

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 24-Nov-2010

Revision Date 09-Feb-2024

Revision Number 9

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: Cat No. : Aluminium standard solution, 1 mg/ml Al in 2 to 5% HNO3 195800000; 195805000

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

Recommended Use	Laboratory chemicals.
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company

UK entity/business name Fisher Scientific UK Bishop Meadow Road, Loughborough, Leicestershire LE11 5RG, United Kingdom

EU entity/business name

Thermo Fisher Scientific Janssen Pharmaceuticalaan 3a, 2440 Geel, Belgium

E-mail address

begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 **CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Substances/mixtures corrosive to metal

Health hazards

Skin Corrosion/Irritation Serious Eye Damage/Eye Irritation Category 1 (H290)

Category 2 (H315) Category 1 (H318)

Aluminium standard solution, 1 mg/ml Al in 2 to 5% HNO3

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Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H290 - May be corrosive to metals H315 - Causes skin irritation H318 - Causes serious eye damage

Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection P302 + P352 - IF ON SKIN: Wash with plenty of soap and water P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P310 - Immediately call a POISON CENTER or doctor/physician

2.3. Other hazards

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Aluminium nitrate nonahydrate	7784-27-2		1.4	Eye Dam. 1 (H318)
Nitric acid …% [C ≤ 70 %]	7697-37-2	231-714-2	2-4.99	Ox. Liq. 3 (H272) Met. Corr. 1 (H290) Acute Tox. 3 (H331) Skin Corr. 1A (H314) Eye Dam. 1 (H318) (EUH071)
Water	7732-18-5	231-791-2	94-97	-

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Nitric acid …% [C ≤ 70 %]	Ox. Liq. 2 :: C>=99% Ox. Liq. 3 :: 65%<=C<99% Acute Tox. 1 (inhal) :: C>=70% Acute Tox. 3 (inhal) :: 70%>C>=26.5% Acute Tox. 4 (inhal) :: 26.5%>C>=13.25%	-	-

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Skin Corr. 1A :: C>=20% Skin Corr. 1B :: 5%<=C<20% Met. Corr. 1 :: C>=2% EUH071 :: C>=20%	

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
Nitric acid …% [C ≤ 70 %]	-	-	ATE = 2.65 mg/L (vapours)
			J. (-

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	If symptoms persist, call a physician.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
Ingestion	Clean mouth with water and drink afterwards plenty of water.
Inhalation	If not breathing, give artificial respiration. Remove to fresh air. Get medical attention if symptoms occur.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
4.2. Most important symptoms and	effects, both acute and delayed_
	Causes eye burns. Causes severe eye damage. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

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

Notes to Physician	Treat symptomatically.
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SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media CO₂, dry chemical, dry sand, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

Hazardous Combustion Products

Nitrogen oxides (NOx).

5.3. Advice for firefighters

Aluminium standard solution, 1 mg/ml Al in 2 to 5% HNO3

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required.

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Corrosives area. Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep only in the original container. Do not store in metal containers. Keep containers tightly closed in a dry, cool and well-ventilated place.

Technical Rules for Hazardous Substances (TRGS) 510Class 12Storage Class (LGK) (Germany)Class 12

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE** - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
Aluminium nitrate nonahydrate	STEL: 6 mg/m ³ 15 min		

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	TWA: 2 mg/m ³ 8 hr		
Nitric acid …% [C ≤ 70 %]	STEL: 1 ppm 15 min	STEL: 1 ppm (15min)	STEL: 1 ppm 15 min
	STEL: 2.6 mg/m ³ 15 min	STEL: 2.6 mg/m ³ (15min)	STEL: 2.6 mg/m ³ 15 min

Biological limit values

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) / Derived Minimum Effect Level (DMEL)

No information available

Predicted No Effect Concentration (PNEC)

No information available.

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection	Goggles	(European standard	1 - EN 166)	
Hand Protection	Protectiv	ve gloves		
Glove material Natural rubber Nitrile rubber Neoprene PVC	Breakthrough time See manufacturers recommendations	Glove thickness -	EU standard EN 374	Glove comments (minimum requirement)

Skin and body protection

Long sleeved clothing.

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced Recommended Filter type: Particulates filter conforming to EN 143
Small scale/Laboratory use	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas)	No information available Odorless No data available -3 °C / 26.6 °F No data available 100 °C / 212 °F No data available Not applicable No data available	@ 760 mmHg Liquid
Explosion Limits Flash Point	No information available	Method - No information available
Autoignition Temperature Decomposition Temperature pH	No data available No data available < 1	
Viscosity Water Solubility Solubility in other solvents	No data available Miscible No information available	
Partition Coefficient (n-octanol/wat	er)	
Component Nitric acid …% [C ≤ 70 %] Vapor Pressure Density / Specific Gravity Bulk Density Vapor Density Particle characteristics	log Pow -2.3 No data available 1.0200 Not applicable No data available Not applicable (liquid)	Liquid (Air = 1.0)

9.2. Other information

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity	None known, based on information available
10.2. Chemical stability	Stable under normal conditions.
10.3. Possibility of hazardous reaction	ons
Hazardous Polymerization Hazardous Reactions	No information available. None under normal processing.
10.4. Conditions to avoid	Incompatible products.
10.5. Incompatible materials	Strong bases. Amines. Strong reducing agents. Metals. copper.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx).

Aluminium standard solution, 1 mg/ml Al in 2 to 5% HNO3

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information	No acute toxicity information is available for this product
(a) acute toxicity;	
Oral	Based on available data, the classification criteria are not met
Dermal	Based on available data, the classification criteria are not met
Inhalation	Based on available data, the classification criteria are not met

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nitric acid% [C ≤ 70 %]	-	-	LC50 = 2500 ppm. (Rat) 1h
Water	-	-	-
0			
Component Nitric acid …% [C ≤ 70 %]	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation) ATE = 2.65 mg/L (vapours)
	-	-	ATE = 2.05 mg/E (vapours)
(b) skin corrosion/irritation;	Category 2		
(c) serious eye damage/irritation;	Category 1		
(d) respiratory or skin sensitization;			
Respiratory	, No data available		
Skin	No data available		
(e) germ cell mutagenicity;	No data available		
(f) carcinogenicity;	No data available		
	The table below indicates whe	ether each agency has listed a	ny ingredient as a carcinogen
			, , , , , , , , , , , , , , , , , , , ,
(g) reproductive toxicity;	No data available		
(h) STOT-single exposure;	No data available		
(i) STOT-repeated exposure;	No data available		
Target Organs	None known.		
Target Organs	None known.		
(j) aspiration hazard;	No data available		
Symptoms / effects,both acute and	Product is a corrosive materia	Lise of asstric lavage or em	esis is contraindicated
delayed	Possible perforation of stomad		
aciayoa	severe swelling, severe dama		
	3, 30,		5 - F
14.0 Information on other barrents			
11.2. Information on other hazards			
Endocrine Disrupting Properties			nis product does not contain any
	known or suspected endocrine	e disruptors.	

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity Ecotoxicity effects

Persistence

12.2. Persistence and degradability

Soluble in water, Persistence is unlikely, based on information available, Miscible with water.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Nitric acid …% [C ≤ 70 %]	-2.3	No data available

<u>12.4. Mobility in soil</u>	The product is water soluble, and may spread in water systems . Will likely be mobile in the environment due to its water solubility. Highly mobile in soils
<u>12.5. Results of PBT and vPvB</u> assessment	No data available for assessment.
<u>12.6. Endocrine disrupting</u> properties Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors

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12.7. Other adverse effectsPersistent Organic PollutantOzone Depletion PotentialThis product does not contain any known or suspected substanceThis product does not contain any known or suspected substance
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SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.	
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.	
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.	
Other Information	Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not flush to sewer. Solutions with low pH-value must be neutralized before discharge. Large amounts will affect pH and harm aquatic organisms.	

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number	UN2031
14.2. UN proper shipping name	NITRIC ACID
14.3. Transport hazard class(es)	8
14.4. Packing group	Π

<u>ADR</u>

<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN2031 NITRIC ACID 8 II
IATA	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN2031 NITRIC ACID 8 II
14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Aluminium nitrate nonahydrate	7784-27-2	-	-	-	Х	Х	-	Х	Х
Nitric acid% [C ≤ 70 %]	7697-37-2	231-714-2	-	-	Х	Х	KE-25911	Х	Х
Water	7732-18-5	231-791-2	-	-	Х	Х	KE-35400	Х	-

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Aluminium nitrate nonahydrate	7784-27-2	-	-	-	-	Х	Х	Х
Nitric acid …% [C ≤ 70 %]	7697-37-2	Х	ACTIVE	Х	-	Х	Х	Х
Water	7732-18-5	Х	ACTIVE	Х	-	Х	Х	Х

Legend: X - Listed '-' - Not Listed KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Aluminium nitrate nonahydrate	7784-27-2	-	-	-
Nitric acid …% [C ≤ 70 %]	7697-37-2	-	Use restricted. See item 75. (see link for restriction details)	-
Water	7732-18-5	-	-	-

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Aluminium standard solution, 1 mg/ml Al in 2 to 5% HNO3

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Aluminium nitrate nonahydrate	7784-27-2	Not applicable	Not applicable
Nitric acid% [C ≤ 70 %]	7697-37-2	Not applicable	Not applicable
Water	7732-18-5	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

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 .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

Water endangering class = 1 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Nitric acid …% [C ≤ 70 %]	WGK1	

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Nitric acid …% [C ≤ 70 %] 7697-37-2(2-4.99)	Prohibited and Restricted Substances		

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H290 - May be corrosive to metals

H315 - Causes skin irritation

H318 - Causes serious eye damage

H272 - May intensify fire; oxidizer

H314 - Causes severe skin burns and eye damage

H331 - Toxic if inhaled

EUH071 - Corrosive to the respiratory tract

Legend

Aluminium standard solution, 1 mg/ml Al in 2 to 5% HNO3

CAS - Chemical Abstracts Service	TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances	
PICCS - Philippines Inventory of Chemicals and Chemical Substances	ENCS - Japanese Existing and New Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances KECL - Korean Existing and Evaluated Chemical Substances	AICS - Australian Inventory of Chemical Substances NZIOC - New Zealand Inventory of Chemicals
WEL - Workplace Exposure Limit	TWA - Time Weighted Average
ACGIH - American Conference of Governmental Industrial Hygienists	IARC - International Agency for Research on Cancer
DNEL - Derived No Effect Level RPE - Respiratory Protective Equipment	Predicted No Effect Concentration (PNEC) LD50 - Lethal Dose 50%
LC50 - Lethal Concentration 50%	EC50 - Effective Concentration 50%
NOEC - No Observed Effect Concentration	POW - Partition coefficient Octanol:Water
PBT - Persistent, Bioaccumulative, Toxic	vPvB - very Persistent, very Bioaccumulative
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road	ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code	MARPOL - International Convention for the Prevention of Pollution from Ships
OECD - Organisation for Economic Co-operation and Development	ATE - Acute Toxicity Estimate
BCF - Bioconcentration factor	VOC - (Volatile Organic Compound)
Key literature references and sources for data	
https://echa.europa.eu/information-on-chemicals Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, I	RTECS
ouppilors sarely data sheet, one nadvisor - LOLI, Merck Index, I	
Classification and procedure used to derive the classification	on for mixtures according to Regulation (EC) 1272/2008 [CLF

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:Physical hazardsOn basis of test dataHealth HazardsCalculation methodEnvironmental hazardsCalculation method

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date	24-Nov-2010
Revision Date	09-Feb-2024
Revision Summary	Not applicable.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

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