Dermal | Inhalation                                                     |
|-------------------------------|------|--------|----------------------------------------------------------------|
| NITRIC ACID ...%<br>7697-37-2 |      |        | 1.3 mg/m <sup>3</sup> [5] [7]<br>1.3 mg/m <sup>3</sup> [5] [6] |

[5] Local health effects.  
[7] Short term.

**Predicted No Effect Concentration (PNEC)** No information available.

**8.2. Exposure controls**

**Engineering controls** Ensure adequate ventilation. Ensure that eyewash stations and safety showers are close to the workstation location. Use engineering controls to keep exposures below the OEL or DNEL.

**Personal protective equipment**

**Eye/face protection** Use eye protection according to EN 166. Tight sealing safety goggles. Face protection shield.

**Hand protection** Gloves must conform to standard EN 374. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Wear suitable gloves. Impervious gloves.

| Gloves               |                         |                 |                    |
|----------------------|-------------------------|-----------------|--------------------|
| Duration of contact  | PPE - Glove material    | Glove thickness | Break through time |
| Long term (repeated) | Chloroprene rubber (CR) | 0.5 mm          | 8 hours            |
| Long term (repeated) | Butyl rubber            | 0.7 mm          | 8 hours            |
| Long term (repeated) | Viton™                  |                 | 4-8 hours          |

**Skin and body protection** Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

**Respiratory protection** In case of inadequate ventilation wear respiratory protection.  
**Recommended filter type:** Filter type: B. Type E.

**General hygiene considerations** Wash hands and face before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

**Physical state** Liquid  
**Colour** Colourless to pale yellow  
**Odour** Pungent. Acrid.  
**Odour threshold** 0.29 ppm

| <u>Property</u>                         | <u>Values</u>                                                    | <u>Remarks • Method</u>   |
|-----------------------------------------|------------------------------------------------------------------|---------------------------|
| Melting point / freezing point          | -23 °C                                                           |                           |
| Initial boiling point and boiling range | 118 °C                                                           |                           |
| Flammability                            |                                                                  | No information available. |
| Flammability Limit in Air               |                                                                  | No information available. |
| Upper flammability or explosive limits  |                                                                  |                           |
| Lower flammability or explosive limits  |                                                                  |                           |
| Flash point                             |                                                                  | No information available. |
| Autoignition temperature                |                                                                  | No information available. |
| Decomposition temperature               |                                                                  | No information available. |
| pH                                      | < 1                                                              |                           |
| pH (as aqueous solution)                |                                                                  | No information available. |
| Kinematic viscosity                     |                                                                  | No information available. |
| Dynamic viscosity                       | 0.75 mPa s                                                       | @ 25 °C.                  |
| Water solubility                        | Miscible in water                                                |                           |
| Solubility(ies)                         |                                                                  | No information available. |
| Partition coefficient                   | log Pow: -0.21                                                   |                           |
| Vapour pressure                         | 860 Pa                                                           | @ 20 °C.                  |
| Relative density                        | 1.117 - 1.513                                                    | 20 °C.                    |
| Bulk density                            |                                                                  | No information available  |
| Liquid Density                          | No information available                                         | No information available  |
| Relative vapour density                 |                                                                  | No information available. |
| Particle characteristics                |                                                                  | No information available. |
| Particle Size                           | No information available                                         |                           |
| Particle Size Distribution              | No information available                                         |                           |
| Explosive properties                    | Based on available data the classification criteria are not met. |                           |
| Oxidising properties                    | Does not meet the criteria for classification as oxidising       |                           |

**9.2. Other information****SECTION 10: Stability and reactivity****10.1. Reactivity**

Reactivity May be corrosive to metals.

**10.2. Chemical stability**

Stability Stable under normal conditions.

**Explosion data**

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

**10.3. Possibility of hazardous reactions**

Possibility of hazardous reactions Contact with water generates heat. Contact with combustible material may cause fire. Contact with metals may evolve flammable hydrogen gas.

**10.4. Conditions to avoid**

Conditions to avoid Exposure to air or moisture over prolonged periods. Exposure to water.

**10.5. Incompatible materials**

Incompatible materials Acids. Bases. Oxidising agent. Alkali. Strong reducing agents. Alcohols. Water. Combustible material. Acids. Organic material. Metals. Copper. Zinc. silver. Magnesium. Brass. Galvanised metals.

**10.6. Hazardous decomposition products**

Hazardous decomposition products Nitrogen oxides (NOx).

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Information on likely routes of exposure

##### Product Information

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b>   | Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. |
| <b>Eye contact</b>  | Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.                                                                                                                                                                                                                                                       |
| <b>Skin contact</b> | Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns.                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Ingestion</b>    | Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed.             |

#### Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** Redness. Burning. May cause blindness. Coughing and/ or wheezing.

#### Acute toxicity

#### Numerical measures of toxicity

##### Component Information

| Chemical name    | Oral LD50 | Dermal LD50 | Inhalation LC50                             |
|------------------|-----------|-------------|---------------------------------------------|
| NITRIC ACID ...% | -         | -           | 0.2 mg/l ( Rat ) 4h<br>2.65 mg/l ( Rat ) 4h |

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                                          |                                                                                                  |
|------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Skin corrosion/irritation</b>         | Classification based on data available for ingredients. Causes severe skin burns and eye damage. |
| <b>Serious eye damage/eye irritation</b> | Classification based on data available for ingredients. Causes serious eye damage. Causes burns. |
| <b>Respiratory or skin sensitisation</b> | Based on available data the classification criteria are not met.                                 |
| <b>Germ cell mutagenicity</b>            | Based on available data the classification criteria are not met.                                 |

Component Information  
NITRIC ACID ...% (7697-37-2)

| Method                                        | Species   | Results  |
|-----------------------------------------------|-----------|----------|
| OECD 473                                      | in vitro  | Negative |
| OECD Test No. 471: Bacterial Reverse Mutation | Ames Test | Negative |

| Test                                                                                         |          |          |
|----------------------------------------------------------------------------------------------|----------|----------|
| OECD Test No. 476: In Vitro Mammalian Cell Gene Mutation Tests using the Hprt and xprt genes | in vitro | Negative |
|                                                                                              | in vivo  | Negative |

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

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

#### NITRIC ACID ...% (7697-37-2)

| Method   | Species | Results          |
|----------|---------|------------------|
| OECD 422 | Rat     | NOAEL 1500 mg/kg |

**STOT - single exposure** Based on available data the classification criteria are not met.

**STOT - repeated exposure** Based on available data the classification criteria are not met.

#### Component Information

##### NITRIC ACID ...% (7697-37-2)

| Method                                                           | Species | Exposure route | Effective dose  | Exposure time | Results |
|------------------------------------------------------------------|---------|----------------|-----------------|---------------|---------|
| OECD 422                                                         | Rat     | Oral           | 1500 mg/kg bw/d | 28 days       | NOAEL   |
| OECD Test No. 413: Sub-chronic Inhalation Toxicity: 90-day Study | Rat     | Inhalation     | > 2,15 ppm      |               | NOAEC   |

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

**Other adverse effects** No information available.

## SECTION 12: Ecological information

### 12.1. Toxicity

**Ecotoxicity** The product contains no substances known to be hazardous to health or to the environment in concentrations which need to be taken into account. Substantial amounts of the product may lead to a local change in acidity in small water systems which may have adverse effects on aquatic organisms.

#### NITRIC ACID ...% (7697-37-2)

| Method                                                                                           | Species                             | Endpoint type | Effective dose | Exposure time | Results |
|--------------------------------------------------------------------------------------------------|-------------------------------------|---------------|----------------|---------------|---------|
|                                                                                                  | Oncorhynchus mykiss (rainbow trout) | LC50          | 3.7 mg/L       | 96 hours      |         |
|                                                                                                  | Algae                               | NOEC          | 6.75 mg/L      | 10 days       |         |
|                                                                                                  | Fish                                | LC50          | > 100 mg/L     | 96 hours      |         |
|                                                                                                  | Daphnia magna                       | LC50          | 180 mg/L       | 48 hours      |         |
| OECD Test No. 209: Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation) | activated sludge                    | EC50          | > 1000 mg/L    | 3 hours       |         |
|                                                                                                  | Algae                               | NOEC          | 6,75 mmol/l    | 10 days       |         |

|  |                                     |      |                  |          |  |
|--|-------------------------------------|------|------------------|----------|--|
|  | Fish                                | NOEC | 268 mg nitrate/l | 30 days  |  |
|  | Pimephales promelas                 | NOEC | 157 mg nitrate/l | 32 days  |  |
|  | Lepomis macrochirus                 | LC50 | 12000 mg/L       | 96 hours |  |
|  | Fish                                | LC50 | 1559 mg/L        | 96 hours |  |
|  | Fish                                | LC50 | 1354 mg/L        | 96 hours |  |
|  | Gambusia affinis                    | LC50 | 6650 mg/L        | 96 hours |  |
|  | Daphnia magna                       | EC50 | 8609 mg/L        | 24 hours |  |
|  | Daphnia magna                       | EC50 | 490 mg/L         | 48 hours |  |
|  | Oncorhynchus mykiss (rainbow trout) | LC50 | 12.5 mg/L        | 96 hours |  |
|  | Water flea                          | EC50 | 4.6 mg/L         | 48 hours |  |

**12.2. Persistence and degradability**

**Persistence and degradability** The product contains inorganic substances which are not biodegradable.

**12.3. Bioaccumulative potential**

**Bioaccumulation** Not likely to bioaccumulate.

**Component Information**

| Chemical name    | Partition coefficient |
|------------------|-----------------------|
| NITRIC ACID ...% | -2.3                  |

**12.4. Mobility in soil**

**Mobility in soil** Soluble in water.

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

**PBT and vPvB assessment** The product does not contain any substance(s) classified as PBT or vPvB.

| Chemical name    | PBT and vPvB assessment         |
|------------------|---------------------------------|
| NITRIC ACID ...% | The substance is not PBT / vPvB |

**12.6. Other adverse effects**

No information available.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

**Waste from residues/unused products** Waste is classified as hazardous waste. Disposal to licensed waste disposal site in accordance with the local Waste Disposal Authority.

**Contaminated packaging** Do not reuse empty containers.

**SECTION 14: Transport information****IATA**

- 14.1 UN number or ID number UN2031  
 14.2 UN proper shipping name NITRIC ACID SOLUTION  
 14.3 Transport hazard class(es) 8  
 14.4 Packing group II  
 14.5 Environmental hazards No  
 14.6 Special precautions for user

|                    |      |
|--------------------|------|
| Special Provisions | None |
| ERG Code           | 8L   |

**IMDG**

|                                                              |                          |
|--------------------------------------------------------------|--------------------------|
| 14.1 UN number or ID number                                  | UN2031                   |
| UN proper shipping name                                      | NITRIC ACID SOLUTION     |
| 14.3 Transport hazard class(es)                              | 8                        |
| 14.4 Packing group                                           | II                       |
| 14.5 Environmental hazards                                   | No                       |
| 14.6 Special precautions for user                            |                          |
| Special Provisions                                           | None                     |
| EmS-No                                                       | F-A, S-B                 |
| 14.7 Maritime transport in bulk according to IMO instruments | No information available |

**RID**

|                                   |                      |
|-----------------------------------|----------------------|
| 14.1 UN number or ID number       | UN2031               |
| 14.2 UN proper shipping name      | NITRIC ACID SOLUTION |
| 14.3 Transport hazard class(es)   | 8                    |
| 14.4 Packing group                | II                   |
| 14.5 Environmental hazards        | No                   |
| 14.6 Special precautions for user |                      |
| Special Provisions                | None                 |
| Classification code               | C1                   |

**ADR**

|                                   |                      |
|-----------------------------------|----------------------|
| 14.1 UN number or ID number       | UN2031               |
| 14.2 UN proper shipping name      | NITRIC ACID SOLUTION |
| 14.3 Transport hazard class(es)   | 8                    |
| 14.4 Packing group                | II                   |
| 14.5 Environmental hazards        | No                   |
| 14.6 Special precautions for user |                      |
| Special Provisions                | None                 |
| Classification code               | C1                   |
| Tunnel restriction code           | (E)                  |

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations****Authorisations and/or restrictions on use:**

This product contains one or more substances subject to restriction (UK REACH - Annex XVII).

**Product restricted per REACH Annex XVII:** 3

**Persistent Organic Pollutants**

Not applicable

**Export Notification requirements**

Not applicable

**Dangerous substance category per COMAH Regulations 2015 (as amended)**

H2 - ACUTE TOXIC

**Named dangerous substances per COMAH Regulations 2015 (as amended)**

Not applicable

**The Ozone-Depleting Substances Regulations 2015**

Not applicable

**The Biocidal Products Regulations 2001 (as amended)**

Not applicable

**The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)**

Not applicable

**Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)**

| Chemical name    | Poisons and Explosive Precursors       |
|------------------|----------------------------------------|
| NITRIC ACID ...% | Explosive precursor, Regulated 3 % w/w |

**International Inventories**

|                      |                                                  |
|----------------------|--------------------------------------------------|
| <b>TSCA</b>          | Contact supplier for inventory compliance status |
| <b>DSL/NDL</b>       | Contact supplier for inventory compliance status |
| <b>EINECS/ELINCS</b> | Contact supplier for inventory compliance status |
| <b>ENCS</b>          | Contact supplier for inventory compliance status |
| <b>IECSC</b>         | Contact supplier for inventory compliance status |
| <b>KECI</b>          | Contact supplier for inventory compliance status |
| <b>PICCS</b>         | Contact supplier for inventory compliance status |
| <b>AIIC</b>          | Contact supplier for inventory compliance status |
| <b>NZIoC</b>         | Contact supplier for inventory compliance status |

**Legend:**

|                      |                                                                                                    |
|----------------------|----------------------------------------------------------------------------------------------------|
| <b>TSCA</b>          | - United States Toxic Substances Control Act Section 8(b) Inventory                                |
| <b>DSL/NDL</b>       | - Canadian Domestic Substances List/Non-Domestic Substances List                                   |
| <b>EINECS/ELINCS</b> | - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances |
| <b>ENCS</b>          | - Japan Existing and New Chemical Substances                                                       |
| <b>IECSC</b>         | - China Inventory of Existing Chemical Substances                                                  |
| <b>KECL</b>          | - Korean Existing and Evaluated Chemical Substances                                                |
| <b>PICCS</b>         | - Philippines Inventory of Chemicals and Chemical Substances                                       |
| <b>AIIC</b>          | - Australian Inventory of Industrial Chemicals                                                     |
| <b>NZIoC</b>         | - New Zealand Inventory of Chemicals                                                               |

**15.2. Chemical safety assessment**

**Chemical Safety Report** A Chemical Safety Assessment has been carried out for this substance

**SECTION 16: Other information****Key or legend to abbreviations and acronyms used in the safety data sheet****Full text of H-Statements referred to under section 3**

H272 - May intensify fire; oxidiser  
H290 - May be corrosive to metals  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage  
H331 - Toxic if inhaled

**Legend**

SVHC: Substances of Very High Concern for Authorisation:

**Legend Section 8: Exposure controls/personal protection**

|                                                                |                             |      |                                  |
|----------------------------------------------------------------|-----------------------------|------|----------------------------------|
| TWA                                                            | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| Ceiling                                                        | Maximum limit value         | *    | Skin designation                 |
| +                                                              | Sensitisers                 |      |                                  |
| Revision Note ***Indicates updated data since last publication |                             |      |                                  |

**Classification procedure**

|                                                                 |                    |
|-----------------------------------------------------------------|--------------------|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used        |
| Acute oral toxicity                                             | Calculation method |
| Acute dermal toxicity                                           | Calculation method |
| Acute inhalation toxicity - gas                                 | Calculation method |
| Acute inhalation toxicity - vapour                              | Calculation method |

|                                       |                    |
|---------------------------------------|--------------------|
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation             | Calculation method |
| Serious eye damage/eye irritation     | Calculation method |
| Respiratory sensitisation             | Calculation method |
| Skin sensitisation                    | Calculation method |
| Mutagenicity                          | Calculation method |
| Carcinogenicity                       | Calculation method |
| Reproductive toxicity                 | Calculation method |
| STOT - single exposure                | Calculation method |
| STOT - repeated exposure              | Calculation method |
| Acute aquatic toxicity                | Calculation method |
| Chronic aquatic toxicity              | Calculation method |
| Aspiration hazard                     | Calculation method |
| Ozone                                 | Calculation method |

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA\_RAC)  
European Chemicals Agency (ECHA) (ECHA\_API)  
Environmental Protection Agency  
Acute Exposure Guideline Level(s) (AEGL(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
National Institute of Technology and Evaluation (NITE)  
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
U.S. National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme  
Organisation for Economic Co-operation and Development Screening Information Data Set  
World Health Organization

**Prepared By** Amy Whitfield

**Revision date** 06-Sep-2024

**This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended)**  
**Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work**

**Disclaimer**

**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 a 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 process, unless specified in the text.**

**End of Safety Data Sheet**

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | NITRIC ACID                                                                               |
| <b>REACH registration number</b>      | 01-2119487297-23-XXXX                                                                     |
| <b>CAS No</b>                         | 7697-37-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-714-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Manufacture of substance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Environmental release category(ies)</b> | ERC1 - Manufacture of substances                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC15 - Use as laboratory reagent |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)<br>SU9 - Manufacture of fine chemicals<br>SU17 - General manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC1 - Manufacture of substances

|                                    |                                                                                                                                  |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Covers concentrations up to</b> | 70%                                                                                                                              |
| <b>Remarks</b>                     | As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed. |

#### Conditions and measures related to external treatment of waste for disposal

|                 |                                                                            |
|-----------------|----------------------------------------------------------------------------|
| <b>Disposal</b> | Dispose of waste product or used containers according to local regulations |
|-----------------|----------------------------------------------------------------------------|

#### Control of worker exposure

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Process category(ies)</b> | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC15 - Use as laboratory reagent |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covers concentrations up to                                                            | 70%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Vapour pressure                                                                        | 61 hPa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Technical conditions and measures to control dispersion from source towards the worker | Drain down and flush system prior to equipment break-in or maintenance<br>Clear spills immediately<br>Provide a good standard of controlled ventilation (5 to 10 air changes per hour)<br>Automate activity where possible<br>Ensure procedures and training for emergency decontamination and disposal are in place<br>Pre-employment screening and appropriate health surveillance                                                                                                                                                                                                                                                                                                                                                                               |
| Conditions and measures related to personal protection, hygiene and health evaluation  | S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection<br>In the case of vapour formation use a respirator with an approved filter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Handle substance within a closed system<br>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 a 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 process, unless specified in the text<br>Dispose of waste in accordance with environmental legislation<br>Ensure operatives are trained to minimise exposures<br>Keep good industrial hygiene |
| Indoor/Outdoor use                                                                     | Covers indoor and outdoor use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

### Section 3 - Exposure estimation

#### Environmental release category(ies) - ERC1 - Manufacture of substances

##### Predicted No Effect Concentration (PNEC)

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

##### Derived No Effect Level (DNEL):

|                                             |                       |
|---------------------------------------------|-----------------------|
| Worker - inhalative, long-term - local      | 2.6 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2.6 mg/m <sup>3</sup> |
| Consumer - inhalative, long-term - systemic | 1.3 mg/m <sup>3</sup> |

### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | NITRIC ACID                                                                               |
| <b>REACH registration number</b>      | 01-2119487297-23-XXXX                                                                     |
| <b>CAS No</b>                         | 7697-37-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-714-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Formulation & (re)packing of substances and mixtures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Environmental release category(ies)</b> | ERC2 - Formulation of preparations (mixtures)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC15 - Use as laboratory reagent |
| <b>Product category(ies)</b>               | PC12 - Fertilisers PC14 - Metal surface treatment products, including galvanic and electroplating products PC15 - Non-metal-surface treatment products PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC2 - Formulation of preparations (mixtures)

**Covers concentrations up to** 100%

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### Conditions and measures related to external treatment of waste for disposal

|          |                                                                            |
|----------|----------------------------------------------------------------------------|
| Disposal | Dispose of waste product or used containers according to local regulations |
|----------|----------------------------------------------------------------------------|

#### Control of worker exposure

|                       |                                                                                                                                                                                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies) | PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) 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) PROC15 - Use as laboratory reagent                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Vapour pressure                                                                        | 61 hPa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Technical conditions and measures to control dispersion from source towards the worker | Drain down and flush system prior to equipment break-in or maintenance Clear spills immediately Provide a good standard of controlled ventilation (5 to 10 air changes per hour) Automate activity where possible When not in use, keep containers tightly closed Ensure procedures and training for emergency decontamination and disposal are in place Pre-employment screening and appropriate health surveillance                                                                                                                                                                                                                                                                                       |
| Conditions and measures related to personal protection, hygiene and health evaluation  | S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection In the case of vapour formation use a respirator with an approved filter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Handle substance within a closed system<br>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 a 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 process, unless specified in the text<br>Dispose of waste in accordance with environmental legislation<br>Keep good industrial hygiene |
| Indoor/Outdoor use                                                                     | Covers indoor and outdoor use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

|                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | 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 (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                                                                                                                                                                                                                                                                                                                                                                                  |
| Covers concentrations up to                                                            | 70%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Vapour pressure                                                                        | 61 hPa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Technical conditions and measures to control dispersion from source towards the worker | Drain down and flush system prior to equipment break-in or maintenance Clear spills immediately Provide a good standard of controlled ventilation (5 to 10 air changes per hour) Automate activity where possible When not in use, keep containers tightly closed Ensure procedures and training for emergency decontamination and disposal are in place Pre-employment screening and appropriate health surveillance                                                                                                                                                                                                                                                                                                                                           |
| Conditions and measures related to personal protection, hygiene and health evaluation  | S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection In the case of vapour formation use a respirator with an approved filter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Handle substance within a closed system 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 a 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 process, unless specified in the text<br>Dispose of waste in accordance with environmental legislation<br>Ensure operatives are trained to minimise exposures<br>Keep good industrial hygiene |
| Indoor/Outdoor use                                                                     | Covers indoor and outdoor use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

**Predicted No Effect Concentration  
(PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                       |
|---------------------------------------------|-----------------------|
| Worker - inhalative, long-term - local      | 2.6 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2.6 mg/m <sup>3</sup> |
| Consumer - inhalative, long-term - systemic | 1.3 mg/m <sup>3</sup> |

**Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | NITRIC ACID                                                                               |
| <b>REACH registration number</b>      | 01-2119487297-23-XXXX                                                                     |
| <b>CAS No</b>                         | 7697-37-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-714-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Use as an intermediate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Environmental release category(ies)</b> | ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC15 - Use as laboratory reagent |
| <b>Product category(ies)</b>               | PC0 - Other Products PC19 - Intermediate PC21 - Laboratory chemicals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Sector(s) of use</b>                    | SU0 - Other SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU9 - Manufacture of fine chemicals SU24 - Scientific research and development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

|                                    |                                                                                                                                  |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Covers concentrations up to</b> | 100%                                                                                                                             |
| <b>Remarks</b>                     | As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed. |

#### Conditions and measures related to external treatment of waste for disposal

|                 |                                                                            |
|-----------------|----------------------------------------------------------------------------|
| <b>Disposal</b> | Dispose of waste product or used containers according to local regulations |
|-----------------|----------------------------------------------------------------------------|

#### Control of worker exposure

|                              |                                                                                                                                                                                                                                                                                                                                             |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Process category(ies)</b> | PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) 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) PROC15 - Use as laboratory reagent                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Vapour pressure                                                                        | 61 hPa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Technical conditions and measures to control dispersion from source towards the worker | Drain down and flush system prior to equipment break-in or maintenance Clear spills immediately Provide a good standard of controlled ventilation (5 to 10 air changes per hour) Automate activity where possible When not in use, keep containers tightly closed Ensure procedures and training for emergency decontamination and disposal are in place Pre-employment screening and appropriate health surveillance                                                                                                                                                                                                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection In the case of vapour formation use a respirator with an approved filter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Handle substance within a closed system<br>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 a 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 process, unless specified in the text<br>Dispose of waste in accordance with environmental legislation<br>Ensure operatives are trained to minimise exposures<br>Keep good industrial hygiene |
| Indoor/Outdoor use                                                                     | Covers indoor and outdoor use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities                                                                                                                                                                                                                                                                                                                                                                                                  |
| Covers concentrations up to                                                            | 70%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Vapour pressure                                                                        | 61 hPa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Technical conditions and measures to control dispersion from source towards the worker | Drain down and flush system prior to equipment break-in or maintenance Clear spills immediately Provide a good standard of controlled ventilation (5 to 10 air changes per hour) Automate activity where possible When not in use, keep containers tightly closed Ensure procedures and training for emergency decontamination and disposal are in place Pre-employment screening and appropriate health surveillance                                                                                                                                                                                                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection In the case of vapour formation use a respirator with an approved filter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Handle substance within a closed system<br>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 a 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 process, unless specified in the text<br>Dispose of waste in accordance with environmental legislation<br>Ensure operatives are trained to minimise exposures<br>Keep good industrial hygiene |
| Indoor/Outdoor use                                                                     | Covers indoor and outdoor use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

### Section 3 - Exposure estimation

Environmental release category(ies) - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Predicted No Effect Concentration (PNEC)

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

Derived No Effect Level (DNEL):

|                                             |                       |
|---------------------------------------------|-----------------------|
| Worker - inhalative, long-term - local      | 2.6 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2.6 mg/m <sup>3</sup> |
| Consumer - inhalative, long-term - systemic | 1.3 mg/m <sup>3</sup> |

#### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | NITRIC ACID                                                                               |
| <b>REACH registration number</b>      | 01-2119487297-23-XXXX                                                                     |
| <b>CAS No</b>                         | 7697-37-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-714-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Industrial use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Environmental release category(ies)</b> | ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles<br>ERC6b - Industrial use of reactive processing aids                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC7 - Industrial spraying<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC10 - Roller application or brushing<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC15 - Use as laboratory reagent |
| <b>Product category(ies)</b>               | PC14 - Metal surface treatment products, including galvanic and electroplating products<br>PC15 - Non-metal-surface treatment products<br>PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents<br>PC35 - Washing and cleaning products (including solvent based products)<br>PC37 - Water treatment chemicals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Sector(s) of use</b>                    | SU0 - Other<br>SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites<br>SU4 - Manufacture of food products<br>SU6a - Manufacture of wood and wood products<br>SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)<br>SU12 - Manufacture of plastics products, including compounding and conversion<br>SU14 - Manufacture of basic metals, including alloys<br>SU15 - Manufacture of fabricated metal products, except machinery and equipment<br>SU16 - Manufacture of computer, electronic and optical products, electrical equipment<br>SU17 - General manufacturing<br>SU23 - Recycling                                                                                                                                                                                                                                                                                                                                                        |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles  
- ERC6b - Industrial use of reactive processing aids

|                                    |                                                                                         |
|------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Covers concentrations up to</b> | 100%                                                                                    |
| <b>Remarks</b>                     | As no environmental hazard was identified, no environmental-related exposure assessment |

and risk characterisation was performed.

#### Conditions and measures related to external treatment of waste for disposal

|          |                                                                            |
|----------|----------------------------------------------------------------------------|
| Disposal | Dispose of waste product or used containers according to local regulations |
|----------|----------------------------------------------------------------------------|

| Control of worker exposure                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure PROC3 - Use in closed batch process (synthesis or formulation) PROC7 - Industrial spraying 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) PROC13 - Treatment of articles by dipping and pouring PROC15 - Use as laboratory reagent                                                                                                                                                                                           |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Vapour pressure                                                                        | 61 hPa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Technical conditions and measures to control dispersion from source towards the worker | Drain down and flush system prior to equipment break-in or maintenance Clear spills immediately Provide a good standard of controlled ventilation (5 to 10 air changes per hour) Automate activity where possible When not in use, keep containers tightly closed Ensure procedures and training for emergency decontamination and disposal are in place Pre-employment screening and appropriate health surveillance                                                                                                                                                                                                                                                                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection In the case of vapour formation use a respirator with an approved filter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Handle substance within a closed system<br>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 a 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 process, unless specified in the text<br>Dispose of waste in accordance with environmental legislation<br>Ensure operatives are trained to minimise exposures<br>Keep good industrial hygiene |
| Indoor/Outdoor use                                                                     | Covers indoor and outdoor use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

  

|                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | 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 (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC10 - Roller application or brushing                                                                                                             |
| Covers concentrations up to                                                            | 70%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Vapour pressure                                                                        | 61 hPa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week                                                                                                                                                                                                                                                                                                                                                                                                           |
| Technical conditions and measures to control dispersion from source towards the worker | Drain down and flush system prior to equipment break-in or maintenance Clear spills immediately Provide a good standard of controlled ventilation (5 to 10 air changes per hour) Automate activity where possible When not in use, keep containers tightly closed Ensure procedures and training for emergency decontamination and disposal are in place Pre-employment screening and appropriate health surveillance                                                                                              |
| Conditions and measures related to personal protection, hygiene and health evaluation  | S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection In the case of vapour formation use a respirator with an approved filter                                                                                                                                                                                                                                                                                                                                                             |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Handle substance within a closed system<br>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 a 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 process, unless specified in the text<br>Dispose of waste in accordance with environmental legislation<br>Ensure operatives are trained to minimise exposures<br>Keep good industrial hygiene |
| Indoor/Outdoor use | Covers indoor and outdoor use                                                                                                                                                                                                                   |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles**

**- ERC6b - Industrial use of reactive processing aids**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                       |
|---------------------------------------------|-----------------------|
| Worker - inhalative, long-term - local      | 2.6 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2.6 mg/m <sup>3</sup> |
| Consumer - inhalative, long-term - systemic | 1.3 mg/m <sup>3</sup> |

### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | NITRIC ACID                                                                               |
| <b>REACH registration number</b>      | 01-2119487297-23-XXXX                                                                     |
| <b>CAS No</b>                         | 7697-37-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-714-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Professional use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Environmental release category(ies)</b> | ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Process category(ies)</b>               | PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC10 - Roller application or brushing<br>PROC11 - Non industrial spraying<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC15 - Use as laboratory reagent<br>PROC19 - Hand-mixing with intimate contact and only PPE available |
| <b>Product category(ies)</b>               | PC14 - Metal surface treatment products, including galvanic and electroplating products<br>PC15 - Non-metal-surface treatment products PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Sector(s) of use</b>                    | SU4 - Manufacture of food products SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing SU19 - Building and construction work SU22 - Professional uses SU23 - Recycling SU24 - Scientific research and development                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

|                                    |                                                                                                                                  |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Covers concentrations up to</b> | 70%                                                                                                                              |
| <b>Remarks</b>                     | As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed. |

#### Conditions and measures related to external treatment of waste for disposal

|                 |                                                                            |
|-----------------|----------------------------------------------------------------------------|
| <b>Disposal</b> | Dispose of waste product or used containers according to local regulations |
|-----------------|----------------------------------------------------------------------------|

| <b>Control of worker exposure</b>                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC3 - Use in closed batch process (synthesis or formulation) PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage 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 PROC11 - Non industrial spraying PROC13 - Treatment of articles by dipping and pouring PROC15 - Use as laboratory reagent PROC19 - Hand-mixing with intimate contact and only PPE available |
| Covers concentrations up to                                                            | 70%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Vapour pressure                                                                        | 61 hPa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Use frequency                                                                          | Covers daily exposures up to 8 hours (unless stated differently). Covers frequency up to 5 days per week                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Drain down and flush system prior to equipment break-in or maintenance Clear spills immediately Provide a good standard of controlled ventilation (5 to 10 air changes per hour) Automate activity where possible                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Wear suitable gloves tested to EN 374<br>Eye/face protection In case of inadequate ventilation wear respiratory protection Wear suitable coveralls to prevent exposure to the skin Avoid contact with eyes and skin Do not breathe dust/fume/gas/mist/vapours/spray                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Ensure operatives are trained to minimise exposures Ensure control measures are regularly inspected and maintained Dispose of waste in accordance with environmental legislation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Covers indoor and outdoor use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

### Section 3 - Exposure estimation

**Environmental release category(ies) - ERC8b - Wide dispersive indoor use of reactive substances in open systems**  
**- ERC8e - Wide dispersive outdoor use of reactive substances in open systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

|                                             |                       |
|---------------------------------------------|-----------------------|
| Worker - inhalative, long-term - local      | 2.6 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2.6 mg/m <sup>3</sup> |
| Consumer - inhalative, long-term - systemic | 1.3 mg/m <sup>3</sup> |

### Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | NITRIC ACID                                                                               |
| <b>REACH registration number</b>      | 01-2119487297-23-XXXX                                                                     |
| <b>CAS No</b>                         | 7697-37-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-714-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                      |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Consumer use                                                                                                                                         |
| <b>Type</b>                                | Consumer                                                                                                                                             |
| <b>Main user group</b>                     | Consumer uses: Private households (= general public = consumers)                                                                                     |
| <b>Environmental release category(ies)</b> | ERC8b - Wide dispersive indoor use of reactive substances in open systems ERC8e - Wide dispersive outdoor use of reactive substances in open systems |
| <b>Product category(ies)</b>               | PC3 - Air care products PC12 - Fertilisers PC31 - Polishes and wax blends PC35 - Washing and cleaning products (including solvent based products)    |
| <b>Sector(s) of use</b>                    | SU21 - Consumer uses                                                                                                                                 |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

#### Control of consumer exposure

|                                    |                                                                                                                                                            |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product categories [PC]</b>     | PC3 - Air care products PC21 - Laboratory chemicals PC31 - Polishes and wax blends PC35 - Washing and cleaning products (including solvent based products) |
| <b>Covers concentrations up to</b> | 0%-3%                                                                                                                                                      |

### Section 3 - Exposure estimation

**Environmental release category(ies)** - ERC8b - Wide dispersive indoor use of reactive substances in open systems  
- ERC8e - Wide dispersive outdoor use of reactive substances in open systems

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

#### Derived No Effect Level (DNEL):

|                                             |                       |
|---------------------------------------------|-----------------------|
| Worker - inhalative, long-term - local      | 2.6 mg/m <sup>3</sup> |
| Worker - inhalative, short-term - local     | 2.6 mg/m <sup>3</sup> |
| Consumer - inhalative, long-term - systemic | 1.3 mg/m <sup>3</sup> |

**Section 4 - Guidance to check compliance with the exposure scenario**

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

## Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

|                                       |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <b>Chemical name</b>                  | NITRIC ACID                                                                               |
| <b>REACH registration number</b>      | 01-2119487297-23-XXXX                                                                     |
| <b>CAS No</b>                         | 7697-37-2                                                                                 |
| <b>EC No (EU Index No)</b>            | 231-714-2                                                                                 |
| <b>Supplier</b>                       | Univar Solutions UK Ltd<br>Aquarius House<br>6 Mid Point Business Park<br>Bradford<br>GBR |
| <b>Non-Emergency Telephone Number</b> | +44 1274 267300 / +44 1274 267306                                                         |
| <b>E-mail address</b>                 | SDS.EMEA@univarsolutions.com                                                              |

### Section 1 - Title

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Title</b>                               | Industrial use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Type</b>                                | Worker                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Main user group</b>                     | Industrial uses: Uses of substances as such or in preparations at industrial sites                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Environmental release category(ies)</b> | ERC1 - Manufacture of substances ERC2 - Formulation of preparations (mixtures) ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) ERC6b - Industrial use of reactive processing aids ERC7 - Industrial use of substances in closed systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Process category(ies)</b>               | PROC1 - Use in closed process, no likelihood of exposure<br>PROC2 - Use in closed, continuous process with occasional controlled exposure<br>PROC3 - Use in closed batch process (synthesis or formulation)<br>PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises<br>PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)<br>PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities<br>PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)<br>PROC13 - Treatment of articles by dipping and pouring<br>PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising<br>PROC15 - Use as laboratory reagent |
| <b>Sector(s) of use</b>                    | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU9 - Manufacture of fine chemicals SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU24 - Scientific research and development                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

### Section 2 - Operational conditions and risk management measures

#### Section 2.1 - Control of environmental exposure

**Environmental release category(ies)** - ERC1 - Manufacture of substances  
 - ERC2 - Formulation of preparations (mixtures)  
 - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles  
 - ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)  
 - ERC6b - Industrial use of reactive processing aids  
 - ERC7 - Industrial use of substances in closed systems

**Conditions and measures related to external treatment of waste for disposal**

|          |                                                                            |
|----------|----------------------------------------------------------------------------|
| Disposal | Dispose of waste product or used containers according to local regulations |
|----------|----------------------------------------------------------------------------|

**Control of worker exposure**

|                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC1 - Use in closed process, no likelihood of exposure PROC2 - Use in closed, continuous process with occasional controlled exposure 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 (multi-stage and/or significant contact) 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) PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, peletising |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Vapour pressure                                                                        | 61 hPa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Use frequency                                                                          | Covers use up to 480 minutes Covers frequency up to 5 days per week                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Technical conditions and measures to control dispersion from source towards the worker | Local exhaust ventilation - efficiency of at least 95%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Avoid contact with eyes and skin S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection Wear a respirator providing a minimum efficiency of 95%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Ensure control measures are regularly inspected and maintained Ensure operatives are trained to minimise exposures Supervision in place to check that the RMMs in place are being used correctly and OCs followed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Indoor/Outdoor use                                                                     | Covers indoor and outdoor use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|                                                                                        |                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Process category(ies)                                                                  | PROC15 - Use as laboratory reagent                                                                                                                                                                                |
| Covers concentrations up to                                                            | 100%                                                                                                                                                                                                              |
| Physical form of product                                                               | Liquid                                                                                                                                                                                                            |
| Vapour pressure                                                                        | 61 hPa                                                                                                                                                                                                            |
| Use frequency                                                                          | Covers use up to 240 minutes Covers frequency up to 5 days per week                                                                                                                                               |
| Technical conditions and measures to control dispersion from source towards the worker | Local exhaust ventilation - efficiency of at least 95%                                                                                                                                                            |
| Conditions and measures related to personal protection, hygiene and health evaluation  | Avoid contact with eyes and skin S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection Wear a respirator providing a minimum efficiency of 95%                                            |
| Organisational measures to prevent /limit releases, dispersion and exposure            | Ensure control measures are regularly inspected and maintained Ensure operatives are trained to minimise exposures Supervision in place to check that the RMMs in place are being used correctly and OCs followed |
| Indoor/Outdoor use                                                                     | Covers indoor and outdoor use                                                                                                                                                                                     |

**Section 3 - Exposure estimation**

**Environmental release category(ies) - ERC1 - Manufacture of substances**

**- ERC2 - Formulation of preparations (mixtures)**

**- ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles**

**- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)**

**- ERC6b - Industrial use of reactive processing aids**

**- ERC7 - Industrial use of substances in closed systems**

**Predicted No Effect Concentration (PNEC)**

**Remarks** As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

**Derived No Effect Level (DNEL):**

**Worker - inhalative, long-term - local** 2.6 mg/m<sup>3</sup>  
**Worker - inhalative, short-term - local** 2.6 mg/m<sup>3</sup>  
**Consumer - inhalative, long-term - systemic** 1.3 mg/m<sup>3</sup>

| Process category(ies)                                                                                                                                                                                                                                                                                                                                                                                       | Exposure route                         | predicted exposure level | Risk characterisation ratio (RCR) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------|-----------------------------------|
| PROC1 - Use in closed process, no likelihood of exposure                                                                                                                                                                                                                                                                                                                                                    | Worker - inhalative, long-term - local | 0.026 mg/m <sup>3</sup>  | 0.02                              |
| PROC2 - Use in closed, continuous process with occasional controlled exposure                                                                                                                                                                                                                                                                                                                               | Worker - inhalative, long-term - local | 0.129 mg/m <sup>3</sup>  | 0.1                               |
| PROC3 - Use in closed batch process (synthesis or formulation)                                                                                                                                                                                                                                                                                                                                              | Worker - inhalative, long-term - local | 0.322 mg/m <sup>3</sup>  | 0.25                              |
| PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises                                                                                                                                                                                                                                                                                                                    | Worker - inhalative, long-term - local | 0.258 mg/m <sup>3</sup>  | 0.2                               |
| PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13 - Treatment of articles by dipping and pouring PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising | Worker - inhalative, long-term - local | 0.644 mg/m <sup>3</sup>  | 0.5                               |
| PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities                                                                                                                                                                                                                                                                               | Worker - inhalative, long-term - local | 0.193 mg/m <sup>3</sup>  | 0.15                              |
| PROC15 - Use as laboratory reagent                                                                                                                                                                                                                                                                                                                                                                          | Worker - inhalative, long-term - local | 0.928 mg/m <sup>3</sup>  | 0.71                              |

## Section 4 - Guidance to check compliance with the exposure scenario

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.