



Solve 5G

Safety Data Sheet

Date Issued: 11/02/2018

Date Revised: 11/02/2018

1. PRODUCT IDENTIFICATION

Product Name: Solve 5G

Product Form: mixture

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

Alum is used as a coagulating agent in municipal and industrial water and wastewater treatment and as an additive in papermaking.

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification

Met. Corr. 1 H290

Eye dam. 1 H318

Aquatic Acute 3 H402

Full text of hazard classes and H-statements: see Section 16

GHS-Labeling

Hazard pictogram:



Signal word:

DANGER

Hazard statements:

H290 May be corrosive to metals.

H318 Causes serious eye damage.

H402 Harmful to aquatic life.

Precautionary statements:

Prevention:

P234 Keep only in original container.

P260 Do not breathe spray, mist, vapors.

P264 Wash hands, forearms, and other exposed areas thoroughly after handling.

P273 Avoid release to the environment.

P280 Wear protective gloves, protective clothing, and eye protection.

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.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- 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.
- P321 Specific treatment (see Section 4 on this SDS).
- P363 Wash contaminated clothing before reuse.
- P390 Absorb spillage to prevent material damage.
- P405 Store locked up.
- P406 Store in corrosive resistant container with a resistant inner liner.
- P501 Dispose of contents/container according to local, regional, national, territorial, provincial, and international regulations.

Other hazards:

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

Unknown Acute Toxicity

No data available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	Product identifier	% (w/w%)	GHS Ingredient Classification
Water	CAS No 7732-18-5	30-55	Not classified
Sulfuric acid, aluminum salt (3:2) **	CAS No 10043-01-3	45-70 ⁺	H290 Met. Corr. 1 H318 eye Dam. 1 H402 Aquatic Acute 3

Full text of H-phrases: See Section 16

**As Al₂(SO₄)₃ 14H₂O (Dry Aluminum Sulfate)

⁺The actual concentration of the ingredient(s) is withheld as a trade secret in accordance with the Hazardous Products Regulations (HPR) SOR/2015-17 and 29 CFR 1910.1200.

4. 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: Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attentions.

Skin Contact: Remove contaminated clothing. Immediately flush skin with plenty of water for at least 30 minutes. Wash contaminated clothing before reuse. Immediately call a poison center or doctor.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.



Most important symptoms and effects, both acute and delayed.

General: May cause skin irritation and eye damage.

Inhalation: May be corrosive to the respiratory tract.

Skin contact: May cause irritation.

Eye contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: None expected under normal use.

Indication of Any immediate medical attention and special treatment needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Water spray, dry chemical, foam, carbon dioxide.

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 considered flammable but may burn at high temperatures.

Explosion Hazard: Contact with metallic substances may release flammable hydrogen gas.

Reactivity: May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas. May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

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

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion products: Can liberate toxic and corrosive fumes of SO₂ and SO₃ under extreme conditions when boiled to dryness or heated above 600 °C (1112 °F).

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

Reference to Other Sections

Refer to Section 9 for flammability properties.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

General measures: 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.

For Emergency Personnel

Protective equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

Environmental Precautions:

Prevent entry to sewers and public waters. Avoid release to the environment.

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. As an immediate precautionary measure, isolate spill or leak area in all directions.

Methods for cleaning up: Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill. Absorb spillage to prevent material damage. Cautiously neutralize spilled liquid.

Reference to Other Sections

See section 8 for Exposure Controls and Personal Protection and Section 13 for disposal considerations.

7. **HANDLING AND STORAGE**

Precautions for Safe Handling

Additional Hazards When Processed: May be corrosive to metals. May release corrosive vapors.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and when leaving work. Handle empty containers with care because they may still present a hazard. Do not get in eyes, on skin, or on clothing. Do not breathe vapors, mist, and spray.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

Conditions for safe storage including any incompatibilities

Technical measures: Comply with applicable regulations.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Keep/store away from extremely high or low temperatures and incompatible materials. Store in corrosive resistant container with a resistant inner liner. Store in original container or corrosive resistant and /or lined container.

Incompatible materials: Non acid-proof metals (such as aluminum, copper and iron), bases, unalloyed steel, galvanized surfaces.

Specific end use:

Alum is used as a coagulating agent in municipal and industrial water and wastewater treatment and as an additive in papermaking.

8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

Control Parameters



For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Exposure Controls

Appropriate engineering controls

Emergency eye wash fountains and safety showers 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

Gloves, Protective clothing. Protective goggles. Face shield. Insufficient ventilation: wear respiratory protection.



Materials for protective clothing: Chemical resistant materials and fabrics

Respiratory protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Hand protection: Wear protective gloves.

Skin and body protection: Wear suitable protective clothing.

Eye protection: Chemical safety goggles and face shield.

Other information: When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid,
Appearance:	Clear
Odor:	Odorless
Odor Threshold:	Not available
Evaporation rate:	Not available
pH:	1.4-2.6
Melting point:	Not applicable
Freezing point:	-15.56 °C (3.99 °F)
Boiling Point:	101 °C (213.8 °F)
Flash point:	Not flammable
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Flammability (solid, gas):	Not applicable
Lower Flammable limit:	Not available
Upper Flammable limit:	Not available
Vapor pressure:	Not available



Relative vapor density at 20°C:	Not available
Relative density:	Not available
Specific gravity:	1.30-135
Solubility:	Water: Completely miscible in water
Partition coefficient (n-octanol/water):	Not available
Viscosity:	Not available

10. STABILITY AND REACTIVITY

Reactivity: May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas. May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction.

Chemical stability: Stable under recommended handling and storage conditions (see Section 7).

Possibility of hazardous reactions: Hazardous polymerization will not occur.

Conditions to avoid: Extremely high or low temperatures and incompatible materials.

Incompatible materials: Non acid-proof metals (such as aluminum, copper and iron), bases, unalloyed steel, galvanized surfaces.

Hazardous decomposition products: None expected under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects-Product

Acute toxicity (oral): Not classified.

Acute Toxicity (Dermal): Not classified.

Acute Toxicity (Inhalation): Not classified.

LD50 and LC50 Data: Not available.

Skin corrosion/irritation: May cause skin irritation and eye damage. pH: 1.4-2.6

Eye damage/eye irritation: Causes serious eye damage. pH 1.4-2.6

Respiratory or skin sensitization: Not classified.

Germ cell mutagenicity: Not classified.

Carcinogenicity: Not classified.

Specific Target organ toxicity (repeated exposure): Not classified.

Reproductive toxicity: Not classified.

Specific target organ toxicity (single exposure): Not classified.

Aspiration Hazard: Not classified.

Symptoms/Effects after inhalation: May be corrosive to the respiratory tract.



Symptoms/effects after skin contact: May cause skin irritation.

Symptoms/injuries after eye contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/injuries after ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Information of Toxicological effects-ingredient(s)

LD50 AND LC50 data:

Water (7732-18-5)	
LD50 Oral rat	>90000mg/kg

12. ECOLOGICAL INFORMATION

Toxicity

Ecology - general: Harmful to aquatic life.

Persistence and degradability:

Liquid Alum	
Persistence and Degradability	Not established.

Bioaccumulative potential

Liquid Alum	
Bioaccumulative Potential	Not established.

Mobility in soil: Not available

Other adverse effects:

Other information: Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Waste Disposal recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.





Ecology – Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

14. TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

TRANSPORTATION	DOT	TDG	IMDG	IATA
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CLASSIFICATION				
Identification Number	UN3264	UN3264	UN3264	UN3264
Proper Shipping Name	Corrosive Liquid, Acidic, Inorganic, N.O.S., (Contains Aluminum Sulfate)	Corrosive Liquid, Acidic, Inorganic, N.O.S., (Contains Aluminum Sulfate)	Corrosive Liquid, Acidic, Inorganic, N.O.S., (Contains Aluminum Sulfate)	Corrosive Liquid, Acidic, Inorganic, N.O.S., (Contains Aluminum Sulfate)
Transport Hazard Class(es)	8	8	8	8
				
Packing Group	III	III	III	III
Environmental Hazards	Marine Pollutant: No	Marine Pollutant: No	Marine Pollutant: No	Marine Pollutant: N/A
Emergency Response	ERG Number: 154	ERAP Index: Not applicable	EMS: F-A, S-B	ERG code (IATA): 8L
Additional Information	Not applicable	Not applicable	Not applicable	Not applicable

15. REGULATORY INFORMATION
US Federal Regulations

Chemical Name (CAS No.)	CERCLA RQ	EPCRA 304 RQ	SARA 302 TPQ	SARA 313
Sulfuric acid, aluminum salt (3:2) (10043-01-3)	5000 lb	Not present.	Not present.	No

SARA 311/312

Liquid Alum
Immediate (acute) health hazard

US TSCA Flags

Not present

US State Regulations

California Proposition 65

Chemical Name (CAS No.)	Carcinogenicity	Developmental Toxicity	Female Reproductive Toxicity	Male Reproductive Toxicity
Sulfuric acid, aluminum salt (3:2) (10043-01-3)	No	No	No	No

State Right-To-Know Lists

Sulfuric acid, aluminum salt (3:2) (10043-01-3)
U.S. – Massachusetts – Right to Know List – Yes U.S. – New Jersey – Right to Know Hazardous Substance List – Yes U.S. – Pennsylvania – RTK (Right to Know) – Environmental Hazard List – Yes U.S. – Pennsylvania – RTK (Right to Know) – Special Hazardous Substances – No U.S. - Pennsylvania – RTK (Right to Know) List - Yes



Canadian Regulations

Sulfuric acid, aluminum salt (3:2) (10043-01-3)
Listed on the Canadian DSL (Domestic Substances List)
Not listed on the Canadian NDSL (Non-Domestic Substances List)

International Inventories/Lists

Chemical Name (CAS No.)	Australia AICS	Turkey CICR	Korea ECL	EU EINECS	EU ELINCS	EU SVHC	EU NLP	Mexico INSQ
Sulfuric acid, aluminum salt (3:2) (10043-01-3)	Yes	Yes	Yes	Yes	No	No	No	Yes

Chemical Name (CAS No.)	China IECSC	Japan ENCS	Japan ISHL	Japan PDSCL	JAPAN PRTR	Phillippines PICCS	New Zealand NZIOC	US TSCA
Sulfuric acid, aluminum salt (3:2) (10043-01-3)	Yes	Yes	No	No	No	Yes	Yes	Yes

16. OTHER INFORMATION

This product has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR).

GHS Full Text Phrases:

Aquatic Acute 3	Hazardous to the aquatic environment-Acute Hazard Category 3
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Met. Corr. 1	Corrosive to metals Category 1
Skin Corr. 1 A	Skin corrosion/irritation Category 1A
H290	May be corrosive to metals
H318	Causes serious eye damage
H402	Harmful to aquatic life

NFPA 704

NFPA Health Hazard: 2
 NFPA Fire Hazard: 0
 NFPA Reactivity Hazard: 1

HMIS Rating

Health: 2
 Flammability: 0
 Physical: 1
 PPE: See section 8



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*