

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form : Mixture
Name : Nitric acid 60%
Chemical name : Nitric acid
EC-No. : 231-714-2
CAS-No. : 7697-37-2
REACH registration No. : 01-2119487297-23-0027
Formula : HNO₃

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : Industrial use
Professional use
See annex for more detailed information

1.2.2. Uses advised against

Restrictions on use : Consumer use

1.3. Details of the supplier of the safety data sheet**Supplier**

OCI Nitrogen B.V.

Poststraat 1

6135 KR Sittard

The Netherlands

T +31 (0) 46 7020111

info.agro@oci-global.com, www.oci-global.com**1.4. Emergency telephone number**

Emergency number : Alert & Care Centre Chemelot (Geleen, The Netherlands): +31 (0) 46 4765555 (24/7)

Country/Area	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals- 24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	
United Kingdom	NHS 111/NHS 24/NHS Direct		111 0845 4647	or call a doctor
Wales	National Health Service (NHS)		0845 46 47	

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Corrosive to metals, Category 1 H290

Acute toxicity (inhal.), Category 3 H331

Skin corrosion/irritation, Category 1 H314

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

May be corrosive to metals. Toxic if inhaled. Causes severe skin burns and eye damage.

Nitric acid 60%

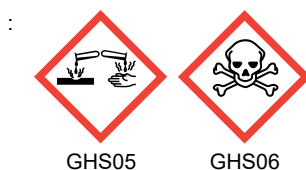
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according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



Signal word (CLP)

: Danger

Contains

: Nitric acid

Hazard statements (CLP)

: H290 - May be corrosive to metals.

H314 - Causes severe skin burns and eye damage.

H331 - Toxic if inhaled.

Precautionary statements (CLP)

: P260 - Do not breathe gas, mist, spray, vapours.

P280 - Wear eye protection, protective clothing, protective gloves.

P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water or shower.

P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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.

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

EUH-statements

: EUH071 - Corrosive to the respiratory tract.

Extra phrases

: Optional measures : Diphoterine®.

2.3. Other hazards

Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	Nitric acid (7697-37-2)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	Nitric acid (7697-37-2)
Component	
Substance(s) not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605	Nitric acid (7697-37-2)

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	Conc. (% w/w)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Nitric acid	CAS-No.: 7697-37-2 EC-No.: 231-714-2 EC Index-No.: 007-004-00-1 REACH-no: 01-2119487297-23	$\geq 20 - \leq 65$	Ox. Liq. 2, H272 Met. Corr. 1, H290 Acute Tox. 3 (Inhalation), H331 Skin Corr. 1A, H314

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Specific concentration limits:		
Name	Product identifier	Specific concentration limits (Conc. (% w/w))
Nitric acid	CAS-No.: 7697-37-2 EC-No.: 231-714-2 EC Index-No.: 007-004-00-1 REACH-no: 01-2119487297-23	(70 ≤ C < 99) Ox. Liq. 3; H272 (99 ≤ C ≤ 100) Ox. Liq. 2; H272

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Call a physician immediately. Give first-aid treatment according to the nature of the injury. Rinse with plenty of water. Flush with Diphoterine®.
First-aid measures after inhalation	: Call a physician immediately. Remove person to fresh air and keep comfortable for breathing. If breathing is difficult, trained personnel should give oxygen. Do not apply mouth-to-mouth resuscitation. Move the affected person away from the contaminated area and into the fresh air. Symptoms may be delayed.
First-aid measures after skin contact	: Call a physician immediately. Rinse skin with water/shower. Take off immediately all contaminated clothing. Flush with Diphoterine®. Wash contaminated clothing before reuse.
First-aid measures after eye contact	: Call a physician immediately. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Flush with Diphoterine®.
First-aid measures after ingestion	: Call a physician immediately. Rinse mouth. Do not induce vomiting. Give water to drink if victim completely conscious/alert.

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

Symptoms/effects after skin contact	: Burns. irritation (itching, redness, blistering).
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

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

Treat symptomatically. Symptoms may be delayed.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
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5.2. Special hazards arising from the substance or mixture

Fire hazard	: The product is not flammable. Heating will cause a rise in pressure with a risk of bursting.
Hazardous decomposition products in case of fire	: Toxic fumes may be released. Under fire conditions, hazardous fumes will be present: Nitrogen oxides. Contact with metals could evolve flammable hydrogen gas.

5.3. Advice for firefighters

Firefighting instructions	: Prevent fire fighting water from entering the environment.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel. Ventilate spillage area. Avoid contact with skin and eyes. Do not breathe mist, spray, vapours, fume, gas. Wear personal protective equipment. Stay upwind/keep distance from source.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage. Stop leak without risks if possible.
Methods for cleaning up : The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or calcium hydroxide. Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

See sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not breathe gas, mist, spray, vapours. Wear personal protective equipment. Handle in accordance with good industrial hygiene and safety procedures. Avoid contact with skin, eyes and clothing. Contact lenses should not be worn. Wash hands/face thoroughly after handling. Remove contaminated clothing. Do not eat, drink or smoke when using this product. See annex for more detailed information.
Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in accordance with local, regional, national or international regulation. Protect from sunlight. Keep only in original container. Store locked up. Keep container tightly closed. Store in a dry, cool and well-ventilated place.
Incompatible materials : Refer to Section 10 on Incompatible Materials.
Packaging materials : Stainless steel. Glass. Polyvinylchloride (PVC). Polytetrafluoroethylene (PTFE).

7.3. Specific end use(s)

See annex for more detailed information.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

Nitric acid (7697-37-2)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Nitric acid
IOELV STEL (mg/m ³)	2.6 mg/m ³

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Nitric acid (7697-37-2)	
IOELV STEL (ppm)	1 ppm
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
Ireland - Occupational Exposure Limits	
Local name	Nitric acid
OEL (15 min ref) (mg/m ³)	2.6 mg/m ³
OEL (15 min ref) (ppm)	1 ppm
Regulatory reference	Chemical Agents Code of Practice 2020
United Kingdom - Occupational Exposure Limits	
Local name	Nitric acid
WEL STEL (mg/m ³)	2.6 mg/m ³
WEL STEL (OEL STEL) [ppm]	1 ppm
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

Nitric acid (7697-37-2)	
DNEL/DMEL (Workers)	
Long-term - local effects, inhalation	2.6 mg/m ³
DNEL/DMEL (General population)	
Long-term - local effects, inhalation	1.3 mg/m ³

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Additional advice: Portable Diphoterine® eyewashers. See annex for more detailed information.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Chemical goggles or safety glasses

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

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Skin and body protection	
Type	Standard
Chemical resistant apron	
Boots	

Hand protection:

Protective gloves

Hand protection					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Protective gloves	Fluoroelastomer (FKM), Viton® II	6 (> 480 minutes)	0.4		EN 374
Protective gloves	Chloroprene rubber (CR), Polyvinylchloride (PVC)	4 (> 120 minutes)	0.5		EN 374

8.2.2.3. Respiratory protection

Respiratory protection:

Wear respiratory protection. Full face mask

Respiratory protection			
Device	Filter type	Condition	Standard
	ABEK, NO P3 15		

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Colourless, Brown
Odour	: Pungent
Odour threshold	: 0.75 – 2.5 ppm
Melting point	: -35 – -18 °C
Freezing point	: Not available
Boiling point	: 104 – 122 °C
Flammability (solid, gas)	: Not flammable
Lower explosive limit (LEL)	: Not available
Upper explosive limit (UEL)	: Not available
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: > 200 °C
pH	: < 1
Viscosity, kinematic	: Not available
Viscosity, dynamic	: 0.75 mPa·s (25°C)
Solubility	: Soluble.
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: 9.4 – 9.5 hPa at 20 °C
Density	: Not available
Relative density	: 1.35 (water = 1)
Relative vapour density at 20°C	: 2.2 (air = 1)

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Particle characteristics : Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Corrosive to metals.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

The product reacts with metals with evolution of highly flammable hydrogen. Exothermic reaction with water. Risk of explosion if heated in a confined system. May cause or intensify fire; oxidiser.

10.4. Conditions to avoid

Keep away from heat, sparks and flames.

10.5. Incompatible materials

Metals. Alkalis. Combustible materials. Organic materials. alcohols. Aldehydes. Amines. Strong alkalis. Halogens. Organic solvents. Polypropylene. Carbon steel.

10.6. Hazardous decomposition products

Under fire conditions, hazardous fumes will be present: Nitrogen oxides, Carbon oxides (CO, CO₂), Hydrogen.

SECTION 11: Toxicological information

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

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Toxic if inhaled.

Nitric acid 60% (7697-37-2)	
ATE CLP (gases)	700 ppmv/4h
ATE CLP (vapours)	3 mg/l/4h
ATE CLP (dust,mist)	0.5 mg/l/4h

Nitric acid (7697-37-2)	
LC50 Inhalation - Rat	> 2.65 mg/l/4h Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)

Skin corrosion/irritation : Causes severe skin burns.
pH: < 1

Serious eye damage/irritation : Serious damage to eyes
pH: < 1

Nitric acid (7697-37-2)	
pH	1 (conc: 0.1 M (solution))

Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified

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Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified

Nitric acid (7697-37-2)

NOAEL (oral, rat, 90 days)	1500 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEC (inhalation, rat, gas, 90 days)	2.15 ppm Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study), Guideline: OECD Guideline 412 (Subacute Inhalation Toxicity: 28-Day Study)

Aspiration hazard	: Not classified
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11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties	: Contains no substances identified as having endocrine disrupting properties
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11.2.2. Other information

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Before neutralisation, the product may represent a danger to aquatic organisms.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

12.2. Persistence and degradability

Nitric acid 60% (7697-37-2)

Persistence and degradability	No additional information available.
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12.3. Bioaccumulative potential

Nitric acid (7697-37-2)

Partition coefficient n-octanol/water (Log Pow)	-2.3 (at 25 °C)
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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Component

Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	Nitric acid (7697-37-2)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	Nitric acid (7697-37-2)

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties	: Contains no substances identified as having endocrine disrupting properties.
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Nitric acid 60%

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12.7. Other adverse effects

Other adverse effects : May cause pH changes in aqueous ecological systems.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations : Empty containers should be taken for recycling, recovery or waste in accordance with local regulation.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

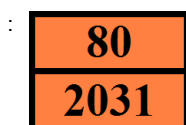
ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 2031	UN 2031	UN 2031	UN 2031	UN 2031
14.2. UN proper shipping name				
NITRIC ACID	NITRIC ACID	Nitric acid,	NITRIC ACID	NITRIC ACID
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

14.6. Special precautions for user

Special transport precautions : See transport regulations for UN number specific special precautions.

Overland transport

Orange plates



EAC code : 2P

APP code : B

Transport by sea

No data available

Air transport

No data available

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Inland waterway transport

No data available

Rail transport

No data available

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Other information, restriction and prohibition regulations : This product is subject to Regulation (EU) 2019/1148, all suspicious transactions, disappearances and thefts should be reported to the relevant authority.

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)		
Reference code	Applicable on	Entry title or description
3(a)	Nitric acid	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F
3(b)	Nitric acid 60% ; Nitric acid	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (2024/590)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

Seveso Directive (Disaster Risk Reduction)

Seveso Additional information : Dangerous substance category per Seveso Directive (2012/18/EU): H2 Quantity 1: 50t, Quantity 2: 200t.

Explosives Precursors Regulation (EU 2019/1148)

Contains substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

ANNEX I RESTRICTED EXPLOSIVES PRECURSORS

List of substances which are not to be made available to, or introduced, possessed or used by, members of the general public, whether on their own or in mixtures or substances that include those substances, unless the concentration is equal to or lower than the limit values set out in column 2, and for which suspicious transactions and significant disappearances and thefts are to be reported within 24 hours.

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Name	CAS-No.	Limit value	Upper limit value for licensing under Article 5(3)	Combined Nomenclature (CN) code for a separate chemically defined compound meeting the requirements of Note 1 to Chapter 28 or 29 of the CN, respectively	Combined Nomenclature code for mixture without constituents which would determine classification under another CN code
Nitric acid	7697-37-2	3 % w/w	10% w/w	ex 2808 00 00	ex 3824 99 96
Nitric acid	7697-37-2	3 % w/w	10% w/w	ex 2808 00 00	ex 3824 99 96

Drug Precursors Regulation (EC 273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

A chemical safety assessment has been carried out
See annex for more detailed information

SECTION 16: Other information

Indication of changes:

Details of the supplier of the safety data sheet. Annex to the safety data sheet. Regulatory information.

Abbreviations and acronyms:	
PBT	Persistent Bioaccumulative Toxic
vPvB	Very Persistent and Very Bioaccumulative
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ICAO	International Civil Aviation Organization
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
DNEL	Derived-No Effect Level
PNEC	Predicted No-Effect Concentration
EC50	Median effective concentration
NOEC	No-Observed Effect Concentration
BCF	Bioconcentration factor
IMDG	International Maritime Dangerous Goods
IATA	International Air Transport Association

Training advice

: Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure.

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Full text of H- and EUH-statements:

Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Met. Corr. 1	Corrosive to metals, Category 1
Ox. Liq. 2	Oxidising Liquids, Category 2
Ox. Liq. 3	Oxidising Liquids, Category 3
Skin Corr. 1	Skin corrosion/irritation, Category 1
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H331	Toxic if inhaled.
EUH071	Corrosive to the respiratory tract.

Safety Data Sheet applicable for regions : IE - Ireland;GB - United Kingdom

SDS EU (REACH Annex II) - RH

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.

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Annex to the safety data sheet

Lead substance	Identified Uses	Es N°	Short title	Page
Nitric acid	Manufacturing of the substance <70% (continuous and batch synthesis), including handling, storage and quality control	1		
Nitric acid	Formulation or re-packing - Formulation of mixtures using Nitric acid < 70%	2		
Nitric acid	Use at industrial sites - Use of Nitric acid < 70% at industrial site as intermediate	3		
Nitric acid	Use at industrial sites - Use of Nitric acid < 70% at industrial site as reactive processing aid (Cleaning agent, pH regulator, waste gas treatment, ion exchange resins regeneration, metal treatment, plastic treatment, surface treatment product, water treatment)	4		
Nitric acid	Widespread use by professional workers - Use of Nitric acid < 70% by professional worker (outdoor and indoor of reactive substances in open systems as cleaning agent, pH regulator, metal treatment)	5		

1. ES 2 - Manufacturing of the substance <70% (continuous and batch synthesis), including handling, storage and quality control

1.1. Title section

Manufacturing of the substance <70% (continuous and batch synthesis), including handling, storage and quality control

ES Ref.: ES 2
ES Type: Environment

Environment	Use descriptors
Manufacturing of the substance <70% (continuous and batch synthesis), including handling, storage and quality control	ERC1

Worker	Use descriptors
Contributing scenario controlling worker exposure	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC9, PROC15

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Manufacturing of the substance <70% (continuous and batch synthesis), including handling, storage and quality control (ERC1)

ERC1	Manufacture of the substance
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Product (article) characteristics	
Physical form of product	Liquid
Concentration of substance in product	< 70 %
Vapour pressure	9.4 – 9.5 hPa (@ 20°C)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	Not relevant
Annual amount per site	Not relevant

Technical and organisational conditions and measures	
Adjust pH of waste water when containing the substance	

Conditions and measures related to personal protection, hygiene and health evaluation	
Use in contained batch processes	

Conditions and measures related to sewage treatment plant	
Discharge of sewage treatment plant (STP)	Not relevant

1.2.2. Control of worker exposure: Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC8a, PROC9, PROC15)

PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4	Chemical production where opportunity for exposure arises
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15	Use as laboratory reagent

Product (article) characteristics	
Physical form of product	Liquid
Concentration of substance in product	< 70 %

Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	Not relevant
Exposure duration	≤ 8 h/day

Technical and organisational conditions and measures	
Occupational exposure should be monitored and controlled	< 2.6 mg/m ³ NOx gas
Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation.	

Nitric acid 60%

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Technical and organisational conditions and measures	
Local exhaust ventilation	Containment as appropriate. Indoor use
Continuous process. Batch process	
Outdoor use	
Suitable materials for containers: Low carbon austenitic stainless steel	
Unsuitable materials: Metal, Carbon steel and Polypropylene	
Storage conditions: Store on an acid resistant underground, Protect from sunlight, Keep away from combustible material, Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking, Well-ventilated area	
General ventilation	(5 air changes per hour)
Minimise number of staff exposed	
Minimisation of manual phases. Ensure operatives are trained to minimise exposures	
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.	
Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure	
Equipment cleaning and maintenance	
Regular cleaning of equipment and work area	

Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection	Full face mask
Wear gloves according to EN374 resistant to the solvent(s) in use.	Butyl rubber
Use eye protection according to EN 166, designed to protect against spray mists.	
Use chemically protective clothing	
Assumes a good basic standard of occupational hygiene is implemented	
Wear personal protective equipment	

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure Manufacturing of the substance <70% (continuous and batch synthesis), including handling, storage and quality control (ERC1)

Protection target	Exposure estimation	PNEC	RCR	Assessment method
Freshwater	No data available	No data available	No data available	No data available
Freshwater - intermittent	No data available	No data available	No data available	No data available
Marine water - intermittent	No data available	No data available	No data available	No data available
Marine water	No data available	No data available	No data available	No data available
Secondary poisoning	No data available	No data available	No data available	No data available
Freshwater sediment	No data available	No data available	No data available	No data available
Marine water sediment	No data available	No data available	No data available	No data available
Sewage treatment plant	No data available	No data available	No data available	No data available
Soil	No data available	No data available	No data available	No data available

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Release estimation	Release route	Release rate	Release estimation method
Release estimation	Air	0 kg/day	
Release estimation	Non-agricultural soil		The release to non-agricultural soil is not determined nor needed for the required assessment(s). See chapter 9.0.3.2. for further details.
Release estimation	Water		The release to waste water is not determined nor needed for the required assessment(s). See chapter 9.0.3.2. for further details. Moreover, independent on this release, the risk management measure of adjusting the pH of the wastewater is only needed.

1.3.2. Worker exposure Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC8a, PROC9, PROC15)

Information for contributing exposure scenario			
Route of exposure and type of effects	Exposure estimate:	RCR	Method
Dermal - Long-term - systemic effects	No data available	No data available	No data available
Inhalation - Long-term - systemic effects	No data available	No data available	No data available
Dermal - Acute - systemic effects	No data available	No data available	No data available
Inhalation - Acute - systemic effects	No data available	No data available	No data available
Acute - Local - Dermal	No data available	No data available	No data available
Long term - Local - Dermal	No data available	No data available	No data available
Acute - Local - Inhalation	No data available	No data available	No data available
Long term - Local - Inhalation	No data available	No data available	No data available

1.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

1.4.1. Environment

Guidance - Environment	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. Do not exceed the Risk Characterisation Ratios (RCR). See section 3 of this Exposure Scenario. Environment scalable parameters: Volume, Risk Management Measures (Air, Soil), Emission days
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Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

1.4.2. Health

Guidance - Health	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. Do not exceed the Risk Characterisation Ratios (RCR). See section 3 of this Exposure Scenario. Health Scalable parameters: Concentration, Exposure duration, Ventilation, Local exhaust ventilation, Personal protection equipment
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Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

2. ES 4 - Formulation or re-packing - Formulation of mixtures using Nitric acid < 70%

2.1. Title section

Formulation or re-packing - Formulation of mixtures using Nitric acid < 70%

ES Ref.: ES 4
ES Type: Environment

Environment	Use descriptors
Formulation or re-packing - Formulation of mixtures using Nitric acid < 70%	ERC2

Worker	Use descriptors
Contributing scenario controlling worker exposure	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Formulation or re-packing - Formulation of mixtures using Nitric acid < 70% (ERC2)

ERC2	Formulation into mixture
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Product (article) characteristics	
Physical form of product	Liquid
Concentration of substance in product	< 70 %
Vapour pressure	9.4 – 9.5 hPa (@ 20°C)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	Not relevant
Annual amount per site	Not relevant

Technical and organisational conditions and measures	
Adjust pH of waste water when containing the substance	

Conditions and measures related to personal protection, hygiene and health evaluation	
Use in contained batch processes	

Conditions and measures related to sewage treatment plant	
Discharge of sewage treatment plant (STP)	Not relevant

2.2.2. Control of worker exposure: Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15)

PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4	Chemical production where opportunity for exposure arises

Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

PROC5	Mixing or blending in batch processes
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15	Use as laboratory reagent

Product (article) characteristics	
Physical form of product	Liquid
Concentration of substance in product	< 70 %
Vapour pressure	9.4 – 9.5 hPa (@ 20°C)

Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	Not relevant
Exposure duration	≤ 8 h/day

Technical and organisational conditions and measures	
Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation.	
Local exhaust ventilation	Containment as appropriate. Indoor use
Continuous process. Batch process	
Outdoor use	
Suitable materials for containers: Low carbon austenitic stainless steel	
Unsuitable materials: Metal, Carbon steel and Polypropylene	
Storage conditions: Store on an acid resistant underground, Protect from sunlight, Keep away from combustible material, Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking, Well-ventilated area	
Occupational exposure should be monitored and controlled	< 2.6 mg/m³ NOx gas
General ventilation	(5 air changes per hour)
Minimise number of staff exposed	
Minimisation of manual phases. Ensure operatives are trained to minimise exposures	
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.	
Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure	
Equipment cleaning and maintenance	
Regular cleaning of equipment and work area	

Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection	Full face mask
Wear gloves according to EN374 resistant to the solvent(s) in use.	Butyl rubber
Use eye protection according to EN 166, designed to protect against spray mists.	

Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Conditions and measures related to personal protection, hygiene and health evaluation

Use chemically protective clothing

Assumes a good basic standard of occupational hygiene is implemented

Wear personal protective equipment

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure Formulation or re-packing - Formulation of mixtures using Nitric acid < 70% (ERC2)

Release estimation	Release route	Release rate	Release estimation method
Release estimation	Air	0 kg/day	
Release estimation	Non-agricultural soil		The release to non-agricultural soil is not determined nor needed for the required assessment(s). See chapter 9.0.3.2. for further details.
Release estimation	Water		The release to waste water is not determined nor needed for the required assessment(s). See chapter 9.0.3.2. for further details. Moreover, independent on this release, the risk management measure of adjusting the pH of the wastewater is only needed.

2.3.2. Worker exposure Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15)

No information available

2.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

2.4.1. Environment

Guidance - Environment	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. Do not exceed the Risk Characterisation Ratios (RCR). See section 3 of this Exposure Scenario. Environment scalable parameters: Volume, Risk Management Measures (Air, Soil), Emission days
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2.4.2. Health

Guidance - Health	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. Do not exceed the Risk Characterisation Ratios (RCR). See section 3 of this Exposure Scenario. Health Scalable parameters: Concentration, Exposure duration, Ventilation, Local exhaust ventilation, Personal protection equipment
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Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

3. ES 6 - Use at industrial sites - Use of Nitric acid < 70% at industrial site as intermediate

3.1. Title section

Use at industrial sites - Use of Nitric acid < 70% at industrial site as intermediate

ES Ref.: ES 6
ES Type: Environment

Environment	Use descriptors
Use at industrial sites - Use of Nitric acid < 70% at industrial site as intermediate	ERC6a

Worker	Use descriptors
Contributing scenario controlling worker exposure	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15

3.2. Conditions of use affecting exposure

3.2.1. Control of environmental exposure: Use at industrial sites - Use of Nitric acid < 70% at industrial site as intermediate (ERC6a)

ERC6a	Use of intermediate
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Product (article) characteristics	
Physical form of product	Liquid
Concentration of substance in product	< 70 %
Vapour pressure	9.4 – 9.5 hPa (@ 20°C)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	Not relevant
Annual amount per site	Not relevant

Technical and organisational conditions and measures	
Adjust pH of waste water when containing the substance	

Conditions and measures related to personal protection, hygiene and health evaluation	
Use in contained batch processes	

Conditions and measures related to sewage treatment plant	
Discharge of sewage treatment plant (STP)	Not relevant

3.2.2. Control of worker exposure: Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15)

PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4	Chemical production where opportunity for exposure arises

Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

PROC5	Mixing or blending in batch processes
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15	Use as laboratory reagent

Product (article) characteristics	
Physical form of product	Liquid
Concentration of substance in product	< 70 %

Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	Not relevant
Exposure duration	≤ 8 h/day

Technical and organisational conditions and measures	
Occupational exposure should be monitored and controlled	< 2.6 mg/m ³ NOx gas
Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation.	
Local exhaust ventilation	Containment as appropriate. Indoor use
Continuous process. Batch process	
Outdoor use	
Suitable materials for containers: Low carbon austenitic stainless steel	
Unsuitable materials: Metal, Carbon steel and Polypropylene	
Storage conditions: Store on an acid resistant underground, Protect from sunlight, Keep away from combustible material, Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking, Well-ventilated area	
General ventilation	(5 air changes per hour)
Minimise number of staff exposed	
Minimisation of manual phases. Ensure operatives are trained to minimise exposures	
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.	
Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure	
Equipment cleaning and maintenance	
Regular cleaning of equipment and work area	

Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection	Full face mask
Wear gloves according to EN374 resistant to the solvent(s) in use.	Butyl rubber
Use eye protection according to EN 166, designed to protect against spray mists.	
Use chemically protective clothing	

Nitric acid 60%

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Conditions and measures related to personal protection, hygiene and health evaluation

Assumes a good basic standard of occupational hygiene is implemented

Wear personal protective equipment

3.3. Exposure estimation and reference to its source

3.3.1. Environmental release and exposure Use at industrial sites - Use of Nitric acid < 70% at industrial site as intermediate (ERC6a)

Release estimation	Release route	Release rate	Release estimation method
Release estimation	Air	0 kg/day	
Release estimation	Non-agricultural soil		The release to non-agricultural soil is not determined nor needed for the required assessment(s). See chapter 9.0.3.2. for further details.
Release estimation	Water		The release to waste water is not determined nor needed for the required assessment(s). See chapter 9.0.3.2. for further details. Moreover, independent on this release, the risk management measure of adjusting the pH of the wastewater is only needed.

3.3.2. Worker exposure Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15)

No information available

3.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

3.4.1. Environment

Guidance - Environment	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. Do not exceed the Risk Characterisation Ratios (RCR). See section 3 of this Exposure Scenario. Environment scalable parameters: Volume, Risk Management Measures (Air, Soil), Emission days
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3.4.2. Health

Guidance - Health	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. Do not exceed the Risk Characterisation Ratios (RCR). See section 3 of this Exposure Scenario. Health Scalable parameters: Concentration, Exposure duration, Ventilation, Local exhaust ventilation, Personal protection equipment
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Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

4. ES 8 - Use at industrial sites - Use of Nitric acid < 70% at industrial site as reactive processing aid (Cleaning agent, pH regulator, waste gas treatment, ion exchange resins regeneration, metal treatment, plastic treatment, surface treatment product, water treatment)

4.1. Title section

Use at industrial sites - Use of Nitric acid < 70% at industrial site as reactive processing aid (Cleaning agent, pH regulator, waste gas treatment, ion exchange resins regeneration, metal treatment, plastic treatment, surface treatment product, water treatment)

ES Ref.: ES 8
ES Type: Environment

Environment	Use descriptors
Use at industrial sites - Use of Nitric acid < 70% at industrial site as reactive processing aid (Cleaning agent, pH regulator, waste gas treatment, ion exchange resins regeneration, metal treatment, plastic treatment, surface treatment product, water treatment)	ERC4, ERC6a

Worker	Use descriptors
Contributing scenario controlling worker exposure	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC15

4.2. Conditions of use affecting exposure

4.2.1. Control of environmental exposure: Use at industrial sites - Use of Nitric acid < 70% at industrial site as reactive processing aid (Cleaning agent, pH regulator, waste gas treatment, ion exchange resins regeneration, metal treatment, plastic treatment, surface treatment product, water treatment) (ERC4, ERC6a)

ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC6a	Use of intermediate

Product (article) characteristics	
Physical form of product	Liquid
Concentration of substance in product	< 70 %
Vapour pressure	9.4 – 9.5 hPa (@ 20°C)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	Not relevant
Annual amount per site	Not relevant

Technical and organisational conditions and measures	
Adjust pH of waste water when containing the substance	

Conditions and measures related to personal protection, hygiene and health evaluation	
Use in contained batch processes	

Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Conditions and measures related to sewage treatment plant

Discharge of sewage treatment plant (STP)	Not relevant
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4.2.2. Control of worker exposure: Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC15)

PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4	Chemical production where opportunity for exposure arises
PROC5	Mixing or blending in batch processes
PROC7	Industrial spraying
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b	Transfer of substance or mixture (charging and discharging) 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 (article) characteristics

Physical form of product	Liquid
Concentration of substance in product	< 70 %

Amount used (or contained in articles), frequency and duration of use/exposure

Amounts used	Not relevant
Exposure duration	≤ 8 h/day

Technical and organisational conditions and measures

Occupational exposure should be monitored and controlled	< 2.6 mg/m ³ NOx gas
Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation.	
Local exhaust ventilation	Containment as appropriate. Indoor use
Continuous process. Batch process	
Outdoor use	
Suitable materials for containers: Low carbon austenitic stainless steel	
Unsuitable materials: Metal, Carbon steel and Polypropylene	
Storage conditions: Store on an acid resistant underground, Protect from sunlight, Keep away from combustible material, Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking, Well-ventilated area	
General ventilation	(5 air changes per hour)

Nitric acid 60%

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according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Technical and organisational conditions and measures	
Minimise number of staff exposed	
Minimisation of manual phases. Ensure operatives are trained to minimise exposures	
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.	
Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure	
Equipment cleaning and maintenance	
Regular cleaning of equipment and work area	

Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection	Full face mask
Wear gloves according to EN374 resistant to the solvent(s) in use.	Butyl rubber
Use eye protection according to EN 166, designed to protect against spray mists.	
Use chemically protective clothing	
Assumes a good basic standard of occupational hygiene is implemented	
Wear personal protective equipment	

4.3. Exposure estimation and reference to its source

4.3.1. Environmental release and exposure Use at industrial sites - Use of Nitric acid < 70% at industrial site as reactive processing aid (Cleaning agent, pH regulator, waste gas treatment, ion exchange resins regeneration, metal treatment, plastic treatment, surface treatment product, water treatment) (ERC4, ERC6a)

Release estimation	Release route	Release rate	Release estimation method
Release estimation	Air	0 kg/day	
Release estimation	Non-agricultural soil		The release to non-agricultural soil is not determined nor needed for the required assessment(s). See chapter 9.0.3.2. for further details.
Release estimation	Water		The release to waste water is not determined nor needed for the required assessment(s). See chapter 9.0.3.2. for further details. Moreover, independent on this release, the risk management measure of adjusting the pH of the wastewater is only needed.

4.3.2. Worker exposure Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC15)

No information available

Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

4.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.4.1. Environment

Guidance - Environment	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. Do not exceed the Risk Characterisation Ratios (RCR). See section 3 of this Exposure Scenario. Environment scalable parameters: Volume, Risk Management Measures (Air, Soil), Emission days
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4.4.2. Health

Guidance - Health	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. Do not exceed the Risk Characterisation Ratios (RCR). See section 3 of this Exposure Scenario. Health Scalable parameters: Concentration, Exposure duration, Ventilation, Local exhaust ventilation, Personal protection equipment
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Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

5. ES 9 - Widespread use by professional workers - Use of Nitric acid < 70% by professional worker (outdoor and indoor of reactive substances in open systems as cleaning agent, pH regulator, metal treatment)

5.1. Title section

Widespread use by professional workers - Use of Nitric acid < 70% by professional worker (outdoor and indoor of reactive substances in open systems as cleaning agent, pH regulator, metal treatment)

ES Ref.: ES 9
ES Type: Environment

Environment	Use descriptors
Widespread use by professional workers - Use of Nitric acid < 70% by professional worker (outdoor and indoor of reactive substances in open systems as cleaning agent, pH regulator, metal treatment)	ERC8a, ERC8b

Worker	Use descriptors
Contributing scenario controlling worker exposure	PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC11, PROC13, PROC15

5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: Widespread use by professional workers - Use of Nitric acid < 70% by professional worker (outdoor and indoor of reactive substances in open systems as cleaning agent, pH regulator, metal treatment) (ERC8a, ERC8b)

ERC8a	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8b	Widespread use of reactive processing aid (no inclusion into or onto article, indoor)

Product (article) characteristics	
Physical form of product	Liquid
Concentration of substance in product	< 70 %
Vapour pressure	9.4 – 9.5 hPa (@ 20°C)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	Not relevant
Annual amount per site	Not relevant

Technical and organisational conditions and measures	
Adjust pH of waste water when containing the substance	

Conditions and measures related to personal protection, hygiene and health evaluation	
Use in contained batch processes	

Conditions and measures related to sewage treatment plant	
Discharge of sewage treatment plant (STP)	Not relevant

Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

5.2.2. Control of worker exposure: Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC11, PROC13, PROC15)

PROC1	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
PROC2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC5	Mixing or blending in batch processes
PROC8a	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b	Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC11	Non industrial spraying
PROC13	Treatment of articles by dipping and pouring
PROC15	Use as laboratory reagent

Product (article) characteristics	
Physical form of product	Liquid
Concentration of substance in product	< 70 %

Amount used (or contained in articles), frequency and duration of use/exposure	
Amounts used	Not relevant
Exposure duration	≤ 8 h/day

Technical and organisational conditions and measures	
Occupational exposure should be monitored and controlled	< 2.6 mg/m ³ NOx gas
Minimise exposure using measures such as contained and enclosed systems, properly designed and maintained dedicated facilities and suitable general/local exhaust ventilation.	
Local exhaust ventilation	Containment as appropriate. Indoor use
Continuous process. Batch process	
Outdoor use	
Suitable materials for containers: Low carbon austenitic stainless steel	
Unsuitable materials: Metal, Carbon steel and Polypropylene	
Storage conditions: Store on an acid resistant underground, Protect from sunlight, Keep away from combustible material, Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking, Well-ventilated area	
General ventilation	(5 air changes per hour)
Minimise number of staff exposed	
Minimisation of manual phases. Ensure operatives are trained to minimise exposures	
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.	

Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Technical and organisational conditions and measures

Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure

Equipment cleaning and maintenance

Regular cleaning of equipment and work area

Conditions and measures related to personal protection, hygiene and health evaluation

Respiratory protection Full face mask

Wear gloves according to EN374 resistant to the solvent(s) in use. Butyl rubber

Use eye protection according to EN 166, designed to protect against spray mists.

Use chemically protective clothing

Assumes a good basic standard of occupational hygiene is implemented

Wear personal protective equipment

5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure Widespread use by professional workers - Use of Nitric acid < 70% by professional worker (outdoor and indoor of reactive substances in open systems as cleaning agent, pH regulator, metal treatment) (ERC8a, ERC8b)

Release estimation	Release route	Release rate	Release estimation method
Release estimation	Air		Negligible
Release estimation	Non-agricultural soil		The release to non-agricultural soil is not determined nor needed for the required assessment(s). See chapter 9.0.3.2. for further details.
Release estimation	Water		The release to waste water is not determined nor needed for the required assessment(s). See chapter 9.0.3.2. for further details. Moreover, independent on this release, the risk management measure of adjusting the pH of the wastewater is only needed.

5.3.2. Worker exposure Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9, PROC11, PROC13, PROC15)

No information available

Nitric acid 60%

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

5.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

5.4.1. Environment

Guidance - Environment	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. Do not exceed the Risk Characterisation Ratios (RCR). See section 3 of this Exposure Scenario. Environment scalable parameters: Volume, Risk Management Measures (Air, Soil), Emission days
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5.4.2. Health

Guidance - Health	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. Do not exceed the Risk Characterisation Ratios (RCR). See section 3 of this Exposure Scenario. Health Scalable parameters: Concentration, Exposure duration, Ventilation, Local exhaust ventilation, Personal protection equipment
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