Solve 10G

Safety Data Sheet

Date Issued: 05/03/2015
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I. PRODUCT IDENTIFICATION

Product Name: **Solve 10G**
Other Generic Name: Aluminum Chloride
Company: **WaterSolve LLC. 5031 68TH Street, Caledonia, Michigan 49316 USA**
For product information call 616 575-8693 or visit 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)

Intended Use of the Product
Use of substance/mixture: Municipal and industrial water and wastewater treatment for the removal of turbidity, color, suspended solids and phosphorus. Sludge compaction and volume reduction. Lagoon treatment. Oily wastewater clarification and dissolved air flotation. Emulsion breaking. Paper machine pitch control.

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

GH505 **GH507** **GH508** **GH509**

Hazard pictograms: **Signal word:** **DANGER**

Hazard statements:

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H 314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H372	Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (inhalation).
H373	May cause damage to organs (central nervous system) through prolonged or repeated exposure (Oral).
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements:
Prevention:

P260	Do not breathe spray, mist, vapors.
P264	Wash face, hands and any exposed skin thoroughly after handlings.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye and face protection.

	P301+P312	IF SWALLOWED: Call a doctor or POISON CENTER if you feel unwell.
	P301+P330+P331	IF SWALLOWED: rinse mouth. DO NOT induce vomiting.
	P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
	P304+P340	IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
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.
	P314	Causes severe skin burns and eye damage.
	P321	Specific treatment (see Section 4).
	P330	Rinse mouth.
	P363	Wash contaminated clothing before reuse.
	P391	Collect spillage.
	P405	Store locked up.
	P501	Dispose of contents/container according to local, regional, national, territorial, provincial, and international regulations.

Other hazards Not contributing to the classification:
Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. If involved in a fire and thermal decomposition occurs, or other decomposition occurs corrosive, toxic, and acrid vapors may be released. Corrosive to the respiratory tract.
Unknown Acute Toxicity (GHS-US) Not available.

III. COMPOSITION/INFORMATION ON INGREDIENTS

Substances/Mixture

Name	Product identifier	% (w/w)	Classification (GHS-US)
Water	CAS No 7732-18-5	60-100	Not classified
Aluminum chloride	CAS No 7446-70-0	10 – 30	H302 Acute Tox. 4 (oral) H314 Skin Corr. 1 B H318 eye Dam. 1 H372 STOT RE 1 H373 STOT RE 2 H400 Aquatic Acute 1 H410 Aquatic Chronic 1

Full text of H-phrases: See Section 16

- A range of concentration as prescribed by Controlled Products Regulations has been used where necessary, due to varying composition. The specific chemical identify and/or exact percentage of composition has been withheld as a trade secret within the meaning of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

IV. FIRST AID MEASURES

Description of first aid measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).

Eye Contact: Important! Rinse immediately with plenty of water, for a prolonged period while holding the eyelids wide open, also under the eyelids Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 60 minutes. Immediately call a POISON CENTER or doctor/physician.

Skin Contact: Immediately flush skin with plenty of water for at least 60 minutes. Wash immediately with plenty of soap and water. Immediately call a POISON CENTER or doctor/physician. Remove all contaminated clothing and shoes. Wash clothing before reuse.

Inhalation: Using proper respiratory protection, immediately move the exposed person to fresh air. Keep at rest and in a position comfortable for breathing. Seek medical attention immediately. Symptoms may be delayed.

Ingestion: Rinse mouth with plenty of water. Do NOT induce vomiting. Seek medical attention immediately.

Most important symptoms and effects, both acute and delayed.

General: Harmful if swallowed. Causes severe skin burns and eye damage. Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (inhalation). May cause damage to organs (central nervous system) through prolonged or repeated exposure (Oral).

Inhalation: Inhalation may cause immediate severe irritation progressing quickly to chemical burns. Corrosive to mucus membranes. Corrosive to the respiratory tract. Symptoms may be delayed.

Skin contact: Causes severe skin burns.

Eye contact: Causes serious eye damage.

Ingestion: Harmful if swallowed. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.

Chronic Symptoms: Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (inhalation).

Indication of Any immediate medical attention and special treatment needed

If you feel unwell, seek medical advice (show the label where possible).

V. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate for the surrounding fire.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

Special hazards arising from the substance or mixture

Fire Hazard: Not flammable.

Explosion Hazard: Product is not explosive.

Reactivity: reacts with (strong) oxidizers: (increased) risk of fire.

Advice for Firefighters

Special protective actions for fire-fighters: Exercise caution when fighting any chemical fire. Under fire conditions, hazardous fumes will be present.

Firefighting instructions: Keep upwind. Use water spray or fog for cooling exposed containers.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Firefighters must use full bunker gear including NIOSH/MSHA approved positive pressure, self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Notify appropriate authorities if liquid enter sewers or waterways.

Hazardous Combustion products: Corrosive vapors. Acrid smoke and irritating fumes. Hydrogen chloride.

Other information: Do not allow run-off from fire fighting to enter drains or water sources.

Reference to Other Sections

Refer to Section 9 for flammability properties.

VI. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

General measures: Avoid all unnecessary exposure. Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray.

For non emergency personnel:

Protective equipment: Use appropriate personal protection equipment (PPE).

Emergency procedures: Evacuate unnecessary personnel. Keep upwind.

For Emergency Personnel

Protective equipment: Equip cleanup crew with proper protection.
Emergency Procedures: Stop leak if safe to do so. Ventilate area. Eliminate ignition sources.
Environmental Precautions:
If spill could potentially enter any waterway, including intermittent dry creeks, contact the U.S. COAST GUARD NATIONAL RESPONSE CENTER at 800-424-8802. In case of accident or road spill notify CHEMTREC at 800-424-9300 (in USA) or CANUTEC at 613-996-6666 (in Canada). In other countries call CHEMTREC at (International code) + 1-703-527-3887.
Methods and materials for containment and cleaning up:
For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for clean up: Ventilate area. Cautiously neutralize spilled liquid. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. Collect absorbed material and place into a sealed, labeled container for proper disposal. Clear up spills immediately and dispose of waste safely. Practice good housekeeping –spillage can be slippery on smooth surface either wet or dry.
Reference to Other Sections
See heading 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see item 13.

VII. HANDLING AND STORAGE

Precautions for Safe Handling
Additional Hazards when processed: Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained.
Hygiene measures: Handle in accordance with good industrial hygiene and safety procedures. Always wash your hands immediately after handling this product, and once again before leaving the workplace. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke in areas where product is used.
Conditions for safe storage including any incompatibilities
Technical measures: Observe all regulations and local requirements regarding storage or containers.
Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Store away from oxygen and oxidizers. Storage areas should be periodically checked for corrosion and integrity. Detached outside storage is preferable.
Incompatible materials: Strong bases, strong oxidizers. Organic materials. Alkalis.
Specific end use: Municipal and industrial water and wastewater treatment for the removal of turbidity, color, suspended solids and phosphorus. Sludge compaction and volume reduction. Lagoon treatment. Oily wastewater clarification and dissolved air flotation. Emulsion breaking. Paper machine pitch control.

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

C**ontrol parameters**
For substances listed in section 3 that are not listed here, there are not established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.
Appropriate engineering controls
Product to be handled in a closed system and under strictly controlled conditions. Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.
Personal protective equipment
Avoid all unnecessary exposure. Protective goggles. Gloves, Protective clothing. If insufficient ventilation wear respiratory protections.
Materials for protective clothing: corrosion-proof, acid resistant clothing.
Respiratory protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.
Hand protection: Impermeable protective gloves.

Skin and body protection: Wear suitable protective clothing. Chemical resistant suit. Rubber apron, boots.
Eye protection: A full face shield is recommended. Chemical goggles.
Environmental Exposure Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

IV. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state/color/ Odor:	Liquid, Colorless to yellow colored
Odor:	Not available
pH:	< 2
Melting point/range:	Not available
Freezing point:	-30ºC (-22ºF)
Initial Boiling Point/range:	Not available
Flash point:	Not applicable
Auto ignition temperature:	Not applicable
Decomposition temperature:	Not applicable
Flammability solid or gas:	Not applicable
Explosive properties	
Upper/lower explosion limit:	No applicable
Vapor pressure:	Not available
Relative vapor density at 20ºC:	Not available
Relative Density:	Not available
Specific gravity: 1.27-1.29	
Solubility:	100%
Partition coefficient (n-octanol/water):	Not available
Viscosity:	Not available
Explosive properties:	Product is not explosive
Explosion data-Sensitivity To Mechanical impact:	Not expected to present an explosion hazard due to mechanical impact
Explosion data-Sensitivity To Static discharge:	Not expected to present an explosion hazard due to static discharge

X. STABILITY AND REACTIVITY

Reactivity: Reacts with (strong) oxidizers: (increased) risk of fire.
Chemical stability: Stable under recommended handling and storage conditions (see Section 7).
Possibility of hazardous reactions: Hazardous polymerization will not occur.
Conditions to avoid: Direct sunlight, extremely high or low temperatures, open flames, sources of ignition and incompatible materials.
Incompatible materials: Strong bases, strong oxidizers, organic materials, alkalis.
Hazardous decomposition products: Corrosive vapors. Acrid smoke and irritating fumes, hydrogen chloride.

XI. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute oral toxicity: Harmful if swallowed.
LD50 and LC50 Data:

Product	
ATE US (Oral)	500.00 mg/kg body weight

Skin corrosion/irritation: Causes severe skin burns and eye damage. pH: <2
Serious eye damage/eye irritation: Causes serious eye damage. pH <2
Respiratory or skin sensitization: Not classified.
Germ cell mutagenicity: Not classified.
Carcinogenicity: Not classified.
Teratogenicity: Not classified.
Specific Target organ toxicity (repeated exposure): Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (inhalation). May cause damage to organs (central nervous system) through prolonged or repeated exposure (Oral).
Reproductive toxicity: Not classified.
Specific target organ toxicity (single exposure): Not classified.
Aspiration Hazard: Not classified.
Symptoms/injuries after inhalation: Inhalation may cause immediate severe irritation progressing quickly to chemical burns. Corrosive to mucus membranes. Corrosive to the respiratory tract. Symptoms may be delayed.
Symptoms/injuries after skin contact: Causes severe skin burns.
Symptoms/injuries after eye contact: Causes serious eye damage.
Symptoms/injuries after ingestion: Harmful if swallowed. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Swallowing a small quantity of this material will result in serious health hazard.
Chronic Symptoms: None expected under normal conditions of use.
Information of Toxicological effects-ingredient(s)
LD50 AND LC50 data:

Aluminum chloride (7446-70-0)	
LD50 Oral rat	**380 mg/kg**

XII. ECOLOGICAL INFORMATION

Toxicity
Ecology general: Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Aluminum chloride (7446-70-0)	
LC50 Fish 1	0.584 mg/l (Exposure time 96h: Species Oncorhynchus mykiss (flow-through)
EC50 Daphnia 1	3.9 mg/l (Exposure time 48h-speices: Daphnia magna (static)
LC50 Fish 2	6.2-11.9 mg/l (Exposure time 96h-Species: Oncorhynchus mykiss

Persistence and degradability: Not available
Bioaccumulative potential

Aluminum chloride (7446-70-0)	
BCF Fish 1	(no bioaccumulation)

Mobility in soil: Not available
Other adverse effects: Not available

XIII. DISPOSAL CONSIDERATIONS

Waste treatment methods: Dispose of waste material in accordance with local, state, international and national regulations.
Sewage Disposal recommendations: Do not dispose of waste into sewer. Do not empty into drains, dispose of this material and its container in a safe way.

XIV. 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
Marine pollutant: Marine pollutant
ERG number: 154

Sea transport

IMDG:

Proper Shipping Name: UN2581, ALUMINIUM CHLORIDE SOLUTION
Hazard Class: 8
Packing Group: III
UN/ID Number: UN2581
IMDG-Labels: 8
EmS-No. (Fire): F-A
EmS-No. (Spillage): S-B
Marine pollutant: Marine pollutant

Air transport

IATA

Proper Shipping Name: UN2581, ALUMINIUM CHLORIDE SOLUTION
Hazard Class: 8
Packing Group: III
UN/ID Number: UN2581
ICAO-Labels: 8
EGR Codes (IATA): 8L

TDG

Proper Shipping Name: UN2581, ALUMINIUM CHLORIDE SOLUTION
Hazard Class: 8
Packing Group: III
UN/ID Number: UN2581
ICAO-Labels: 8
EGR Codes (IATA): 8L
Marine pollutant: Marine pollutant

XV. REGULATORY INFORMATION

US Federal Regulations

Product	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

Aluminum chloride (7446-70-0):
Listed on the United States TSCA (Toxic Substances Control Act Inventory)
Water (7732-18-5):
Listed on the United States TSCA (Toxic Substances Control Act Inventory)

US STATE REGULATIONS

Aluminum chloride (7446-70-0)
U.S.- Massachusetts-Right to Know List
U.S.- New Jersey-Right to Know Hazardous Substance List
U.S.- Pennsylvania-RTK (Right to Know List)

Canadian Regulations

Product

WHMIS Classification	Class E- Corrosive Material Class D Division 1 Subdivision B- Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A-Very toxic material causing other toxic effects Class D Division 2 Subdivision B-Toxic material causing other toxic effects

Aluminum chloride (7446-70-0)

Listed on the Canadian DSL (Domestic Substances List)

Listed on the Canadian IDL (Ingredient Disclosure List)

IDL Concentration 1%

WHMIS Classification	Class E- Corrosive Material Class D Division 1 Subdivision B- Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A-Very toxic material causing other toxic effects Class D Division 2 Subdivision B-Toxic material causing other toxic effects

Water (7732-18-5)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 4 (oral)	Acute toxicity (Oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment-Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment-Chronic Hazard Category 1
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Corr. 1 B	Skin corrosion/irritation Category 1B
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

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15. 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*): w*ater-accommodated fraction*