

Solve 7K-granules

Safety Data Sheet

Date Issued: 05/21/2015

Date Revised: 05/21/2015

I. PRODUCT IDENTIFICATION

Product Name: **Solve 7K-granules**

Use of the substance/mixture: water treatment chemical

Recommended restrictions on use: There are no uses advised against

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)

II. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Corrosive to metals:	Category 1	May be corrosive to metals
Acute toxicity (oral):	Category 4	Harmful if swallowed
Skin irritation:	Category 2	Causes severe skin burns and eye damage
Serious eye damage:	Category 1	Causes serious eye damage

GHS-Labeling



Hazard pictograms: Signal word:

DANGER

Hazard statements:	H290	May be corrosive to metals.
	H 302	Harmful if swallowed.
	H315	Causes skin irritation.
	H318	Causes serious eye damage.

Precautionary statements:

Prevention:	P234	Keep only in original container.
	P264	Wash face, hands and any exposed skin thoroughly after handlings.
	P270	Do not eat, drink or smoke when using this product.
	P280	Wear protective gloves/protective clothing/eye and face protection.

Response:

	P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
	P330	Rinse mouth.
	P302+P352	IF ON SKIN: Wash with plenty of soap and water.
	P321	Specific treatment (see supplemental first aid instructions on this label.
	P332+P313	If skin irritation occurs: Get medical advice/attention.
	P362	Take of contaminated clothing and wash before reuse.
	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.
	P390	Absorb spillage to prevent material damage.
Storage:	P406	Store in corrosive resistant container with a resistant inner liner.
	P405	Store locked up.

Disposal: P501 Dispose of contents/container as special waste in compliance with Local and national regulations.

Hazardous components which must be listed on the label:

- 10028-22-5 Diiron tris(sulphate)
- 7720-78-7 Iron (II) sulphate
- 7664-93-9 Sulfuric acid
- 7785-87-7 Manganese sulphate

Other hazards which do not result in classification

III. **COMPOSITION/INFORMATION ON INGREDIENTS**

Substances/Mixture

Chemical nature granules

Hazardous components

Chemical Name	CAS-No.	Concentration (%)
Diiron tris(sulphate)	10028-22-5	60-80%
Iron (II) sulphate	7720-78-7	1-10%
Sulfuric acid	7664-93-9	1-5%
Manganese sulphate	7785-87-7	1-5%

Further information

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

This product contains WHMIS regulated (hazardous) components.

IV. **FIRST AID MEASURES**

Description of first aid measures

General: Show this safety data sheet to the doctor in attendance.

Eye Contact: Important! Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If possible use lukewarm water. Get medical attention if irritation develops and persists.

Skin Contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Obtain medical attention, if irritation develops and persists. Wash clothing before reuse.

Inhalation: If breathing is difficult, remove to fresh air and provide oxygen. If not breathing, give artificial respiration. Seek medical attention if cough or other symptoms develop.

Ingestion: Do NOT induce vomiting. Rinse mouth with water. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed.

V. **FIRE-FIGHTING MEASURES**

Suitable extinguishing media

Not combustible.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

No special requirements.

Special hazards arising from the substance or mixture

The product itself does not burn.

Special protective actions for fire-fighters

Wear self-contained breathing apparatus and protective suit. Use NIOSH/MSHA approved respiratory protection.

VI. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Personal precautions, protective equipment and emergency procedures:

Wear personal protective equipment. Keep all other personnel upwind and away from the spill/release. For personal protection see Section 8.

Environmental Precautions:

Prevent product from entering the environment.

Methods and materials for containment and cleaning up:

Sweep up and shovel into suitable containers for disposal. Must be disposed of in accordance with local and national regulations.

VII. HANDLING AND STORAGE

Precautions for safe handling

Wash contact areas after handling. For personal protection see Section 8.

Conditions for safe storage, including any incompatibilities

Keep at temperatures between 10 - 30°C

Material for packaging:

Suitable material: plastic (PE,PP,PVC,), polyester with fiberglass reinforcement, epoxy-coated concrete, titanium acid proof or rubber coated steel .

Suitable material: Plastic (PE,PP,PVC), rubber-coated steel, stainless steel (AISI 304).

Materials to avoid: Metals, bases

Iron, copper, aluminum, acids, bases

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Form of exposure	Control parameters	Update	Basis
Sulfuric acid	7664-93-9	TWA	Thoracic fraction	0.2 mg/m ³	2007-01-01	ACGIH
		TWA		1 mg/m ³	2005-09-01	NIOSH REL
Diiron tris(sulphate)	10028-22-5			1 mg/m ³		
				1 mg/m ³		
		tw		0.1 mg/m ³		

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice.

Eye wash bottle or emergency eye-wash fountain must be found in the work place.

Wash hands before eating, drinking or smoking.

Individual protective measures, such as personal protective equipment

Respiratory protection

When there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA

Approved respiratory protection.

Skin and body protective Wear protective clothing if necessary.

Hand Protection:

Glove material: Rubber or plastic gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Wear protective gloves.

Eye protection

Tightly fitting safety goggles. Eye wash bottle with pure water.

IV. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state/color/ Odor:	Solid, granules, yellowbrown/no significant odor
Freezing point:	No data available
Flash point:	Not applicable, inorganic compound
Flammability (solid, gas):	Does not sustain combustion.
Explosive properties:	
Upper/lower limit:	Not applicable
Density:	1.20-1.40g/cm ³
Water Solubility:	soluble
Partition coefficient (n-octanol/water):	Not applicable, inorganic compound

X. STABILITY AND REACTIVITY

Reactivity

Chemical stability

Possibility of hazardous reactions

Hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Avoid extreme temperatures.
Incompatible materials:	
Materials to Avoid:	iron, copper, aluminum, acids, bases Reaction with some metals May evolve flammable hydrogen gas.
Hazardous decomposition products:	Thermal decomposition products: Sulphur oxides (SO _x)

XI. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute oral toxicity: Conclusion: Harmful if swallowed.

Diiron tris(sulphate): LD50/rat/: 220 mg/kg OECD Test Guideline 423

Remarks: Calculated as Fe

Iron (II) sulphate: LD50/rat/: 220 mg/kg OECD Test Guideline 423

Remarks: Calculated as Fe

Sulfuric acid: LD50/rat/ 2140 mg/kg

Acute inhalation toxicity

Diiron tris(sulphate): LD50

Remarks: No data available, not applicable

Iron (II) sulphate: LC50

Remarks: No data available, not applicable

Sulfuric acid: LC50/rat/4h/0.375 mg/l

Remarks: aerosol

Conclusion: Although the LC50 values from the various inhalation toxicity studies performed with sulphuric acid theoretically trigger classification is not proposed. The effects of sulphuric acid following inhalation are entirely due to the local irritation of the respiratory tract: there is no evidence for the systemic toxicity of sulphuric acid in any study, as effects are limited to the site of contact. Classification for acute inhalation toxicity is not considered to be appropriate.

Acute dermal toxicity

Diiron tris(sulphate): LD50/rat/>3154 mg/kg/OECD Test Guideline 402

Remarks: read-across (Analogy), CAS-No., 7758-94-3

Diiron tris(sulphate): LD50/rat/>881 mg/kg/OECD Test Guideline 402

Remarks: Calculated as Fe

Iron (II) sulphate: LD50/rat/>2,369 mg/kg/OECD Test Guideline 402

Remarks: read-across (Analogy), CAS-No., 7758-94-3

Iron (II) sulphate: LD50/rat/>881 mg/kg/OECD Test Guideline 402

Remarks: Calculated as Fe

Skin corrosion/irritation

Remarks: Causes skin irritation.

Diiron tris(sulphate): Rabbit Result: No skin irritation/OECD Test Guideline 404

Conclusion: Moistened solid is expected to be irritation as a consequence of low pH.

Iron (II) sulphate: Rabbit/4h/500mg Result: irritating/ OECD Test Guideline 404

Sulfuric acid: Result: Corrosive

Conclusion: Causes severe burns.

Serious eye damage/eye irritation

Remarks: Causes serious eye damage.

Serious eye damage/eye irritation

Diiron tris(sulphate) Results: Rabbit Causes serious eye damage/OECD Test Guideline 405

Remarks: Read-across (Analogy), 7758-94-3, dry substance

Iron (II) sulphate Results: Rabbit Slight irritation/OECD Test Guideline 405

Remarks: 25%, Aqueous solution

Iron (II) sulphate Result: Rabbit corrosive/OECD Test Guideline 405

Remarks: Read-across (Analogy), CAS-No. 7758-94-3

Sulfuric acid: Result: corrosive Conclusion: Risk of serious damage to eyes.

Respiratory or skin sensitization

Diiron tris(sulphate) Conclusion: According to experience sensitization is not expected.

Iron (II) sulphate Conclusion: According to experience sensitization is not expected.

Sulfuric acid: Conclusion: Not sensitizing.

Germ cell mutagenicity

Genotoxicity in vitro:

Iron (II) sulphate: AMES test/Mutagenicity (Salmonella typhimurium-reverse mutation assay)/with and without

Result: negative OECD Test Guideline 471

Remarks: Read-across (Analogy), CAS-No. 7758-94-3

Genotoxicity in vitro:

Diiron tris(sulphate) Result: negative

Carcinogenicity

Diiron tris(sulphate): rat/oral/2 years

Remarks: Information given is based on data obtained from similar substances.

Not believed to be a carcinogen. Long-term test

Iron (II) sulphate: Not believed to be a carcinogen.

Reproductive toxicity

Toxicity for reproduction:

Diiron tris(sulphate): Reproductive effects/Rat/> 500 mg/kg Read-across (Analogy)

Diiron tris(sulphate): Reproductive effects/Rat/> 1,000 mg/kg Read-across (Analogy)

Conclusion: In animal studies, did not interfere with reproduction.

Iron (II) sulphate: Reproductive effects/> 1,000 mg/kg >1,000 mg/kg OECD Test Guideline 422

Remarks: bw/day

Sulfuric acid: Developmental toxicity test/Rabbit/0.020 mg/l

Conclusion: Did not show teratogenic effects in animal experiments.

Teratogenicity

Diiron tris(sulphate): Rat/oral/>1,000 mg/kg

Conclusion: Did not show teratogenic effects in animal experiments.

Information given is based on data obtained from similar substances.

XI. ECOLOGICAL INFORMATION

ECOTOXICITY EFFECTS

Aquatic toxicity

Diiron tris(sulphate):

LC50 rainbow trout (*Oncorhynchus mykiss*): 96h > 100mg/l

NOEC Coho salmon (*Oncorhynchus kisutch*): > 1 mg/l 90d

EC50 water flea (*Daphnia*): 48h 82.8mg/l

NOEC water flea (*Daphnia magna*): 21d >1mg/l

The compound is considered to have no long term effects in aquatic systems due to the rapid formation of insoluble hydroxides.

Iron (II) sulphate:

LC50 rainbow trout (*Oncorhynchus mykiss*): 96h/82.4mg/l /OECD Test Guideline 203

NOEC Coho salmon (*Oncorhynchus kisutch*): > 1 mg/l 90d

EC50 Invertebrates: 48h/ 16 - 110mg/l/OECD Test Guideline 202

NOEC water flea (*Daphnia magna*): 21d / >1mg/l/OECD Test Guideline 202

The compound is considered to have no long term effects in aquatic systems due to the rapid formation of insoluble hydroxides.

Sulfuric acid:

LC50 bluegill sunfish (*Lepomis macrochirus*)/96h/static test: 16 – 28 mg/l fresh water

EC50 water flea (*Daphnia magna*)/48h/static test/OECD Test Guideline 202: > 100 mg/l

Remarks: May be harmful to aquatic organisms because of the low pH value.

Toxicity to other organisms

No data is available on the product itself.

Iron (II) sulphate:

Remarks: No data available

Sulfuric acid:

NOEC/37 d/active sludge/static test: 26 g/l fresh water

NOEC/30 d/active sludge/static test: >30 g/l fresh water

Persistence and degradability:

Chemical degradation: When reacting with water precipitates of iron hydroxides are formed. This mainly occurs at pH above 5.

Biological degradability

Diiron tris(sulphate):

The methods for determining the biological degradability are not applicable to inorganic substances.

Iron (II) sulphate:

The methods for determining the biological degradability are not applicable to inorganic substances.

Sulfuric acid:

The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative potential

Partition coefficient: n-octanol/water: Not applicable, inorganic compound

Diiron tris(sulphate):

Does not bioaccumulate. Partition coefficient: n-octanol/water: Not applicable, inorganic compound

Iron (II) sulphate:

The product is not expected to bioaccumulate. Partition coefficient: n-octanol/water: Not applicable, inorganic compound

Sulfuric acid:

Does not bioaccumulate.

Mobility in soil

Water solubility: soluble

Other adverse effects

May lower the pH of water and thus be harmful to aquatic organisms.

13. **DISPOSAL CONSIDERATIONS**

Product: Classified as hazardous waste. Must be disposed of in accordance with local, state and national regulations. Thoroughly cleaned packaging material may be recycled.

Contaminated packaging: Classified as hazardous waste. Must be disposed of in accordance with local, state and national regulations.

14. **TRANSPORT INFORMATION**

Land transport

USDOT

Proper Shipping Name: UN3077, Environmentally hazardous substances,
solid n.o.s. (Ferric Sulfate)

Hazard Class: 9

Packing Group: III

UN/ID Number: UN3077

DOT-Labels: 9

Reportable quantity: Ferric sulfate

Sea transport Not classified as dangerous in the meaning of transport regulations.

Air transport Not classified as dangerous in the meaning of transport regulations.

Special precautions for user

This product is regulated as a hazardous material according to the Department of Transportation only in bulk quantities (greater than 1363 lbs per package).

15. **REGULATORY INFORMATION**

Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Title III Section 311 Categories

Immediate (Acute) Health Effects: Yes

Delayed (Chronic) Health Effects: No

Sudden Release of pressure hazard: No

Fire hazard: No

Reactivity hazard: No

SARA 313- Specific Toxic Chemical Listings none present ()

CERCLA Hazardous substance (Reportable Quantities)

Diiron tris (sulphate) (10028-22-5) 1,000 lb.

California Proposition 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm. None present ()

Other regulations: No restrictions identified other than those already covered in regulations.

Notification status:

USA: All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical I inventory.

Canada: All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

European Union (EU): All components of this product are included on the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.

16. **OTHER INFORMATION**

	HEALTH	FLAMMABILITY	REACTIVITY
NFPA	3	0	0
HMIS	3	0	1

DATE ISSUED: 5/27/2015

DATE REVISED: 5/27/2015

Revision number: 0

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