

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

Trade name

Silver nitrate, Acculute Standard Volumetric Solution, Final Concentration 0.282N

Stock number:

88615

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

Identified use:

SU24 Scientific research and development

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG
A Johnson Matthey Company
Zeppelinstr. 7b
76185 Karlsruhe / Germany
Tel: +49 (0) 721 84007 280
Fax: +49 (0) 721 84007 300
Email: tech@alfa.com
www.alfa.com

Informing department:

Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)

Poison Information Center Mainz

www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008



GHS03 flame over circle

Ox. Liq. 2 H272 May intensify fire; oxidiser.



GHS05 corrosion

Met. Corr.1 H290 May be corrosive to metals.

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

C; Corrosive

R34: Causes burns.

O; Oxidising

R8: Contact with combustible material may cause fire.

N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Other hazards that do not result in classification

No information known.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms

The product is classified and labelled according to the CLP regulation.

Signal word

GHS03, GHS05, GHS09
Danger

Hazard-determining components of labelling:

Silver nitrate

Hazard statements

H272 May intensify fire; oxidiser.
H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P221 Take any precaution to avoid mixing with combustibles.

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/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.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

SECTION 3: Composition/information on ingredients**3.2 Mixtures****Dangerous components:**

CAS: 7761-88-8

Silver nitrate

22,0%

EINECS: 231-853-9

C R34; O R8; N R50/53

Ox. Sol. 2, H272; Met. Corr. 1, H290; Skin Corr. 1B, H314; Aquatic Acute 1, H400; Aquatic Chronic 1, H410

Additional information

None known.

Non-Hazardous Ingredients

CAS: 7732-18-5

Water

78,0%

EINECS: 231-791-2

SECTION 4: First aid measures**4.1 Description of first aid measures**

General information

Instantly remove any clothing soiled by the product.

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After inhalation	Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
After skin contact	Seek immediate medical advice. Instantly wash with water and soap and rinse thoroughly.
After eye contact	Seek immediate medical advice.
After swallowing	Rinse opened eye for several minutes under running water. Then consult doctor.
4.2 Most important symptoms and effects, both acute and delayed	Seek medical treatment.
4.3 Indication of any immediate medical attention and special treatment needed	No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media Suitable extinguishing agents	Use fire fighting measures that suit the environment.
5.2 Special hazards arising from the substance or mixture	This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. If this product is involved in a fire, the following can be released: Nitrogen oxides (NOx) Metal oxide
5.3 Advice for firefighters Protective equipment:	Wear self-contained breathing apparatus. Wear full protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures	Wear protective equipment. Keep unprotected persons away.
6.2 Environmental precautions:	Ensure adequate ventilation Do not allow material to be released to the environment without proper governmental permits. Do not allow product to reach sewage system or water bodies. Do not allow to enter the ground/soil.
6.3 Methods and material for containment and cleaning up:	Use neutralizing agent. Dispose of contaminated material as waste according to item 13. Ensure adequate ventilation. Absorb with liquid-binding material.
Prevention of secondary hazards:	Acts as an oxidizing agent on organic materials such as wood, paper and fats Keep away from combustible material.
6.4 Reference to other sections	See Section 7 for information on safe handling See section 8 for information on personal protection equipment. See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling	Keep containers tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation/exhaustion at the workplace.
Information about protection against explosions and fires:	The product is not flammable. Substance/product can reduce the ignition temperature of flammable substances. This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.
7.2 Conditions for safe storage, including any incompatibilities	
Storage Requirements to be met by storerooms and containers:	No special requirements.
Information about storage in one common storage facility:	Store away from flammable substances. Store away from reducing agents. Store in the dark. Do not store with organic materials. Store away from metal powders. Water reacts with many metals to give hydrogen, often violently. Water also reacts violently with many reactive organic and inorganic chemicals.
Further information about storage conditions:	Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. Protect from the effects of light. Store in a locked cabinet or with access restricted to technical experts or their assistants.
7.3 Specific end use(s)	No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems:	Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
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8.1 Control parameters

Components with critical values that require monitoring at the workplace:

7761-88-8 Silver nitrate (22,0%)

AGW (Germany)	0,01E mg/m ³ 2(l);DFG,EU,10
PEL (USA)	0,01 mg/m ³ as Ag
REL (USA)	0,01 mg/m ³ as Ag
TLV (USA)	0,01 mg/m ³ as Ag

Additional information: No data

8.2 Exposure controls

Personal protective equipment

General protective and hygienic measures
The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.
Use breathing protection with high concentrations.

Breathing equipment:

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Protection of hands:	Check protective gloves prior to each use for their proper condition. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.	(Contd. of page 2)
Material of gloves	Impervious gloves	
Penetration time of glove material	Not determined	
Eye protection:	Tightly sealed safety glasses. Full face protection	
Body protection:	Protective work clothing.	

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

Form:	Liquid
Colour:	Colourless
Smell:	Not determined
Odour threshold:	Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined
Inflammability (solid, gaseous)	Not determined.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Self-inflammability:	Product is not selfigniting.

Critical values for explosion:

Lower:	Not determined
Upper:	Not determined

Steam pressure at 20 °C:

Density	23 hPa
Relative density	Not determined
Vapour density	Not determined.
Evaporation rate	Not determined.

Solubility in / Miscibility with

Water:	Fully miscible
Partition coefficient (n-octanol/water):	Not determined.

Viscosity:	Not determined.
dynamic:	Not determined.
kinematic:	Not determined.

Solvent content:

Organic solvents:	0,0 %
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Solids content:	22,0 %
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9.2 Other information No further relevant information available.

SECTION 10: Stability and reactivity**10.1 Reactivity**

May intensify fire; oxidiser.
Stable under recommended storage conditions.

10.2 Chemical stability**Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions

Water reacts violently with alkali metals.
Reacts with reducing agents
Reacts with flammable substances

10.5 Incompatible materials:

Flammable substances
Reducing agents
Organic materials
Metal powders
Light
Water reacts with many metals to give hydrogen, often violently. Water is also incompatible with many reactive organic and inorganic chemicals.

10.6 Hazardous decomposition products:

Nitrogen oxides (NOx)
Metal oxide

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity:**

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

LD/LC50 values that are relevant for classification:**7761-88-8 Silver nitrate**

Oral	LD50	1173 mg/kg (rat)
Irritation of eyes	severe	1 mg (rabbit)

Skin irritation or corrosion:

Causes severe skin burns.

Eye irritation or corrosion:

Causes serious eye damage.

Sensitization:

No sensitizing effect known.

Germ cell mutagenicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.

Carcinogenicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this product.

Reproductive toxicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for components in this product.

Specific target organ system toxicity - repeated exposure:

No effects known.

Specific target organ system toxicity - single exposure:

No effects known.

Aspiration hazard:

No effects known.

Experience with humans:

The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for components in this product.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

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according to 1907/2006/EC, Article 31

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No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
Corrosive

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.
12.2 Persistence and degradability No further relevant information available.
12.3 Bioaccumulative potential No further relevant information available.
12.4 Mobility in soil No further relevant information available.
Ecotoxicological effects:
Remark: Very toxic for fish
Additional ecological information:
General notes: Do not allow material to be released to the environment without proper governmental permits.
Water danger class 3 (Self-assessment): extremely hazardous for water.
Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into soil.
Also poisonous for fish and plankton in water bodies.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.
Very toxic for aquatic organisms



12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.
Consult state, local or national regulations for proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.
Recommended cleaning agent: Water, if necessary with cleaning agent.

SECTION 14: Transport information

UN-Number ADR, IMDG, IATA	UN3093
14.2 UN proper shipping name ADR IMDG, IATA	3093 CORROSIVE LIQUID, OXIDIZING, N.O.S. (Silver nitrate) CORROSIVE LIQUID, OXIDIZING, N.O.S. (Silver nitrate)
14.3 Transport hazard class(es) ADR	
	
Class Label IMDG, IATA	8 (CO1) Corrosive substances. 8+5.1
	
Class Label	8 Corrosive substances. 8+5.1
Packing group ADR, IMDG, IATA	II
14.5 Environmental hazards: Marine pollutant:	No
14.6 Special precautions for user Kemler Number: EMS Number:	Warning: Corrosive substances. 85 F-A,S-Q
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
ADR Excepted quantities (EQ): Limited quantities (LQ) Transport category Tunnel restriction code	E2 1L 2 E
UN "Model Regulation":	UN3093, CORROSIVE LIQUID, OXIDIZING, N.O.S. (Silver nitrate), 8 (5.1), II

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Australian Inventory of Chemical Substances**

All ingredients are listed.

Standard for the Uniform Scheduling of Drugs and Poisons

7761-88-8 | Silver nitrate

S6

National regulations**Information about limitation of use:**Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.**Classification according to VbF:**

Not applicable

Water hazard class:

Water danger class 3 (Self-assessment): extremely hazardous for water.

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DE/E

Safety data sheet
according to 1907/2006/EC, Article 31

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ELINCS (European List of Notified Chemical Substances)

None of the ingredients is listed.

Substances of very high concern (SVHC) according to REACH, Article 57

None of the ingredients are listed.

REACH - Pre-registered substances

All ingredients are listed.

15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Relevant phrases

H272 May intensify fire; oxidiser.
 H290 May be corrosive to metals.
 H314 Causes severe skin burns and eye damage.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.
 R34 Causes burns.
 R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 R8 Contact with combustible material may cause fire.

Department issuing data specification sheet: Health, Safety and Environmental Department.**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals
 VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent

DE/E