



## Solve 5U

### Safety Data Sheet

Date Issued: 03/03/2015

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#### I. PRODUCT/COMPANY IDENTIFICATION

Product Name: **Solve 5U**  
Generic Name: Aluminum sulfate solution  
Recommended use: Water treatment coagulant, flocculent, alumina source for catalyst, pH control in papermaking/water treatment.  
Chemical Type: Liquid  
UN/ID No: UN3264  
COMPANY: WaterSolve, LLC, 5031 68<sup>TH</sup> 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	Colorless to yellow	Clear	No appreciable odor

##### Classification

<b>Irritating to eyes</b>	Category 2
<b>Corrosive to metals</b>	Category 1

GHS Label elements, including precautionary statements    Signal Word: Warning



**DANGER**

##### **Hazard statements**

Cause eye irritation.  
May be harmful if swallowed.  
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:** Immediately call a POISON CENTER or doctor/physician. Rinse mouth.  
**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 corrosive resistant container or container with a 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**

**Synonyms:** ALUM.

**Chemical Family:** Inorganic Salt.

<b>Component:</b>	<b>CAS#</b>	<b>Weight %</b>
Aluminum sulfate	10043-01-3	<50
Water	7732-18-5	>50

### **IV. FIRST AID MEASURES**

**Eye Contact:** 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.

**Skin Contact:** Flush skin with plenty of water at least 15 minutes while removing contaminated clothing and shoes. Seek medical attention, if irritation develops or persists. Wash clothing before reuse.

**Inhalation:** If adverse effects occur, remove to fresh air and observe. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention/advice.

**Ingestion:** If a large amount is swallowed, get medical attention immediately. Never give anything by mouth to unconscious individual.

#### **Most important symptoms and effects**

**Symptoms:** Causes serious eye damage. May cause skin irritation.

#### **Indication of any immediate medical attention and special treatment needed**

**Note to Physician:** Treat symptomatically.

### **V. FIRE-FIGHTING MEASURES**

#### **Suitable Extinguishing Media**

Aluminum Sulfate will not burn. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Small Fire:** Move containers from fire area if you can do it without risk. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

**Large Fire:** Same procedures as for small fires.

#### **Specific Hazards Arising from the Chemical:**

Negligible fire hazard. Keep product and empty container away from heat and sources of ignition.

**Hazardous Decomposition Products:** Oxides of sulfur.

**Sensitivity to Mechanical Impact:** Not sensitive.

**Sensitivity to Static Discharge:** Not sensitive.

#### **Protective Equipment and Precautions for Firefighters:**

As in any fire wear self-contained breathing apparatus pressure –demand, MSHA/NIOSHA (approved or equivalent ) and full protective equipment. 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:** Do not release into sewers or waterways. For spills in excess of allowable limits (RQ) notify the National Response Center (800) 424-8802; refer to SARA Title III, Section 313 40 CFR 372, and CERCLA 40 CFR 302 for detailed instructions concerning reporting requirements. Notify Local Emergency Planning Committee (LEPC) and State Emergency Response Commission (SERC) for a release greater than or equal to Reportable Quantities (RQ). Refer to U.S. SARA Section 304. See Section 12 for additional Ecological Information.

### **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: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

## **VII. HANDLING AND STORAGE**

### **Precautions for safe handling**

**Advice on Safe Handling:** Keep container tightly closed when not in use. Avoid contact with skin, eyes, and clothing. Do not breathe product vapors or mists. Handle in accordance with good industrial hygiene and safety practice. Wash face, hands and any exposed skin thoroughly after handling. Remove contaminated clothing and wash thoroughly after handling. Use with adequate ventilation. Use good housekeeping and personal hygiene. Wash thoroughly after handling. Do not eat, drink or smoke while using this material. Store and handle in accordance with good industrial hygiene and safety practice.

**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. Do not store with acids. See original container for storage recommendations. Isolate from incompatible substances. Protect from physical damage. Protect from freezing.

**Incompatible Materials:** Alkalis, metals, Alkalis (bases): **Violent reaction**

Metals: May be corrosive in the presence of moisture.

## **VIII. EXPOSURE CONTROL/PERSONAL PROTECTION**

**Exposure Guidelines** No exposure limits noted for product.

**Exposure limits for aluminum metal:**

NIOSH REL – TWA 10 mg/m<sup>3</sup> (total) TWA 5 mg/m<sup>3</sup> (resp)

OSHA PEL- TWA 15 mg/m<sup>3</sup> (total) TWA 5 mg/m<sup>3</sup> (resp)

**Appropriate engineering controls**

**Engineering Controls:** Apply technical measures to comply with the occupational exposure limits. 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 hard hat (or other head covering) and chemical safety goggles and full face shield. 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.

**General Hygiene Considerations:** Handle in accordance with good industrial hygiene and safety practices. Eyewash and safety showers are recommended.

## **IX. PHYSICAL AND CHEMICAL PROPERTIES**

**Information on basic physical and chemical properties**

Appearance: Colorless to clear amber or clear light green liquid

Odor: Negligible

Odor Threshold:	Not determined
pH:	2.0 – 2.4
Relative density; specific gravity:	1.335
Initial Boiling point/Range:	Not relevant
Melting point/freezing point:	-13°C/ 9°F
Decomposition temperature:	± 1400 °F
Viscosity:	5-25 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:	Not applicable
Vapor Density:	Not applicable

#### X. STABILITY AND REACTIVITY DATA

**Reactivity:** Not reactive under normal conditions.

**Chemical Stability:** Stable under recommended storage conditions. Avoid high temperatures.

##### **Possibility of Hazardous**

**Reactions:** None under normal processing.

**Hazardous Polymerization:** Does not occur.

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

**Incompatible Products:** Alkalis, metals. Alkalis (bases): **Violent reaction.** Metals: may be corrosive in the presence of moisture.

**Haz. Decomposition Products:** Thermal oxidative decomposition of Aluminum Sulfate occurs at temperatures greater than 1400 °F and can produce sulfur oxides.

#### XI. TOXICOLOGICAL INFORMATION

##### **Likely routes of exposure:**

**Eye contact:** Causes serious eye damage.

**Skin contact:** May cause skin irritation.

**Inhalation:** Avoid breathing vapors or mists.

**Ingestion:** Do not taste or swallow. May be harmful if swallowed.

##### **Component information**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Aluminum sulfate 10043-01-3	=1930 mg/kg (rat)		
Water 7732-18-5	>90 mL/kg (rat)		

##### **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:** This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

**Numerical measures of toxicity:** Not determined.

**XII. ECOLOGICAL INFORMATION**

**Ecotoxicity**

Component	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Aluminum sulfate 10043-01-3		LC50=100 mg/L ( <i>Carassius auratus</i> ) 96h LC50= 37 mg/L ( <i>Gambusia affinis</i> ) 96h static		EC50=136mg/L 15min.

**Persistence and Degradability:** No information available.  
**Bioaccumulation:** No information available.  
**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.

**US EPA Waste Number:** EPA Hazardous Waste Code: D002 (Corrosive) if the pH is <2. May be D002 per 40 CFR 261.22 (a) (2) due to the rate of corrosion of steel. The U.S. EPA has not published waste codes for this products components.

**XIV. TRANSPORT INFORMATION**

**Note:** Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances. Information also applies to TDG, ADR and RID.

**DOT: Regulated**  
**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s. (aluminum sulfate)  
**Hazard Class:** 8  
**UN-NO:** UN3264  
**Packing Group:** PGIII  
**Reportable Quantity (RQ):** 5000lbs.

**IATA: Regulated**  
**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s. (aluminum sulfate)  
**Hazard Class:** 8  
**UN-NO:** UN3264  
**Packing Group:** PGIII

**IMDG: Regulated**  
**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s. (aluminum sulfate)  
**Hazard Class:** 8  
**UN-NO:** UN3264  
**Packing Group:** PGIII

**XV. REGULATORY INFORMATION**

**International Inventories:** Not determined.

**U. S. Federal Regulations**

**CERCLA**

Chemical name	Hazardous substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Aluminum sulfate	5000 lbs.		RQ 5000lb final RQ RQ 2270kg final RQ

**SARA 311-312 Hazardous Categorization**

**Chronic Health Hazard** No  
**Acute Health Hazard** Yes

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

**CWA (Clean Water Act)**

Component	CWA-Reportable Quantities	CWA-Toxic Pollutants	CWA-Priority Pollutants	CWA-Hazardous Substances
Aluminum sulfate 10043-01-3 (<50)	5000lbs.			

Releases above the RQ require immediate reporting to the National Response Center at (800) 424-8802 and to the state and/or local emergency planning committees.

**U. S. State Regulations**

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-To-Know**

Component	Massachusetts	New Jersey	Pennsylvania
Aluminum sulfate 10043-01-3	x	x	x

WHMIS Hazard Class
E Corrosive Material
D2B Toxic Materials



**NFPA**                      **Health hazards**   **Flammability**   **Instability**                      **Special Hazards**  
    **1**                                      **0**                                      **0**                                      **Not determined**

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**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