



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.

I. Product Identification

Product Name: **Solve 7**

Chemical Type: Ferric Sulfate Solution

Component:	<u>CAS#</u>	<u>Weight %</u>
Ferric Sulfate	10028-22-5	50
Free Sulfuric Acid	7664-93-9	1
Water	007732-18-5	49

Trace impurities and additional material names not listed above may also appear in Section 15 towards the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

OSHA Hazard Communication Standard: *This product is considered hazardous under the OSHA Hazard Communications Standard.*

II. Hazards Identification

Emergency Overview: A Reddish-brown solution with no detectable odor. Product is toxic orally, is corrosive to the eye, and will burn the skin. Liquid can irritate and/or skin and eyes and is corrosive to steel and other metals.

Health Effects:

Skin:	May cause irritation or burns.
Eye Contact:	Can cause severe irritation or burns.
Ingestion:	Harmful if swallowed. Can irritate or burn digestive tract.
Inhalation:	Mists can irritate respiratory tract.

Delayed Effects: Erosion of teeth, lesions of the skin, tracheo-bronchitis, mouth inflammation, conjunctivitis and gastritis. IARC and NTP have classified "strong inorganic acid mists contain 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 classification 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 evidence from all human and chronic animal studies, no definitive causal relationship between sulfuric acid mist exposure and respiratory tract cancer has been shown.

Ingredients found on one of the three OSHA designated carcinogen lists are listed below.

<u>INGREDIENT NAME</u>	<u>NTP STATUS</u>	<u>IRAC STATUS</u>	<u>OSHA LIST</u>
Sulfuric acid	Known carcinogen-sulfuric	Known carcinogen-sulfuric	Not listed
	Acid mist	acid mist	

III. First Aid

Eye Contact:	Immediately irrigate with large amounts of water for at least 15 minutes. Hold eyelids apart during irrigation. Send patient to physician immediately.
Skin Contact:	Flush skin with plenty of water. Remove contaminated clothing; wash before reuse. Seek medical attention. Continue to flush for at least 15 minutes.
Inhalation:	Remove person from exposure area to fresh air. Seek medical attention if needed. Give artificial respiration if needed.
Ingestion:	Treat as a corrosive liquid. Drink large quantities of water or milk to reduce concentration and neutralize acid. Do not induce vomiting. Call physician immediately.
Note to Physician:	Antidote: No special antidote. Treat symptomatically and supportively.

IV. Fire and Explosion Hazard Data

Flashpoint:	Not flammable
Auto ignition Temperature:	N/A
Extinguishing Agents:	Product does not burn or support flame. If product is present in a fire, water, CO ₂ or dry chemical may be used
Fire Fighting Precautions:	Avoid contact with skin and eyes. Wear self-contained breathing apparatus.
Respiratory Protection:	Thermal decomposition products may include toxic and corrosive fumes. If fumes are present, wear an OSHA/NIOSH approved full face mask with acid gas cartridge or self-contained breathing apparatus.
Unusual Fire and Explosion Haz.:	At temperatures above 1112°F product will decompose into iron oxide (rust) and sulfur trioxide (corrosive and toxic).

V. Storage and Handling

Storage:	Store in a tank of suitable construction. Avoid mild steel.
Handling:	Avoid contact with skin, eyes or clothing. Wear protective clothing.

VI. Accidental Release Measures/Waste Disposal

Spill or Leak Procedures:	In case of spill or other release, contain large spills with dike or clay or other inert material. Pump or vacuum into containers for disposal. Absorb small spills in clay or other inert and neutralize residue with soda ash or sodium bicarbonate. Spills and releases may have to be reported to Federal and / or local authorities.
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VII. Applicable Control Measures& Exposure Limits

Engineering Controls:	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 impervious gloves, and apron and full work clothing including long sleeved shirts, trousers and boots. Full imperious clothing is recommended if prolonged product contact is anticipated.
Respiratory Protection:	Respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.
Additional recommendations:	To identify additional 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.

EXPOSURE GUIDELINES

<u>INGREDIENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>
Ferric sulfate (as Iron)	1mg/m ³	1 mg/m ³
Sulfuric Acid	1 mg/m ³ (TWA) 3 mg/m ³ (STEL)	1mg/m ³ (TWA)

VIII. Typical Physical Properties

Appearance:	Reddish-brown solution, no detectable odor.
Molecular Weight:	Mixture.
Chemical Formula:	Mixture
Boiling point:	212 deg. F
Freezing point:	does not freeze at 0 deg. F
Specific gravity:	1.44-1.46
Soluble Ferric Iron (Fe+++):	10% (+/- 1%)
Soluble Ferrous Iron (Fe++):	<0.2%
Solubility in water:	100%
Volatile (by wt. %):	NA
PH as is:	< 1

IX. Reactivity Data

Stability:	Product is stable under normal conditions. Avoid contact with alkalis.
Conditions contributing to instability:	None known.
Materials to avoid:	Product 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.

X. Transportation Information

DOT

Proper Shipping Name:	Corrosive Liquid, N.O.S. Corrosive Material (ferric sulfate)
UN #:	UN 3264
US DOT Hazard Class:	8
Packing Group:	III

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

XI. Toxicological/Ecological Information

IMMEDIATE (ACUTE) EFFECTS:

Ferric sulfate:
LD 50 (intraperitoneal, mouse)= 168 mg/kg

Sulfuric acid:
LD 50 (oral-rat): 2140 mg/kg
LC 50 (inhl-rat): 510 mg/m³/2 hr
LC50 (inhl-mouse): 320 mg/m³/2 hr

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:

IARC and NTP have classified "strong inorganic acid mists containing sulfuric acid" as known human carcinogens. The state of California has also listed "strong inorganic acids mists containing sulfuric acid" On the Proposition 65 list as a cancer-causing agent. No definitive causal relationship between sulfuric acid mist exposure and respiratory cancer has been shown.

ECOLOGICAL

May be toxic to fish due to very low pH.

XII. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? Yes RCRA ID number D002

OTHER DISPOSAL CONSIDERATIONS

Product should be neutralized with alkalis. The information offered in this section is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and later the RCRA classification and the proper disposal method.

XIII. REGULATORY INFORMATION

Regulatory:

TSCA: All components of the material are listed in TSCA Inventory.
SARA Title III/Cercla: "Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the national Response Center (800-424-8802) and to your local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: Immediate

SARA 313 TOXIC CHEMICALS:

The following ingredients are SARA 313 "Toxic Chemicals" and may be subject to annual reporting requirements. CAS numbers and weight percents are found in Section 1.

ADDITIONAL REGULATORY INFORMATION:

The state of California has also listed "strong inorganic acid mists containing sulfuric acid" on the Proposition 66 list as a cancer-causing agent.

WHMIS CLASSIFICATION (CANADA):

E, D2B

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations

FOREIGN CHEMICAL CONTROL INVENTORY STATUS:

All the components are listed on the following chemical inventories: Australia (AICS), Canada (DSL), China (IECSC), European (EINECS), Japan (ENCS), Korea (KECI) and Philippines (PICCS).

HMIS: 2-0-1

NFPA: 2-0-1

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