

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

Supersedes date 06-Sep-2024***

Revision date 21-Nov-2024

Revision Number 3.01

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

1.1. Product identifier

Product Code(s)	66966
Safety data sheet number	66966
Product Name	NITRIC ACID 58 -60% SOL
Index No	007-004-00-1
EC Number	231-714-2
CAS No	7697-37-2
Synonyms	NITRIC ACID 59-60% SOL, NITRIC ACID 60% SOL, NITRIC ACID 58% SOL, NITRIC ACID 58-60% SOL FR, NITRIC ACID 60% SOL ITA
Pure substance/mixture	Substance
Contains NITRIC ACID ...%	
Molecular weight	63,01 g/mol

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

Recommended use	General manufacturing Chemical intermediate Metal surface treatment Industrial use Chemicals used in the synthesis and / or formulation of industrial products Professional use Laboratory chemicals Processing aid. Intermediate Formulating agent Distribution of substance Fertiliser Washing and cleaning products Use in laboratories pH control Ion exchange and/or Adsorption process For further information, see attached Exposure Scenario
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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

Acquisition, possession or use by the general public is restricted.

2.3. Other hazards

In contact with some metals can generate hydrogen gas, which can form explosive mixtures with air.

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 ...% 7697-37-2	58 - 60%	231-714-2	-	Skin Corr. 1A (H314) Ox. Liq. 2 (H272) Met. Corr. 1 (H290) Eye Dam. 1 (H318) Acute Tox. 3 (H331)	Ox. Liq. 2 :: C>=99% Ox. Liq. 3 :: 70%<=C<99% Skin Corr. 1B (H314) :: 5%<=C<20% Skin Corr. 1A (H314) :: 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**

General advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical attention. Inhale Corticosteroid dose aerosol. Call a doctor or poison control centre immediately.
Eye contact	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.
Skin contact	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.
Ingestion	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.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

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

Symptoms	Burning sensation.
Inhalation	Toxic if inhaled. Corrosive to the respiratory tract. Coughing and/ or wheezing. Difficulty in breathing. Asthma.
Eyes	Causes severe burns. Pain. Watering. Redness.
Dermal	Causes severe burns. Blistering.
Ingestion	Causes digestive tract burns Stomach pain Can burn mouth, throat, and stomach

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

Note to doctors

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 (CO₂). Alcohol resistant foam. 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.

Hazardous combustion products Carbon oxides. Nitrogen oxides (NO_x). Hazardous metal fumes and oxides.

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. Collect contaminated fire extinguishing water separately. Do not allow it to enter drains or surface water. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Do not breathe vapour or mist. In case of inadequate ventilation wear respiratory protection. Use personal protection recommended in Section 8.

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 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. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so. Absorb with inert absorbent materials such as: Sand. DIATOMACEOUS EARTH CALCINED.

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

Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Take off contaminated clothing and wash it before reuse. Avoid spilling. Ensure that eyewash stations and safety showers are close to the workstation location. Use personal protection recommended in Section 8. Avoid inhalation, ingestion and contact with skin and eyes. Keep only in original container. Empty containers retain product residue and can be hazardous. Absorb spillage to prevent material damage. When diluting, always add the product to water. Never add water to the product.

General hygiene considerations

Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and immediately after handling the product. Wash hands and face 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 away from other materials. Keep away from heat, sparks and open flame. Protect from light. Store in corrosive resistant container with a resistant inner liner. Suitable container/equipment material: stainless steel. Aluminium. Polyvinyl chloride (PVC). Unsuitable container/equipment material: Carbon Steel. Store in accordance with local regulations. Store away from incompatible materials. alkali.

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 ...% 7697-37-2	STEL: 1 ppm STEL: 2.6 mg/m ³

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 ...% 7697-37-2			2.6 mg/m ³ [5] [7] 2.6 mg/m ³ [5] [6]

[5]

Local health effects.

[7]

Short term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
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Chemical name	Oral	Dermal	Inhalation
NITRIC ACID ...% 7697-37-2			1.3 mg/m ³ [5] [7] 1.3 mg/m ³ [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 Wear safety glasses with side shields (or goggles). Use eye protection according to EN 166.***

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

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	0.5-0.7 mm	8 hours
Long term (repeated)	Viton™	>0.35 mm	4 - 8 hours
Long term (repeated)	PVC	>0.35 mm	1 - 4 hours
Long term (repeated)	Fluorinated rubber	0.4-0.7 mm	>=480 minutes
Long term (repeated)	Neoprene gloves		4 - 8 hours
Long term (repeated)	Rubber (natural, latex)	0.5 mm	> 480 minutes
Long term (repeated)	Polychloroprene.	0.5 mm	>480 minutes

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 Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and immediately after handling the product. Wash hands and face 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. Suffocating.
Odour threshold 0.29 ppm

Property	Values
Melting point / freezing point	-18.5 - -23 °C
Initial boiling point and boiling range	118 - 119.3 °C
Flammability	
Flammability Limit in Air	
Upper flammability or explosive	

Remarks • Method

No information available.
No information available.

limits		
Lower flammability or explosive limits		
Flash point		No information available.
Autoignition temperature		No information available.
Decomposition temperature	83 °C	HNO ₃ 100%.
pH	< 1	
pH (as aqueous solution)		No information available.
Kinematic viscosity		No information available.
Dynamic viscosity	0.75 mPa s	@ 25 °C.
Water solubility	: > 500 g/l (20 °C)	
Solubility(ies)		No information available.
Partition coefficient	log Pow: -0.21	
Vapour pressure	8.6 - 9.5 hPa	@ 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	< 1 [Air=1]	
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

Molecular weight 63,01 g/mol

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 metals (aluminium, zinc, tin) may release hydrogen gas. Reacts violently with (some) bases and with (strong) reducers.

10.4. Conditions to avoid

Conditions to avoid Exposure to air or moisture over prolonged periods. Water. Acids. Alkali metals.

10.5. Incompatible materials

Incompatible materials Acids. Bases. Oxidising agent. Metals. Strong reducing agents. Alcohols. Combustible material. Organic material. Finely powdered metals. Chlorates. Copper.

10.6. Hazardous decomposition products

Hazardous decomposition products Nitrogen oxides (NO_x).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure**Product Information**

Inhalation	Toxic if inhaled. Corrosive by inhalation.***
Eye contact	Causes severe burns.***
Skin contact	Causes severe burns.***
Ingestion	Causes burns. Ingestion causes burns of the upper digestive and respiratory tracts.***

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 2.65 mg/l (Rat) 4h

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

Skin corrosion/irritation Causes severe burns.***

Serious eye damage/eye irritation Causes severe burns.***

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

Germ cell mutagenicity 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 Test	Ames Test	Negative
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 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

TSCA	Contact supplier for inventory compliance status
DSL/NDSL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status
IECSC	Contact supplier for inventory compliance status
KECI	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AIIC - Australian Inventory of Industrial Chemicals

NZIoC - 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 Jitendra Panchal***

Supersedes date 06-Sep-2024***

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**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]

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

Section 1 - Title

Title	Manufacture of substance
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC1 - Manufacture of substances
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 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) PROC15 - Use as laboratory reagent
Sector(s) of use	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 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

Covers concentrations up to	70%
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
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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 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) PROC15 - Use as laboratory reagent
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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 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 Dispose of waste in accordance with environmental legislation Ensure operatives are trained to minimise exposures 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 ³
Worker - inhalative, short-term - local	2.6 mg/m ³
Consumer - inhalative, long-term - systemic	1.3 mg/m ³

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]

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

Section 1 - Title

Title	Formulation & (re)packing of substances and mixtures
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC2 - Formulation of preparations (mixtures)
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) 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) PROC15 - Use as laboratory reagent
Product category(ies)	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
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites 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
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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
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	(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 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 Dispose of waste in accordance with environmental legislation 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 Dispose of waste in accordance with environmental legislation Ensure operatives are trained to minimise exposures 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 ³
Worker - inhalative, short-term - local	2.6 mg/m ³
Consumer - inhalative, long-term - systemic	1.3 mg/m ³

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.

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E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Use as an intermediate
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
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) 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) PROC15 - Use as laboratory reagent
Product category(ies)	PC0 - Other Products PC19 - Intermediate PC21 - Laboratory chemicals
Sector(s) of use	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)

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
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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 -
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	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 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 Dispose of waste in accordance with environmental legislation Ensure operatives are trained to minimise exposures 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 Dispose of waste in accordance with environmental legislation Ensure operatives are trained to minimise exposures 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 ³
Worker - inhalative, short-term - local	2.6 mg/m ³
Consumer - inhalative, long-term - systemic	1.3 mg/m ³

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.

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

Section 1 - Title

Title	Industrial use
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
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
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) PROC7 - Industrial spraying PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10 - Roller application or brushing PROC13 - Treatment of articles by dipping and pouring PROC15 - Use as laboratory reagent
Product category(ies)	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
Sector(s) of use	SU0 - Other SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites SU4 - Manufacture of food products SU6a - Manufacture of wood and wood products SU8 - Manufacture of bulk, large scale chemicals (including petroleum products) SU12 - Manufacture of plastics products, including compounding and conversion SU14 - Manufacture of basic metals, including alloys SU15 - Manufacture of fabricated metal products, except machinery and equipment SU16 - Manufacture of computer, electronic and optical products, electrical equipment SU17 - General manufacturing 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

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
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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 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 Dispose of waste in accordance with environmental legislation Ensure operatives are trained to minimise exposures 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 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 Dispose of waste in accordance with environmental legislation Ensure operatives are trained to minimise exposures 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 ³
Worker - inhalative, short-term - local	2.6 mg/m ³
Consumer - inhalative, long-term - systemic	1.3 mg/m ³

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]

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REACH registration number	01-2119487297-23-XXXX
CAS No	7697-37-2
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Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
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
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
Product category(ies)	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 PC21 - Laboratory chemicals PC35 - Washing and cleaning products (including solvent based products)
Sector(s) of use	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

Covers concentrations up to	70%
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
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Control of worker exposure	
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 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 ³
Worker - inhalative, short-term - local	2.6 mg/m ³
Consumer - inhalative, long-term - systemic	1.3 mg/m ³

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.

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REACH registration number	01-2119487297-23-XXXX
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E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
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
Product category(ies)	PC3 - Air care products PC12 - Fertilisers PC31 - Polishes and wax blends PC35 - Washing and cleaning products (including solvent based products)
Sector(s) of use	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

Product categories [PC]	PC3 - Air care products PC21 - Laboratory chemicals PC31 - Polishes and wax blends PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	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 ³
Worker - inhalative, short-term - local	2.6 mg/m ³
Consumer - inhalative, long-term - systemic	1.3 mg/m ³

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.

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Section 1 - Title

Title	Industrial use
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
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
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, pelettising PROC15 - Use as laboratory reagent
Sector(s) of use	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
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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/m³
Worker - inhalative, short-term - local 2.6 mg/m³
Consumer - inhalative, long-term - systemic 1.3 mg/m³

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 ³	0.02
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - local	0.129 mg/m ³	0.1
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - local	0.322 mg/m ³	0.25
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - local	0.258 mg/m ³	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 ³	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 ³	0.15
PROC15 - Use as laboratory reagent	Worker - inhalative, long-term - local	0.928 mg/m ³	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.