

# Safety Data Sheet

acc. to OSHA HCS

Printing date 10/31/2017

Reviewed on 10/31/2017

## 1 Identification

- **Product identifier**
- **Trade name:** Reagent 90, 0.016N  
Silver Nitrate in Acetone
- **Article number:** DC876-277
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Aqua Solutions, Inc.  
6913 Highway 225  
DEER PARK, TX 77536  
USA  
800-256-2586
- **Information department:**  
Technical Coordinator  
Sherman Nelson sherman@aquasolutions.org
- **Emergency telephone number:**  
Chemtrec: 800-424-9300  
Canutec: 613-996-6666



## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02



GHS07

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
Acetone
- **Hazard statements**  
Highly flammable liquid and vapor.  
Causes serious eye irritation.  
May cause drowsiness or dizziness.
- **Precautionary statements**  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Ground/bond container and receiving equipment.

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Use explosion-proof electrical/ventilating/lighting/equipment.  
 Use only non-sparking tools.  
 Take precautionary measures against static discharge.  
 Avoid breathing dust/fume/gas/mist/vapors/spray  
 Wash thoroughly after handling.  
 Use only outdoors or in a well-ventilated area.  
 Wear protective gloves/protective clothing/eye protection/face protection.  
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
 Continue rinsing.  
 Call a poison center/doctor if you feel unwell.  
 If eye irritation persists: Get medical advice/attention.  
 In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.  
 Store in a well-ventilated place. Keep container tightly closed.  
 Store in a well-ventilated place. Keep cool.  
 Store locked up.  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

### 3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

|              |         |         |
|--------------|---------|---------|
| CAS: 67-64-1 | Acetone | 86.819% |
|--------------|---------|---------|

· **Table of Nonhazardous Ingredients**

|                |                |         |
|----------------|----------------|---------|
| CAS: 7697-37-2 | Nitric Acid    | 0.554%  |
| CAS: 7761-88-8 | Silver Nitrate | 0.338%  |
| CAS: 7732-18-5 | Water          | 12.289% |

### 4 First-aid measures

· **Description of first aid measures**

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

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- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Ensure adequate ventilation.
- **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 disposal information.
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

|                |                |                         |
|----------------|----------------|-------------------------|
| CAS: 67-64-1   | Acetone        | 200 ppm                 |
| CAS: 7697-37-2 | Nitric Acid    | 0.16 ppm                |
| CAS: 7761-88-8 | Silver Nitrate | 0.047 mg/m <sup>3</sup> |

- **PAC-2:**

|                |                |                       |
|----------------|----------------|-----------------------|
| CAS: 67-64-1   | Acetone        | 3200* ppm             |
| CAS: 7697-37-2 | Nitric Acid    | 24 ppm                |
| CAS: 7761-88-8 | Silver Nitrate | 0.9 mg/m <sup>3</sup> |

- **PAC-3:**

|                |                |                       |
|----------------|----------------|-----------------------|
| CAS: 67-64-1   | Acetone        | 5700* ppm             |
| CAS: 7697-37-2 | Nitric Acid    | 92 ppm                |
| CAS: 7761-88-8 | Silver Nitrate | 5.4 mg/m <sup>3</sup> |

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## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:**  
 Keep ignition sources away - Do not smoke.  
 Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
 Keep receptacle tightly sealed.  
 Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

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

· **Components with limit values that require monitoring at the workplace:**

**CAS: 67-64-1 Acetone**

|     |  |
|-----|--|
| PEL | Long-term value: 2400 mg/m <sup>3</sup> , 1000 ppm   |
| REL | Long-term value: 590 mg/m <sup>3</sup> , 250 ppm   |
| TLV | Short-term value: 1187 mg/m <sup>3</sup> , 500 ppm<br>Long-term value: 594 mg/m <sup>3</sup> , 250 ppm |
| BEI |  |

· **Ingredients with biological limit values:**

**CAS: 67-64-1 Acetone**

|     |                             |
|-----|-----------------------------|
| BEI | 50 mg/L                     |
|     | LD50 Intraperitoneal: urine |
|     | Time: end of shift          |
|     | LD50: Acetone (nonspecific) |

- **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **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 eyes.
- Avoid contact with the eyes and skin.

· **Breathing equipment:** Not required.

· **Protection of hands:**

- The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
- Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
- Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

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- **Material of gloves**

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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **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:**



Tightly sealed goggles

- **Body protection: Protective work clothing**

## 9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

|                        |                 |
|------------------------|-----------------|
| <b>Form:</b>           | Liquid          |
| <b>Color:</b>          | Clear           |
| <b>Odor:</b>           | Acetone         |
| <b>Odor threshold:</b> | Not determined. |

- **pH-value:** Not determined.

- **Change in condition**

|                                     |                |
|-------------------------------------|----------------|
| <b>Melting point/Melting range:</b> | Undetermined.  |
| <b>Boiling point/Boiling range:</b> | 55 °C (131 °F) |

- **Flash point:** -17 °C (1.4 °F)

- **Flammability (solid, gaseous):** Not applicable.

- **Ignition temperature:** 465 °C (869 °F)

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Product is not selfigniting.

- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

- **Explosion limits:**

|               |           |
|---------------|-----------|
| <b>Lower:</b> | 2.6 Vol % |
| <b>Upper:</b> | 13 Vol %  |

- **Vapor pressure at 20 °C (68 °F):** 233 hPa (174.8 mm Hg)

- **Density at 20 °C (68 °F):** 0.83172 g/cm<sup>3</sup> (6.9407 lbs/gal)

- **Relative density** Not determined.

- **Vapor density** Not determined.

- **Evaporation rate** Not determined.

- **Solubility in / Miscibility with**

**Water:** Fully miscible.

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· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

**Dynamic:** Not determined.

**Kinematic:** Not determined.

· **Solvent content:**

**Organic solvents:** 86.8 %

**Water:** 12.3 %

**VOC content:** 0.00 %

0.0 g/l / 0.00 lb/gl

**Solids content:** 0.3 %

· **Other information** No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

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

**ATE (Acute Toxicity Estimate)**

|      |      |                      |
|------|------|----------------------|
| Oral | LD50 | 14,793 mg/kg (mouse) |
|------|------|----------------------|

**CAS: 67-64-1 Acetone**

|      |      |                   |
|------|------|-------------------|
| Oral | LD50 | 5,800 mg/kg (rat) |
|------|------|-------------------|

|        |      |                       |
|--------|------|-----------------------|
| Dermal | LD50 | 20,000 mg/kg (rabbit) |
|--------|------|-----------------------|

**CAS: 7761-88-8 Silver Nitrate**

|      |      |                  |
|------|------|------------------|
| Oral | LD50 | 50 mg/kg (mouse) |
|------|------|------------------|

· **Primary irritant effect:**

· **on the skin:** No irritant effect.

· **on the eye:** Irritating effect.

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

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:  
 Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

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· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

· **Toxicity**

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

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

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

· **Waste treatment methods**

· **Recommendation:**

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

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

· **UN-Number**

· **DOT, IMDG, IATA**

UN1993

· **UN proper shipping name**

· **DOT**

· **IMDG, IATA**

Flammable liquids, n.o.s. (Acetone)

FLAMMABLE LIQUID, N.O.S. (ACETONE)

· **Transport hazard class(es)**

· **DOT**



· **Class**

3 Flammable liquids

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|   |   |
|---|---|
| · <b>Label</b>  | 3   |
| · <b>IMDG, IATA</b>   |   |
|  |   |
| · <b>Class</b>  | 3 Flammable liquids   |
| · <b>Label</b>  | 3   |
| · <b>Packing group</b>  | II  |
| · <b>DOT, IMDG, IATA</b>  | II  |
| · <b>Environmental hazards:</b>   |   |
| · <b>Marine pollutant:</b>  | No  |
| · <b>Special precautions for user</b>   | Warning: Flammable liquids  |
| · <b>Danger code (Kemler):</b>  | 33  |
| · <b>EMS Number:</b>  | F-E, <u>S-E</u>   |
| · <b>Stowage Category</b>   | B   |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>  | Not applicable.   |
| · <b>Transport/Additional information:</b>  |   |
| · <b>DOT</b>  |   |
| · <b>Quantity limitations</b>   | On passenger aircraft/rail: 5 L<br>On cargo aircraft only: 60 L   |
| · <b>IMDG</b>   |   |
| · <b>Limited quantities (LQ)</b>  | 1L  |
| · <b>Excepted quantities (EQ)</b>   | Code: E2<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 500 ml |
| · <b>UN "Model Regulation":</b>   | UN 1993 FLAMMABLE LIQUIDS, N.O.S. (ACETONE), 3, II  |

## 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

### · Section 355 (extremely hazardous substances):

|                |             |
|----------------|-------------|
| CAS: 7697-37-2 | Nitric Acid |
|----------------|-------------|

### · Section 313 (Specific toxic chemical listings):

|                |             |
|----------------|-------------|
| CAS: 7697-37-2 | Nitric Acid |
|----------------|-------------|

|                |                |
|----------------|----------------|
| CAS: 7761-88-8 | Silver Nitrate |
|----------------|----------------|

### · TSCA (Toxic Substances Control Act):

|         |
|---------|
| Acetone |
|---------|

|             |
|-------------|
| Nitric Acid |
|-------------|

|                |
|----------------|
| Silver Nitrate |
|----------------|

|       |
|-------|
| Water |
|-------|

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· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 67-64-1 | Acetone

I

· **TLV (Threshold Limit Value established by ACGIH)**

CAS: 67-64-1 | Acetone

A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02    GHS07

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

Acetone

· **Hazard statements**

Highly flammable liquid and vapor.

Causes serious eye irritation.

May cause drowsiness or dizziness.

· **Precautionary statements**

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

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Call a poison center/doctor if you feel unwell.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO2, powder or water spray.

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*Store in a well-ventilated place. Keep container tightly closed.*

*Store in a well-ventilated place. Keep cool.*

*Store locked up.*

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

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 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 SDS:** Environment protection department.

· **Contact:**

· **Date of preparation / last revision**

*10-31-2017: review SDS for accuracy. STN*

*Creation date for SDS 11-19-2014. STN*

*10/31/2017 / -*

· **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*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*ACGIH: American Conference of Governmental Industrial Hygienists*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*ELINCS: European List of Notified Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*VOC: Volatile Organic Compounds (USA, EU)*

*LC50: Lethal concentration, 50 percent*

*LD50: Lethal dose, 50 percent*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*NIOSH: National Institute for Occupational Safety*

*OSHA: Occupational Safety & Health*

*TLV: Threshold Limit Value*

*PEL: Permissible Exposure Limit*

*REL: Recommended Exposure Limit*

*BEI: Biological Exposure Limit*

*Flam. Liq. 2: Flammable liquids – Category 2*

*Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A*

*STOT SE 3: Specific target organ toxicity (single exposure) – Category 3*