

# Solve 10K

## Safety Data Sheet

Date Issued: 05/27/2015

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### I. PRODUCT IDENTIFICATION

Product Name: **Solve 10K**

Use of the substance/mixture: water treatment chemical

Company: **WaterSolve LLC, 5031 68<sup>TH</sup> Street, Caledonia, Michigan 49316 USA**

For product information call 616 575-8693 or visit [www.gowatersolve.com](http://www.gowatersolve.com)

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)

**Recommended restrictions on use:** There are no uses advised against.

### II. HAZARDS IDENTIFICATION

**Classification of the substance or mixture**

Corrosive to metals: Category 1 May be corrosive to metals

Skin corrosion: Category 1B Causes severe skin burns and eye damage.

#### GHS-Labeling



**Hazard pictograms:** Signal word:

**DANGER**

**Hazard statements:** H290

May be corrosive to metals.

H 314

Causes severe skin burns and eye damage.

#### **Precautionary statements:**

**Prevention:** P234

Keep only in original container.

P264

Wash face, hands and any exposed skin thoroughly after handlings.

P280

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

**Response:** 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.

P390

Absorb spillage to prevent material damage.

Hazardous components which must be listed on the label:

- 7647-01-0 Hydrochloric acid
- 7446-70-0 Aluminum chloride, anhydrous

**Other hazards which do not result in classification**

### III. COMPOSITION/INFORMATION ON INGREDIENTS

#### Substances/Mixture

Chemical nature            Aqueous solution

#### Hazardous components

Chemical Name	CAS-No.	Concentration %
Hydrochloric acid	7647-01-0	0-5%
Aluminum chloride, anhydrous	7446-70-0	15 – 30%

#### Further information

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 19.10.1200.

This product contains WHMIS regulated (hazardous) components.

### IV. FIRST AID MEASURES

#### Description of first aid measures

Eye Contact: Important! Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Continue rinsing eyes during transport to hospital.

Skin Contact: Wash off immediately with plenty of water removing all contaminated clothing and shoes. If possible use lukewarm water. If symptoms persist, call a physician. Wash clothing before reuse.

Inhalation: Move to fresh air. Keep at rest. Oxygen or artificial respiration if needed. Oxygen should be administered by qualified personnel. Obtain medical attention.

Ingestion: Do NOT induce vomiting. Rinse mouth with plenty of water. Drink 1 or 2 glasses of water or milk. Never give anything by mouth to an unconscious person. DO NOT induce vomiting. Obtain medical attentions. Show this safety data sheet to the doctor in attendance.

#### Most important symptoms and effects, both acute and delayed.

### V. FIRE-FIGHTING MEASURES

#### Suitable extinguishing media

The product itself does not burn.

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

#### Special hazards arising from the substance or mixture

Hazardous fumes may be released. Fire may cause evolution of; chlorine, hydrogen chloride (HCl).

#### Special protective actions for fire-fighters

Wear self-contained breathing apparatus and protective suit.

Wear NIOSH/MSHA approved positive pressure, self-contained breathing apparatus.

#### Further information

Water mist may be used to cool closed containers.

### VI. ACCIDENTAL RELEASE MEASURES

#### Personal precautions, protective equipment and emergency procedures:

For personal protection see Section 8.

#### Environmental Precautions:

Prevent undiluted product from entering the environment. Local authorities should be advised if significant spillages cannot be contained.

#### Methods and materials for containment and cleaning up:

Transfer into suitable containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder).

Large amounts: Neutralize with lime or soda.

## VII. HANDLING AND STORAGE

### Conditions for safe storage, including any incompatibilities

Keep in a cool, well-ventilated place. Avoid splashes and leaks.

**Incompatible products:** Bases

### Materials for packaging

Suitable material: Plastic with fiberglass reinforcement, PVC, polyethylene (high density), polypropylene containers.

### Materials to avoid:

Non-acid proof metals (for example aluminum, copper and iron)

Storage stability:

Storage period-12 months

Other data-Avoid high temperatures.

## VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Form of exposure	Control parameters	Update	Basis
Hydrochloric acid	7647-01-0	(c)		2ppm 3mg/m <sup>3</sup>	2009-04-30	CA AB OEL
		C		5ppm 7mg/m <sup>3</sup>	2006-02-28	OSHA Z-1

### Appropriate engineering controls

Eye wash bottle or emergency eye-wash fountain must be found in the work place.

When using do not eat, drink or smoke. Wash hands before eating, drinking, or smoking.

### Individual protection measures, such as personal protective equipment

#### Respiratory protection

Ensure adequate ventilation.

Breathing apparatus needed when fumes or aerosol is formed. (filter B2).

#### Hand protection

Glove material: Rubber or plastic gloves

#### Skin and body protection

#### Eye protection

Tightly fitting safety goggles or face-shield.

## IV. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Physical state/color/ Odor:	liquid/pale to yellow/ slightly acidic
pH:	< 1
Melting point/range:	-20° C - -5° C
Initial Boiling Point/range:	100-110 °C;
Flash point:	Not applicable, inorganic compound
Explosive properties	
Upper/lower explosion limit:	No applicable
Density:	1.21 - 1.30 g/cm <sup>3</sup>
Water Solubility:	soluble
Partition coefficient (n-octanol/water):	Not applicable, inorganic compound
Viscosity, dynamic:	25-35 mPa.s
Oxidizing potential:	Not oxidizing
Volatile organic content (VOC):	Not applicable

## X. STABILITY AND REACTIVITY

### Reactivity

#### Chemical stability

#### Possibility of hazardous reactions

Hazardous reactions: reacts strongly with: Bases  
Conditions to avoid: High temperatures. Material is stable under normal conditions.  
Incompatible materials:  
Materials to Avoid: non-acid proof metals (for example aluminum, copper and iron)  
Hazardous decomposition products: Heating can release hazardous gases: hydrogen chloride gas, chlorine.

## XI. TOXICOLOGICAL INFORMATION

### Information on toxicological effects

#### Acute oral toxicity

**Hydrochloric acid:** LD50 rabbit: 900 mg/kg  
**Polyaluminum chloride:** yes/LD50 Rat/OECD Test Guideline 401: > 2,000 mg/kg

#### Acute inhalation toxicity

**Hydrochloric acid:** LC50 rat: 3124 ppm 1hr.  
**Hydrochloric acid:** LCLo human: 1300 ppm 30min.  
**Hydrochloric acid:** LCLo human: 3000 ppm 5min.  
**Polyaluminum chloride:** LC50 Rat/OECD Test Guideline 403: > 5.6 mg/l  
**Polyaluminum chloride:** LC50 Rat: > 1.4 mg/l Conclusion: Calculated as Al

#### Acute dermal toxicity

**Hydrochloric acid:** LD50 rabbit: 5,010 mg/kg Conclusion: 31.5% solution  
**Polyaluminum chloride:** LD50/OECD Test Guideline 402: > 2,000 mg/kg  
Remarks: Read-across (Analogy), CAS-No. 39290-78-3  
**Polyaluminum chloride:** LC50: > 550 mg/kg Remarks: Calculated as Al

#### Skin corrosion/irritation

Result: Causes burns.  
**Hydrochloric acid:** Rabbit/ **Result:** Corrosive/4h/0,5 ml, conc. 170g/l  
**Polyaluminum chloride:** Rabbit Result: No skin irritation/OECD Test Guideline 404:  
Remarks: (45% solution)

#### Serious eye damage/eye irritation:

Result: Causes burns.  
**Hydrochloric acid:** rabbit:  
Result: Risk of serious damage to eyes/OECD Test Guideline 405/0,1 ml, conc.  
10%/yes  
**Polyaluminum chloride:** Rabbit Result: Eye irritation/OECD Test Guideline 405:  
Remarks: (45% solution)  
**Polyaluminum chloride:** Rabbit /OECD Test Guideline 405  
Conclusion: Causes severe irritation to eyes in animal experiments.  
**Polyaluminum chloride:**  
Conclusion: May cause irreversible eye damage.

#### Respiratory or skin sensitization

##### Mucous membranes:

Conclusion: Ingestion may cause irritation and burns of the mouth, throat and gastrointestinal tract, Inhalation of aerosols may cause irritation of mucous membranes, inflammation and lung edema.

##### Skin sensitization:

##### Hydrochloric acid:

Remarks: Patch test on human volunteers did not demonstrate sensitization properties.

**Polyaluminum chloride:** Not sensitizing.

#### **Germ cell mutagenicity**

##### **Genotoxicity in vitro:**

**Hydrochloric acid:** Ames test/Salmonella typhimurium (bacterium)/ with and without  
Result: Negative

**Hydrochloric acid:** Cytogenetic assay/Mouse/with and without Result: negative

##### **Polyaluminum chloride:**

AMES test/Mutagenicity (Salmonella typhimurium-reverse mutation assay) with or without

OECD Test Guideline 471 Result: negative

Micronucleus test/in vitro mammalian cells/ with or without

OECD Test Guideline 487 Result: negative

Lymphoma/in vitro gene mutation study in mammalian cells/ with or without

OECD Test Guideline 476 Result: negative

#### **Carcinogenicity**

**Polyaluminum chloride:** Not believed to be a carcinogen.

#### **Reproductive toxicity**

##### **Toxicity for reproduction**

##### **Polyaluminum chloride:**

Reproductive effects/Rat/female/Oral/OECD Test Guideline 452: 3,225 mg/kg

Remarks: Read-across (Analogy), CAS-No., 31142-56-0

Conclusion: No known effect.

##### **Polyaluminum chloride:**

Screening test/Rat/male and female/Oral/OECD Test Guideline 422: 1,000 mg/kg

Conclusion: No known effect.

#### **Teratogenicity:**

##### **Polyaluminum chloride:**

Rat/female/oral/OECD Test Guideline 452: 1,075 mg/kg

Conclusion: Read across (Analogy), Did not show mutagenic or teratogenic effects in animal experiments.

CAS-No. 31142-56-0

## **XI. ECOLOGICAL INFORMATION**

### **ECOTOXICITY EFFECTS**

#### **Aquatic toxicity**

##### **Hydrochloric acid:**

LC50/96 h/bluegill sunfish (*Lepomis macrochirus*/semi-static test: 20.5 mg/l

LC50/96h/Mosquito fish (*Gambusia affinis*): 282 mg/l

LC50/48h/Golden orfe (*Leuciscus idus*): 862 mg/l

EC50/48h/ Waterflea ((*Daphnia magna*)/static test/OECD Test Guideline 202: 0.45 mg/l

EC50/Fresh water algae (*Chlorella vulgaris*)/static test/OECD Test Guideline 201: 0.73mg/l

##### **Polyaluminum chloride:**

LC50/96h / *Danio rerio*/OECD Test Guideline 203: > 1,000

LC50: > 243 mg/l Calculated as AI

NOEC/*Danio rerio*/ OECD Test Guideline 203: >1,000 mg/l

LC50: >0.156 mg/l

Calculated as AI Maximum soluble concentration under the test conditions.

EC50/48h/water flea (*Daphnia magna*)/semi-static test /OECD Test Guideline 202: 98 mg/l

EC50: 24 mg/l Calculated as AI

EC50/72h/green algae (*Pseudokirchneriella subcapitata*)/static test/OECD Test Guideline 201: 15.6 mg/l  
EC50: 3.8 mg/l Calculated as Al

NOEC/72h/green algae (*Pseudokirchneriella subcapitata*)/static test/OECD Test Guideline 201: 1.1 mg/l  
NOEC: 0.27 mg/l Calculated as Al

**Toxicity to other organisms**

**Hydrochloric acid:** LOEC/flora: 6 mg/l

**Persistence and degradability:**

**Biological degradability**

Remarks: inorganic compound when reacting to water on pH range 5.8-8 precipitates of aluminum Hydroxides are formed.

**Biological degradability**

**Hydrochloric acid:**

The methods for determining the biological degradability are not applicable to inorganic substances.

**Polyaluminum chloride:**

The methods for determining the biological degradability are not applicable to inorganic substances.

**Chemical degradation:**

**Polyaluminum chloride:**

When reacting to water on pH range 5.8-8 precipitates of aluminum Hydroxides are formed.

**Bioaccumulative potential**

Partition coefficient: n-octanol/water: Not applicable, inorganic compound

**Hydrochloric acid:** The product is not expected to bioaccumulate.

Partition coefficient: n-octanol/water: Not applicable, inorganic compound.

**Polyaluminum chloride:**

Partition coefficient: n-octanol/water: Not applicable, inorganic compound.

**Mobility in soil**

Water solubility: soluble

**Hydrochloric acid:**

Vapor pressure: >1,013 hPa (25°C)

Water solubility: ca. 500 g/l (25°C)

**Other adverse effects**

May lower the pH of water and thus be harmful to aquatic organisms.

13. **DISPOSAL CONSIDERATIONS**

**Product:** Must be disposed of as hazardous waste. Residues must be neutralized. Must be disposed of in compliance with local, state and national regulations.

**Contaminated packaging:** Classified as hazardous waste. Must be disposed of in accordance with local and national regulations.

14. **TRANSPORT INFORMATION**

**UN number 2581**

**Land transport**

USDOT

Proper Shipping Name: UN2581, ALUMINIUM CHLORIDE SOLUTION

Hazard Class: 8

Packing Group: III

UN/ID Number: UN2581

DOT-Labels: 8

TGD:

Proper Shipping Name: UN2581, ALUMINIUM CHLORIDE SOLUTION

Hazard Class: 8

Packing Group: III

UN/ID Number: UN2581

DOT-Labels: 8

**Sea transport**

IMDG:

Proper Shipping Name: UN2581, ALUMINIUM CHLORIDE SOLUTION

Hazard Class: 8

Packing Group: III

UN/ID Number: UN2581

IMDG-Labels: 8

**Air transport**

ICAO/IATA

Proper Shipping Name: UN2581, ALUMINIUM CHLORIDE SOLUTION

Hazard Class: 8

Packing Group: III

UN/ID Number: UN2581

ICAO-Labels: 8

Special precautions for user

15. **REGULATORY INFORMATION**

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

**SARA Title III Section 311 Categories**

Immediate (Acute) Health Effects: Yes

Delayed (Chronic) Health Effects: No

Sudden Release of pressure hazard: No

Fire hazard: No

Reactivity hazard: No

**SARA 313- Specific Toxic Chemical Listings**

Hydrochloric acid(7647-01-0)

OSHA a. United States Occupational Safety and Health Administration substances, 29 CFR 1910.1000 Sub Part Z.

**CERCLA Hazardous substance (Reportable Quantities)**

Hydrochloric acid (7647-01-0) 5,000 lb.

Aluminum chloride, anhydrous (7446-70-0)

**California Proposition 65**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm. None present ()

**Other regulations:** None

**Notification status:**

USA: All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical I inventory.

Canada: All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL

European Union (EU): All components of this product are included on the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.

Australia: All components of this product are included in the Australian Inventory of Chemical Substances(AICA) or are not required to be listed on AICS.

China: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese Inventory.

Japan: All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese Inventory.

Korea: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory

New Zealand: This product's New Zealand Inventory of Chemical Substances (NZIoC) status has NOT been determined.

Philippines: All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine inventory.

Taiwan: This product's Taiwan Toxic Chemical Substances Control Act Inventory status has NOT been determined.

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**16. OTHER INFORMATION**

	HEALTH	FLAMMABILITY	REACTIVITY
NFPA	3	0	0
HMIS	3	0	0

**OTHER INFORMATION**

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.

**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

STEL: Short-term exposure limit

SDS: Safety Data Sheet

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

(WAF): *water-accommodated fraction*