



## Inorganic Coagulant Solve 7

### Material Safety Data Sheet

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COMPANY: WaterSolve, LLC, 4964 Starr St. S.E. Grand Rapids, MI 49546, 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)

#### I. PRODUCT IDENTIFICATION

Product Name: **Solve 7**  
Chemical Type: Ferric Sulfate Solution

#### II. HAZARDS IDENTIFICATION

**Emergency Overview:** a brownish to reddish liquid with little or no odor. Liquid can cause irritation and burns to the skin and eyes. Liquid is corrosive to steel and other metals. Vapors may irritate nose and throat. Product mists can irritate respiratory tract.

**OSHA Hazard Communication Standard:** This product is considered hazardous under the OSHA Hazard Communication Standard. (29 CFR 1910.1200).

##### Potential Health Effects:

Skin: May cause irritation and/or burns, especially with prolonged contact.  
Eye Contact: May irritate or burn the eyes.  
Inhalation: May cause irritation to the respiratory tract.  
Ingestion: Harmful if swallowed. May cause severe damage to mouth, esophagus and stomach.

Delayed Effects: Erosion of teeth, lesions of the skin, trachea-bronchitis, mouth inflammation, conjunctivas and gastritis. IARC and NTP have classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen. This classification is for inorganic acid mists only and does not apply to sulfuric acid or sulfuric acid solutions. The basis for the classifications rests on several epidemiology studies which have several deficiencies. These studies did not account for exposure to other substances, some known to be animal or potential human carcinogens, social influences (smoking or alcohol consumption) and included small numbers of subjects. Based on the overall weight of evidenced from all human and chronic animal studies, no definitive causal relationship between sulfuric acid mists exposure and respiratory tract cancer has been shown.

#### III. COMPOSITION /INFORMATION ON INGREDIENTS

COMPONENT	CAS-No.	WEIGHT %
Ferric Sulfate	10028-22-5	60
Sulfuric acid	7664-93-9	1

#### IV. FIRST AID MEASURES

Eye Contact: Do not rub. Immediately flush eyes gently for 15 minutes with plenty of water. May irritate or burn the eyes. Get medical attention if irritation persists. .

Skin Contact: Flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse.

Inhalation: Remove person from exposure area to fresh air. Seek medical attention if needed. If not breathing, give artificial respiration, preferably, mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion: Do not induce vomiting. Immediately give victim 2 glasses of water. Never give anything by mouth to unconscious individual. Seek immediate medical attention.

Advice to Physician Treat symptomatically.

#### V. FIRE-FIGHTING MEASURES

**Flashpoint:** Not flammable

**Autoignition Temperature:** Not applicable

**Flash point method:** Not applicable

**Upper and lower flame limit:** Not applicable

**Flame propagation rate (solids):** Not applicable

**OSHA Flammability class:** Not applicable

**Suitable Extinguishing Agents:** Water spray, foam, carbon dioxide or dry chemical.

**Unsuitable Extinguishing Media:** No information available.

#### Explosion Limits

**Hazardous Combustion Products :** No information available.

**Impact sensitivity :** No information available.

**Sensitivity to static discharge:** No information available.

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

All elevated temperatures, irritating and corrosive hydrogen chloride vapors may be released. At temperature above 1112 °F product will decompose into iron oxide (rust) and sulfur trioxide (corrosive and toxic).

**Special Fire Fighting Precautions:** Wear Self-contained breathing apparatus (SCBA) and full protective equipment. Cool exposed containers with water spray. Do not splash any spilled material onto personnel.

**NFPA      Health 2      Flammability 0      Instability 1**

#### VI. STORAGE AND HANDLING

##### **Storage:**

Keep storage container tightly closed. Store in cool, dry well ventilated area or cabinet. Isolate from incompatible substances. Avoid contact with skin, eyes and clothing. Do not breathe product mists. Store and ship in plastic or rubber-lined containers.

##### **Handling:**

Keep container tightly closed when not in use. Avoid contact with skin, eyes and on clothing. Avoid breathing vapor or mist. Use with adequate ventilation. Handle as a material of moderate oral toxicity. Do not smoke or eat while handling. Use good housekeeping and personal hygiene. Remove contained clothing and wash thoroughly after handling.

#### VII. ACCIDENTAL RELEASE MEASURES/WASTE DISPOSAL

##### **Spill or Leak Procedures:**

Dike area to contain spill. If permitted by regulation, neutralize with alkali such as soda ash or sodium bicarbonate. Carbon dioxide may evolve if neutralized with carbonates (e.g. soda ash). Take precautions to minimize hazards from carbon dioxide gas generation. . Wear protective clothing and equipment when cleaning up spill.

**Waste Disposal:**

Dispose of waste in accordance with applicable federal, state, and local laws.

**Spills and releases may have to be reported to Federal and/or local authorities.**

**VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION MEASURES**

COMPONENT	ACGIH TLV	OSHA PEL	Ontario TWAEV	Mexico OEL (TWA)	NIOSH IDLH
Ferric Sulfate 1002822-5			TWA: 1mg/m <sup>3</sup>	TWA: 1mg/m <sup>3</sup> STEL: 2mg/m <sup>3</sup>	
Sulfuric acid 7664-93-9	TWA:0. 2mg/m <sup>3</sup>	TWA: 1mg/m <sup>3</sup>	TWA: 0.2mg/m <sup>3</sup>	TWA: 1mg/m <sup>3</sup>	15 mg/m <sup>3</sup>

**Engineering Measures:** Use local exhaust to keep airborne concentrations below the permissible exposure limits.

**Personal Protection Equipment:**

**Eye Protection:** Chemical splash goggles and face shield. Eye wash station should be readily available. Do not wear contact lenses.

**Skin Protection:** Wear rubber gloves and apron, long sleeved shirts, trousers and boots. If prolonged or repeated contact is anticipated, all clothing should be impervious to liquid.

**Respiratory Protection:** A respiratory protecting program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed when ever workplace conditions warrant respirator use. Wear NIOSH/OSHA approved respirator s, “Respirator Decision Logic”, may be useful in determining the suitability of various types of respirators.

**General Hygiene Considerations:**

To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product. Eyewash and safety showers are recommended.

**IX. PHYSICAL AND CHEMICAL PROPERTIES**

Color:	Reddish-brown
Physical State:	liquid
Chemical Formula:	Mixture
Odor:	Odorless
Solubility in water (weight%)	100%
Melting point:	-22 °F (-30 °C)
Boiling point:	230 °F (110 °C)
Flammability limits in air:	No information available
Explosive Properties:	No information available
Oxidizing Properties:	No information available
Evaporation Rate:	Not determined
Solubility:	No information available
Partition Coefficient (n-octanol/water):	No information available
PH:	<1
Specific gravity:	1.58-1.60
Vapor pressure	Not applicable
Vapor density (air=1.0)	Not applicable
Evaporation rate:	Not applicable
Viscosity:	No information available
Molecular Weight:	Mixture
% Volatiles:	Not applicable
Flash point:	Not flammable
Autoignition temperature:	Not applicable

**X. STABILITY AND REACTIVITY**

Chemical Stability: Stable under normal conditions of use and storage.  
 Incompatible Products: Avoid alkalis. Material is corrosive to mild steel, copper, copper alloys and galvanized steel. May be corrosive to paints, enamels and concrete. Reacts with lime and other basic materials to form insoluble iron salts.  
 Haz. Decomposition Products: Thermal decomposition can yield oxides of sulfur.  
 Hazardous Polymerization: Will not occur under normal temperatures and pressures.

**XI. TOXICOLOGICAL INFORMATION****Acute Toxicity**

**LD50 DERMAL: Ferric Sulfate: LD50 (intraperitoneal, mouse)=168 mg/kg**  
**Lc50 Inhalation: Sulfuric acid component: (inhal-rat): 510 mg/m<sup>3</sup>/2hr**  
**(inhi-mouse): 320 mg/m<sup>3</sup>/2hr**

**Component Information**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sulfuric acid	2140 mg/kg (Rat)		

Irritation: No information available.  
 Corrosivity: No information available.  
 Sensitization: No information available.

**Chronic Toxicity**

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA	Mexico
Sulfuric acid	A2	Group 1	Known	X	A2

Mutagenic effects: No information available.  
 Reproductive effects: No information available.  
 Developmental effects: No information available.  
 Teratogenicity: No information available.  
 Target organ effects: No information available.  
 Endocrine disruptor information: No information available.  
 Other Adverse Effects: DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS: IARC and NTP have classified "strong inorganic acid mists containing sulfuric acid" as known human carcinogens. No definitive causal relationship between sulfuric acid mist exposure and respiratory cancer has been shown.

**XII. ECOLOGICAL INFORMATION****Ecotoxicity**

May be toxic to fish due to very low pH.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Ferric Sulfate		LC50=37.2 mg/L <i>Gambusia affinis</i> 96h		
Sulfuric acid		LC50>500 mg/L <i>Brachydanio rerio</i> 96hr		EC50=29 mg/L 24hr

**Persistence and Degradability:** No information available.  
**Bioaccumulation:** No information available.  
**Mobility in Environmental Media:** No information available.

**XIII. DISPOSAL CONSIDERATIONS**

**Waste Disposal Methods:** Dispose of in accordance with local regulations. If permitted by regulations, material may be neutralized with alkali.

**Contaminated Packaging:** Empty containers should be taken for local recycling, recovery or waste disposal.

**US EPA Waste Number:** No information available.

Component/ CAS. #	RCRA- basis for listing	RCRA-D Series Wastes	RCRA- U Series Wastes	RCRA-F Series Wastes	RCRA-P series Waste	RCRA- K Series Waste
Sulfuric acid 7664-93-9						
Ferric sulfate 10028-22-5						

**XIV. Transportation Information**

**DOT:** **Regulated**

**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s. (contains ferric sulfate)

**UN-NO:** UN3264

**Packing Group:** PGIII

**TDG:** **Regulated**

**Hazard Class:** 8

**UN-NO:** UN3264

**Packing Group:** PGIII

**XV. REGULATORY INFORMATION****International Inventories**

TSCA	complies
DSL	complies
NDSL	complies
EINECS/ELINCS	complies
ENCS	complies
CHINA	complies
KECL	complies
PICCS	complies
AICS	complies

**U. S. Federal Regulations****SARA 313**

Section 313 of Title III of 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 40n of the Code of Federal Regulations, Part 372.

Component	CAS-No.	Weight%	SARA 313- Threshold Values
Sulfuric acid	7664-93-9	1	1.0

**SARA 311-312 Hazardous Categorization**

<b>Chronic Health Hazard</b>	No
<b>Acute Health Hazard</b>	Yes
<b>Fire Hazard</b>	No
<b>Sudden release of pressure Hazard</b>	No
<b>Reactive Hazard</b>	No

Clean Water Act

Component	CWA-Reportable Quantities	CWA-Toxic Pollutants	CWA_Priority Pollutants	CWA- Hazardous Substances
Sulfuric acid 7664-93-9 (1)	1000 lb			x

**CERCLA**

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sulfuric acid	1000 lb	1000 lb

**U. S. State Regulations**

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**State Right-To-Know**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ferric Sulfate	x	x	x	x	x
Sulfuric acid	x	x	x	x	x

**Other International Regulations**

**Mexico-Grade**

No information available.

**Canada**

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

**WHMIS Hazard Class**

E Corrosive Material

D2B Toxic Materials

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