

Safety Data Sheet
according to 1907/2006/EC, Article 31

Printing date 03.03.2010

Revision: 03.03.2010

1 Identification of the substance/preparation and of the company/undertaking

- **Product details**
- **Molecular formula:** Ag N O₃
- **Trade name:** Silver nitrate
- **Article number:** CH0106
- **Application of the substance / the preparation** Laboratory Reagent.
- **Manufacturer/Supplier:**

Carlo Erba Reagenti
Strada Rivoltana Km 6/7
I-20090 Rodano
Tel.: 0039 02 953251

Carlo Erba Reactifs - SDS
Chaussée du Vexin
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- **Further information obtainable from:**
Q.A / Normative
email ITALY: MSDS_CER@carloerbareagenti.com
email FRANCE: MSDS_CER-SDS@carloerbareactifs.com
- **Information in case of emergency:**
CENTRO ANTIVELENI OSPEDALE CA GRANDA - NIGUARDA (MI)
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2 Hazards identification

- **Hazard description:**



C Corrosive
O Oxidising
N Dangerous for the environment

- **Information concerning to particular hazards to man and environment:**
R 8 Contact with combustible material may cause fire.
R 34 Causes burns.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- **Classification system:**
The product has to be labelled due to the calculation procedure of the "General Classification guideline for Substances of the EU", DIR. 67/548/EC, in the latest valid version.
- **GHS label elements**



Danger

H314 - Causes severe skin burns and eye damage.



Warning

H410 - Very toxic to aquatic life with long lasting effects.

- **Prevention:**
P260 Do not breathe dust/fume/gas/mist/vapours/spray.

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· **Response:**

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.*

P310 *Immediately call a POISON CENTER or doctor/physician.*

· **Storage:**

P405 *Store locked up.*

· **Disposal:**

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

3 Composition/information on ingredients

· **Chemical characterization:**

· **CAS No. Description**

7761-88-8 Silver nitrate

· **Identification number(s)**

· **EINECS Number:** 231-853-9

· **Index number:** 047-001-00-2

4 First-aid measures

· **General information:** Immediately remove any clothing soiled by the product.

· **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly. Wash contaminated clothing before reuse.

· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Do not induce vomiting; call for medical help immediately.

Drink plenty of water and provide fresh air.

· **Information for doctor:** Show your the doctor this Material Safety Data Sheets.

· **The following symptoms may occur:** Gastric or intestinal disorders

5 Fire-fighting measures

· **General Information:**

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

· **Suitable extinguishing agents:**

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **Special hazards caused by the substance, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Nitrogen oxides (NO_x)

Enhances the combustion.

Fumes with metal oxides.

in the absence of oxygen: Ammonia (NH₃)

· **Protective equipment:** No special measures required.

6 Accidental release measures

· **General Information:** Use proper personal protective equipment as indicated in Section 8.

· **Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

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- If dust/ aerosols is formed, use personal protective equipment.
- **Measures for environmental protection:**
 - Do not allow to enter sewers/ surface or ground water.
 - Inform respective authorities in case of seepage into water course or sewage system.
- **Measures for cleaning/collecting:**
 - Ensure adequate ventilation.
 - For fine dusts use a vacuum cleaner.
 - Use neutralizing agent.
 - Dispose contaminated material as waste according to item 13.
- **Additional information:**
 - See Section 7 for information on safe handling.
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Information for safe handling:**
 - Avoid formation of dust and aerosols.
 - Adopt adequate ventilation at places where you develop dust.
 - Thorough dedusting.
 - Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
 - No special measures required.
 - Potentially explosive when mixed with organic substances.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
 - Unsuitable material for receptacle: aluminium.
 - Use polyethylene receptacles.
 - Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
- **Information about storage in one common storage facility:** Store away from flammable substances.
- **Further information about storage conditions:** Keep receptacle tightly sealed.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Ingredients with limit values that require monitoring at the workplace:**

7761-88-8 Silver nitrate

WEL (Great Britain)	Long-term value: 0.01 mg/m ³ as Ag
IOELV (European Union)	Long-term value: 0.01 mg/m ³ as Ag
PEL (USA)	Long-term value: 0.01 mg/m ³ as Ag
REL (USA)	Long-term value: 0.01 mg/m ³ as Ag
TLV (USA)	Long-term value: 0.01 mg/m ³ as Ag

- **Additional information:** The lists valid during the making were used as basis.
- **Personal protective equipment:** -
- **General protective and hygienic measures:**
 - Keep away from foodstuffs, beverages and feed.
 - Immediately remove all soiled and contaminated clothing
 - Wash hands before breaks and at the end of work.
 - Avoid contact with the skin.

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· **Respiratory protection:**

Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Filter P3, in case of dust-producing handlings.

· **Protection of hands:**

The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it.



Protective gloves

Rubber gloves

· **Material of gloves**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

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.

Thin, disposable gloves in PVC or PE

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:** Chemical safety goggles.

· **Body protection:**

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

9 Physical and chemical properties

- **Molecular weight** 169.87 g
- **Form:** Crystalline
- **Colour:** Colourless
- **Odour:** Odourless

· **Change in condition**

Melting point/Melting range: 210°C

Boiling point/Boiling range: 444°C

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Contact with combustible material may cause fire.

· **Density at 20°C:** 4.35 g/cm³

· **Solubility in / Miscibility with water at 20°C:** 2.192 g/l

10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

· **Materials to be avoided:**

· **Dangerous reactions**

Reacts with peroxides and other radical forming substances.

Catalytic decomposition of hydrogen peroxide.

May react dangerously with reducing or flammable substances in bulk.

· **Dangerous decomposition products:** Nitrogen oxides (NO_x)

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11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

Oral	LD50	50 mg/kg (mouse)
Irritation of eyes	Draize test	++ (rabbit)

· **Primary irritant effect:**

· **on the skin:** Caustic effect on skin and mucous membranes.

· **on the eye:** Strong caustic effect.

· **Ingestion:** It can be harmful if swallowed.

· **Inhalation:**

Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

· **Sensitization:** No sensitizing effects known.

· **Other information (about experimental toxicology):** No more relevant data available.

· **Additional toxicological information:**

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

· **Information about elimination (persistence and degradability):**

· **Method**

· **Ecological information** Not available

· **Ecotoxic effects:**

· **Aquatic toxicity:**

LC50 aq.	<0.1 (48h) mg/L (Daphnia)
	<1 (48h) mg/L (fishes)

· **Remark:**

Local effects: may change the environmental pH endangering the aquatic life.

Very toxic for fish

· **Remark:** Inhibition of bacterial flora

· **Additional ecological information:**

· **General notes:**

Water danger class 3 (German Regulation) (Assessment by list): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Must not reach sewage water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Very toxic for aquatic organisms

13 Disposal considerations

· **Product:**

· **Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Reutilise if possible or contact a waste processors for recycling or safe disposal.

· **Waste disposal key:**

The European Union does not establish uniform rules for the disposal of chemical waste, which are special waste. Their treatment and elimination of the domestic legislation of each country. So, in each case, you should contact the relevant authorities, or those companies legally authorized for elimination of waste.

2001/573/EC: Council Decision of 23 July 2001 amending the list of wastes contained in Decision 2000/532/EC.

Council Directive 91/156/EEC of 18 March 1991 amending Directive 75/442/EEC on waste.

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- **Uncleaned packaging:**
The containers and packing materials contaminated with dangerous substances or preparations, have the same treatment products.
Directive 94/62/EC of the European Parliament and the Council of 20 December 1994 on packaging and packaging waste.
- **Recommendation:**
Disposal must be made according to official regulations.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.
Wash with water to be treated before disposal.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

· Land transport ADR/RID (cross-border)



- **ADR/RID class:** 5.1 (O2) Oxidising substances.
- **Danger code (Kemler):** 50
- **UN-Number:** 1493
- **Packaging group:** II
- **Hazard label** 5.1
- **Special marking:** Symbol (fish and tree)
- **Description of goods:** 1493 SILVER NITRATE
- **Excepted quantities (EQ):** E2
- **Limited quantities (LQ)** LQ11
- **Transport category** 2
- **Tunnel restriction code** E

· Maritime transport IMDG:



- **IMDG Class:** 5.1
- **UN Number:** 1493
- **Label** 5.1
- **Packaging group:** II
- **EMS Number:** F-A,S-Q
- **Marine pollutant:** No
- **Proper shipping name:** SILVER NITRATE

· Air transport ICAO-TI and IATA-DGR:



- **ICAO/IATA Class:** 5.1
- **UN/ID Number:** 1493
- **Label** 5.1
- **Packaging group:** II
- **Proper shipping name:** SILVER NITRATE

- **UN "Model Regulation":** ADR 2009 - Italian Official Translation, ed. ARS IT editions

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· **Environmental hazards:** Environmentally hazardous substance, solid; Marine Pollutant

15 Regulatory information

· **Labelling according to EU guidelines:**

The product has been classified and marked in according to the calculation procedure of the "General Classification guideline for Substances of the EU", DIR. 67/548/EC, in the latest valid version.

Observe the general safety regulations when handling chemicals.

· **Code letter and hazard designation of product:**



C Corrosive

O Oxidising

N Dangerous for the environment

· **Risk phrases:**

8 Contact with combustible material may cause fire.

34 Causes burns.

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Safety phrases:**

1/2 Keep locked up and out of the reach of children.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

60 This material and its container must be disposed of as hazardous waste.

61 Avoid release to the environment. Refer to special instructions/safety data sheets.

· **National regulations:**

· **Waterhazard class:** Water danger class 3 (Assessment by list): extremely hazardous for water.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** Q.A / Normative

· **Contact:**

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· **References**

ECDIN (Environmental Chem. Data and Information Network)

IUCLID (International Uniform Chemical Information Database)

NIOSH - Registry of Toxic Effects of Chemical Substances

Roth - Wassergefährdende Stoffe

Verschueren - Handbook of Environmental Data on Organic Chemicals

ChemDAT - Safety Data Sheets from E.Merck on CD-ROM

Merian - Metals and their compounds in the environment

· **Sources**

DIR. 67/548/EC, in the latest valid version.

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006, REACH.

Regulation (EC) N° 1272/2008 of the European Parliament and of the Council of 16 December 2008, CLP, in the latest valid version.

Globally Harmonized System, GHS