



Solve 10 U

Safety Data Sheet

Date Issued: 03/03/2015

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I. PRODUCT/COMPANY IDENTIFICATION

Product Name: **Solve 10 U**
Generic Name: Aluminum Chloride solution
Recommended use: Water treatment chemical
Chemical Type: Liquid
UN/ID No: UN2581
COMPANY: WaterSolve, LLC, 5031 68TH Street Caledonia, Michigan 49316, USA
For Product information call 616-575-8693
For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

II. HAZARDS IDENTIFICATION EMERGENCY OVERVIEW

| Physical state | Color | Appearance | Odor |
|----------------|-----------------------------|--------------------------------|---------------------------------|
| Liquid | Viscous colorless to yellow | Normally clear but may be hazy | Negligible to hydrogen chloride |

Classification

| | |
|-----------------------------------|-------------|
| Acute toxicity-Oral | Category 4 |
| Skin corrosion/irritation | Category 2 |
| Serious eye damage/eye irritation | Category 2B |

GHS Label elements, including precautionary statements Signal Word: Danger



DANGER

Hazard statements

Causes skin irritation and serious eye damage.
May be corrosive to metals.

Precautionary statements- Prevention

Do not breathe dust/fumes/gas/mist/vapors/spray.
Do not eat, drink or smoke when using this product.
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Keep only in original container

Precautionary Statements-Response

If swallowed: Rinse mouth. DO NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention.

Precautionary Statements- Storage

Store in a secure area. Store in corrosive resistant plastic or FRP container or container with corrosive resistant inner liner.

Precautionary Statements – Disposal

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): May be D002 under S261.22 (a) (2) due to the rate of corrosion of metal.

III. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical name | CAS# | Weight % |
|----------------------|-------------|-----------------|
| Water | 7732-18-5 | 70-85 |
| Aluminum chloride | 7446-70-0 | 15-30 |
| Hydrochloric acid | 7647-01-0 | 0-1 |

IV. FIRST AID MEASURES

General Advice: After first aid, get appropriate in-plant, paramedic, or community medical support.

Eye Contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Seek immediate medical attention/advice.

Skin Contact: Wash off immediately with plenty of water. Take off contaminated clothing. Wash contaminated clothing before reuse. Seek medical attention if there is any indication of a chemical burn.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention immediately.

Ingestion: Do not induce vomiting. Rinse mouth. Drink large amounts of water. Seek medical attention immediately. Never give anything by mouth to unconscious individual.

Most important symptoms and effects

Symptoms: May cause eye burns and permanent eye damage. Prolonged contact may even cause severe skin irritation or mild burn. May cause blurred vision, redness, watering and burning of the eyes. Skin exposure is characterized by itching, scaling, reddening or occasionally, blistering. Inhalation may cause coughing, wheezing, or shortness of breath. May cause irritation to the mucous membranes and upper respiratory tract.

Indication of any immediate medical attention and special treatment needed

Note to Physician: Treat symptomatically.

V. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media: Not determined.

Specific Hazards Arising from the Chemical:

Combustion products may be toxic.

Hazardous Decomposition Products: Hydrogen chloride. Chlorine gas.

Protective Equipment and Precautions for Firefighters:

As in any fire wear self-contained breathing apparatus pressure –demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Do not release runoff from fire control methods to sewers or waterways. Use water spray to keep containers cool.

VI. ACCIDENTAL RELEASE MEASURES/WASTE DISPOSAL

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Use personal protective equipment as required.

Environmental Precaution: Do not release into sewers or waterways.

Methods and material for containment and clean up

Methods for Containment: Prevent further leakage or spillage if safe to do so.

Methods for Clean-up: Small spills: If directed to an industrial sewer, wash down with large volumes of water. Spills can be neutralized and absorbed with soda ash or lime, but neutralization will release carbon dioxide, which can generate a breathing hazard. Dike far ahead of liquid spill for later disposal. Contain large spills and pump into a suitable tank for disposal. Neutralize with a lime or soda ash and flush area with large amounts of water. Adequate ventilation is required due to release of Carbo Dioxide.

VII. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling: Wash thoroughly after handling. Wash face, hands and any exposed skin thoroughly after handling. Remove contaminated clothing and wash thoroughly after handling. Use with adequate ventilation. Do not breathe dust/fume/gas/mist/vapors/spray. Use personal protection recommended in Section 8. Ensure that all containers are labeled in accordance with OSHA regulations. Avoid contact with metal, as product will slowly corrode iron, brass, copper, aluminum and mild steel. Avoid contact with skin, eyes, and clothing. Hydrochloric acid vapor may accumulate in storage containers. Do not eat, drink or smoke while using this material. Store and handle in accordance with good industrial hygiene and safety practice. Keep container tightly closed when not in use. Use good housekeeping and personal hygiene.

Conditions for safe storage, including any incompatibilities

Storage Conditions: Keep storage container tightly closed when not in use, in a dry and well-ventilated place. Store locked up. See original container for storage recommendations. Store away from incompatible substances. Protect from physical damage. Protect from freezing.

Packaging Materials: Store in rubber-lined, plastic or FRP vessels.

Incompatible Materials: Strong bases. Alcohols. Organic materials. Ammonia. Will react with most metals (aluminum, iron, zinc, tin, etc.) to release flammable hydrogen gas.

VIII. EXPOSURE CONTROL/PERSONAL PROTECTION

Exposure Guidelines No exposure limits noted for product.

Exposure limits for aluminum metal:

NIOSH REL – TWA 10 mg/m³ (total) TWA 5 mg/m³ (resp)

OSHA PEL- TWA 15 mg/m³ (total) TWA 5 mg/m³ (resp)

Appropriate engineering controls

Engineering Controls: Ensure adequate ventilation, especially in confined areas. Maintain eye wash fountain and quick-drench facilities in work area.

Individual protection measures, such as personal protective equipment:

Eye / Face Protection: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133. Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with, contact lenses. Eye wash station should be readily available. Do not wear contact lenses.

Skin Protection: Wear appropriate chemical resistant clothing including chemical resistant gloves, to prevent skin contact. If prolonged or repeated contact is anticipated, all clothing should be impervious to liquid. Impervious gloves, clothing and rubber boots are recommended.

Respiratory Protection: Seek professional advice prior to respirator selection and use. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. **WARNING ! :** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators. Wear NIOSH/OSHA approved respirator with appropriate cartridge if there is any potential exposure to mists in handling or firefighting.

General Hygiene Considerations: Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment. Never eat, drink, or smoke in work areas. Practice good industrial hygiene and safety practices after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics. Eyewash and safety showers are recommended.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | |
|--|---|
| Appearance: | Viscous colorless to yellow liquid. Normally clear but may be hazy. |
| Odor: | Negligible |
| Odor Threshold: | Not determined |
| pH: | <1.0 |
| Relative density; specific gravity: | +1.2 (1=Water) @ 4°C |
| Initial Boiling point/Range: | >110°C/>230°F |
| Melting point/freezing point: | -34°C/ -30°F |
| Decomposition temperature: | + 120 °C/250°F |
| Viscosity: | 10 centipoise |
| Auto-ignition temp: | Not flammable |
| Evaporation Rate: | Similar to water |
| Solubility in Water: | Not information |
| Flash point: | Will not burn |
| Flammable (solid,gas): | Not flammable |
| Upper/lower flammability or Explosive limits: | Will not burn |
| Partition coefficient (n-octanol/water): | Not relevant |
| Solubility: | Soluble in water |
| Vapor Pressure: | Similar to water |
| Vapor Density: | Similar to water |

X. STABILITY AND REACTIVITY DATA

Reactivity: Not reactive under normal conditions.

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous

Reactions: Not compatible with strong bases (such as sodium hydroxide and potassium hydroxide); alcohols, organic materials (such as wood, paper, leather) and ammonia. Mixing may generate heat, spattering or boiling and toxic vapors.

Hazardous Polymerization: Hazardous polymerization does not occur.

Conditions to Avoid: Protect from freezing. Keep separated from incompatible substances.

Incompatible Products: Strong bases. Alcohols. Organic materials. Ammonia. Will react with most metals (aluminum, iron, zinc, tin. Etc.) to release flammable hydrogen gas.

Haz. Decomposition Products: Hydrogen chloride. Chlorine gas.

XI. TOXICOLOGICAL INFORMATION

Likely routes of exposure:

Eye contact: Causes severe eye damage.

Skin contact: Causes severe skin burns.

Inhalation: Avoid breathing vapors or mists.

Ingestion: Harmful if swallowed.

Component information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|--------------------------------|------------------|------------------------|--------------------|
| Aluminum Chloride 7446-70-0 | =380 mg/kg (rat) | >2g/kg (Rabbit) | |
| Hydrochloric acid | =700 mg/kg (rat) | >5010mg/kg (Rabbit) | =3124 ppm (Rat) 1h |

Information on physical, chemical and toxicological effects

Symptoms: Please see Section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity: Not classifiable as a human carcinogen.

| Chemical Name | ACGIH | IARC | NTP | OSHA |
|-----------------------------|-------|---------|-----|------|
| Hydrochloric acid 7647-01-0 | | Group 3 | | |

Legend

IRAC (International Agency for Research on Cancer)

Group 3 IARC components are “not classifiable as human carcinogens”.

STOT – repeated exposure: Causes damage to organs through prolonged or repeated exposure.

Numerical measures of toxicity: Not determined.

XII. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life. Harmful to aquatic like with long lasting effects.

| Chemical Name | Algae/aquatic plants | Fish | Toxicity to Microorganisms | Crustacea |
|--------------------------------|----------------------|---|----------------------------|--|
| Aluminum chloride 7446-70-0 | | LC50=27.1mg/L (<i>Gambusia affinis</i>) 96h LC50= 5.31-7.2mg/L (<i>Oncorhynchus mykiss</i>) flow- through LC50 =6.2-11.9 (<i>Oncorhynchus mykiss</i>) 96h | | LC50 <i>Daphnia magna</i> 48h: 3.9mg/L Static |
| Hydrochloric acid 7647-01-0 | | LC50 <i>Gambusia affinis</i> : 282 mg/L 96h static | | |

Persistence and Degradability: Not determined.

Bioaccumulation: Not determined.

Mobility: Not determined.

Other adverse effects: Not determined.

XIII. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste disposal Methods: Dispose of waste in accordance with all regional, federal, state and local laws and regulations.

Contaminated Packaging: Dispose of waste in accordance with all regional, federal, state and local laws and regulations.

XIV. TRANSPORT INFORMATION

Note: Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT:

Proper Shipping Name: Aluminum Chloride, solution

Hazard Class: 8

UN-NO: UN2581

Packing Group: III

IATA:
Proper Shipping Name: Aluminum Chloride, solution
Hazard Class: 8
UN-NO: UN2581
Packing Group: III

IMDG:
Proper Shipping Name: Aluminum Chloride, solution
Hazard Class: 8
UN-NO: UN2581
Packing Group: III

XV. REGULATORY INFORMATION

International Inventories: Not determined.

U. S. Federal Regulations

CERCLA

| Chemical name | Hazardous substances RQs | CERCLA/SARA RQ | Reportable Quantity (RQ) |
|--------------------------------|--------------------------|----------------|--|
| Hydrochloric acid 7647-01-0 | 5000 lbs. | 5000 lbs. | RQ 5000lb final RQ RQ 2270kg final RQ |

SARA 311-312 Hazardous Categorization

Chronic Health Hazard No
Acute Health Hazard Yes
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard No

SARA 313

| Chemical Name | CAS No | Weight% | SARA 313-Threshold Values % |
|-------------------|-----------|---------|-----------------------------|
| Hydrochloric acid | 7647-01-0 | 0-1 | |

CWA (Clean Water Act)

| Component | CWA-Reportable Quantities | CWA-Toxic Pollutants | CWA-Priority Pollutants | CWA-Hazardous Substances |
|--------------------------------------|---------------------------|----------------------|-------------------------|--------------------------|
| Hydrochloric acid 7647-01-0 (0-1) | 5000lbs. | | | X |

U. S. State Regulations

U.S. State Right-To-Know Regulations

| Component | Massachusetts | New Jersey | Pennsylvania |
|--------------------------------|---------------|------------|--------------|
| Aluminum Chloride 7446-70-0 | x | x | x |
| Hydrochloric acid 7647-01-0 | x | x | x |

| |
|---------------------------|
| WHMIS Hazard Class |
| E Corrosive Material |
| D2B Toxic Materials |



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| | | | | |
|-------------|-----------------------|---------------------|-------------------------|----------------------------|
| NFPA | Health hazards | Flammability | Instability | Special Hazards |
| | 2 | 0 | 0 | Not determined |
| HMIS | Health hazards | Flammability | Physical Hazards | Personal Protection |
| | 2 | 0 | 0 | Not determined |

OTHER INFORMATION

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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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. Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This information is for the specific material described only and may not be valid if the material is used in combination with any other materials or in any process. The user is responsible to determine the completeness of the information and suitability for the user's own particular use. The knowledge and belief of the company, the information is accurate and reliable as of the date indicated but the company makes no express or implied warranty of merchantability for the material or the information. The company makes no express or implied warranty of fitness for a purpose for the material or for the information. Users of any chemical should educate themselves on all aspects of its use by independent investigation of current scientific and medical knowledge that the material can be used safely. Both the supplier and manufacturer make no representations and assume no liability for any direct, incidental or consequential damages resulting from its use. Both the supplier and manufacturer make no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This information is for the specific material described only and may not be valid if the material is used in combination with any other materials or in any process. The user is responsible to determine the completeness of the information and suitability for the user's own particular use. Users of any chemical should educate themselves on all aspects of its use by independent investigation of current scientific and medical knowledge that the material can be used safely. The buyer assumes all responsibility for using and handling the product in accordance with applicable federal, state and local regulations.

List of abbreviations and acronyms that could be, but not necessarily are, used in the safety data sheet:

ACGIH: American Conference of Industrial Hygienists
 BEI: Biological Exposure Index
 CAS Chemical: Abstracts Service (Division of the American Chemical Society)
 CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act
 CMR: Carcinogenic, Mutagenic or Toxic for Reproduction
 DOT: Department of Transportation
 FG: Food grade
 FIFRA: Federal Insecticide, Fungicide, and Rodenticide Act
 GHS: Globally Harmonized System of Classification and Labeling of Chemicals
 H-statement: Hazard Statement
 HMIRC: Hazardous Materials Information Review Commission
 HMIS: Hazardous Materials Identification System
 IATA: International Air Transport Association
 IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA)
 ICAO: International Civil Aviation Organization
 ICAO-TI (ICAO): Technical Instructions by the "International Civil Aviation Organization"
 IMDG: International Maritime Code for Dangerous Goods
 ISO: International Organization for Standardization
 logPow: octanol-water partition coefficient
 LCxx: Lethal Concentration, for xx percent of test population
 LDxx: Lethal Dose, for xx percent of test population
 ICxx: Inhibitory Concentration for xx of a substance
 ECxx: Effective Concentration of xx
 N.O.S.: Not otherwise specified
 NFPA: National Fire Protection Association
 NIOSH: National Institute for Occupational Safety and Health
 OECD: Organization for Economic Co-operation and Development
 OEL: Occupational Exposure Limit
 OSHA: Occupational Safety and Health Administration
 P-Statement: Precautionary Statement
 PBT: Persistent, Bioaccumulative and Toxic
 PMRA: Health Canada Pest Management Regulatory Agency
 PPE: Personal Protective Equipment
 RTK: Right to Know
 SDS: Safety Data Sheet
 STEL: Short-term exposure limit
 STOT: Specific Target Organ Toxicity
 TLV: Threshold Limit Value
 TWA: Time-weighted average
 VPVB: Very Persistent and Very Bioaccumulative
 WEL: Workplace Exposure Level
 WHMIS: Workplace Hazardous Materials Information System