

Solve 3

Safety Data Sheet

Date Issued: 10/11/2018

Date Revised: 07/30/2018

1. PRODUCT IDENTIFICATION

Product Name: **Solve 3**

Product use: Water treatment chemical

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)

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Corrosive to metals:	1	Corrosive to metals
Oral toxicity:	Acute Tox. 4	Oral > 300 + <= 2000 mg/kg
Skin irritation:	2	Reversible adverse effects in dermal tissue, Draize score: >= 2.3 < 4.0 or persistent inflammation
Eye corrosive:	1	Serious eye damage: Irreversible damage 21 days after exposure, Draize score: Corneal opacity >=3, Iritis > 1.5
Aquatic toxicity	A1	Acute toxicity <= 1.00 mg/l

GHS-Labeling



Hazard pictograms: Signal word:

DANGER

Hazard statements:	H290	May be corrosive to metals.
	H302	Harmful if swallowed.
	H315	Causes skin irritation.
	H318	Causes serious eye damage.
	H400	Very toxic to aquatic life

Precautionary statements:

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.
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye and face protection.
P310	Immediately call a POISON CENTER or doctor/physician
P321	Specific treatment (see first aid treatment on SDS)
P330	Rinse mouth.
P362	Take of contaminated clothing and wash before reuse.
P390	Absorb spillage to prevent material damage
P391	Collect spillage

P301+ P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P406	Store in corrosive resistant container with a resistant inner liner.
P501	Dispose of contents/container as special waste in compliance with Local, regional, national and international regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

Chemical Name	CAS-No.	Concentration (%)	OSHA Exposure Limits	ACGIH exposure limits	Other exposure limits
Iron trichloride	7705-08-0	30-40%			
Hydrogen chloride	7647-01-0	1-5%		2 ppm Ceiling	NIOSH: 5ppm Ceiling; 7mg/m ³ Ceiling

4. FIRST AID MEASURES

Inhalation: Rescuers should put on appropriate protective gear. Remove from area of exposure. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Keep victim warm. Get immediate medical attention. To prevent aspiration, keep head below knees.

Eye Contact: Immediately flush with water, for at least 15 minutes occasionally lifting and lowering upper lids. Get medical attention promptly.

Skin Contact: Take off contaminated clothing. Wash skin with soap and water. Obtain medical attention. Wash clothing separately and clean shoes before reuse.

Ingestion: If swallowed, Do NOT induce vomiting. Give victim a glass of water. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use media suitable for the surrounding fires.

Special hazards arising from the substance or mixture

Reacts with most metals, especially when dilute. Hydrogen gas release (Extremely flammable, explosive).

Special protective actions for fire-fighters

Special Information: As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill and Leak Procedures:

Wear adequate personal protective equipment. Prevent entry into sewers and confined areas. Dike if possible. Keep unnecessary people away. Isolate hazard area and deny entry. Absorb spill with sand or non-combustible dry material and collect in appropriate container for disposal. Flush area with water.

7. **HANDLING AND STORAGE**

Handling Procedures

Use with adequate ventilation. Avoid breathing dusts, mists, and vapors. Do not get in eyes, on skin, or on clothing. Wear eye protection and protective clothing. Wash thoroughly after handling.

Storage requirements

Keep away from heat, sparks, and flame. Store containers in a cool, well ventilated place. Keep container closed when not in use. Protect from direct sunlight.

8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

Chemical Name	CAS-No.	OSHA Exposure Limits	ACGIH exposure limits	Other exposure limits
Iron trichloride	7705-08-0			
Hydrogen chloride	7647-01-0		2 ppm Ceiling	NIOSH: 5ppm Ceiling: 7mg/m ³ Ceiling

Appropriate engineering controls

Provide ventilation sufficient to maintain exposure below the recommended limits.

Respiratory protection:

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant the use of a respirator.

Skin Protection: Wear impervious protective gloves. Wear protective clothing as needed-apron, suit, boots.

Eye protection

Wear safety glasses with side shields (or goggles) and a face shield.

Other protective equipment: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Hygienic Practices: Do not eat, drink, or smoke in areas where this material is used. Avoid breathing vapors. Remove contaminated clothing and wash before reuse. Wash thoroughly after handling. Wash hands before eating.

9. **PHYSICAL AND CHEMICAL PROPERTIES**

Physical state/color:	red-dark brown liquid
Odor:	Slightly acidic odor
Odor threshold:	Unkown
Vapor Density:	Unknown
Density:	Unknown
Freezing point:	Unknown
Boiling Range:	106 °C; (223 °F)
Evaporation rate:	Unknown
Explosive Limits:	Unknown
Autoignition temperature:	Unknown
pH:	less than 1
Melting point:	Unknown
Solubility:	100%
Flash point:	Unknown

Flammability:	Unknown
Specific gravity:	1.47
Decomposition temperature:	Unknown
Viscosity:	Unknown
Vapor Pressure:	40 mm Hg @20°C
Gram VOC less water:	Unknown

10. STABILITY AND REACTIVITY

Chemical stability:	Stable
Conditions to avoid:	Excessive heat and sources of ignition.
Incompatible materials:	Metals, bases, halocarbons, acids, and combustible materials.
Hazardous decomposition products:	Thermal decomposition: hydrochloric acid. Contact with metals may evolve flammable hydrogen gas.
Hazardous Polymerization:	Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Mixture toxicity

Oral toxicity: LD50 979 mg/kg
Inhalation toxicity: LC50: 56 mg/l

Component Toxicity

Health Effects: Inhalation causes irritation to mucous membranes, difficulty breathing. Eye or skin contact causes irritation and possible burns. Ingestion causes irritation of the mouth and stomach.

Routes of Entry: Inhalation, Ingestion, skin contact and eye contact

Target organs

Eyes Skin Respiratory System

Effects of Overexposure:

Corrosive! Inhalation, ingestion or skin contact with material may cause severe injury or death. Causes eye damage and skin burns. Mist and vapor causes respiratory tract and mucous membrane burns. Harmful is inhaled. Harmful or fatal if swallowed.

GHS: Carcinogenicity: Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC, or OSHA.

**12. ECOLOGICAL INFORMATION
COMPONENTS ECOTOXICITY**

Iron trichloride:

96 Hr LC50 Lepomis macrochirus: 20.26mg/L (semi-static); 96 Hr LC50
Pimephales promelas: 20.95 – 22.56 mg/L (semi-static)
48 Hr EC50 Daphnia magna: 27.9 mg/L; 48 Hr EC50 Daphnia magna): 9.6 mg/L (static)

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with local, state and federal regulations.

14. TRANSPORT INFORMATION

UN: 2582

DOT Name: FERRIC CHLORIDE SOLUTION

Hazard Class: 8

Packing Group: III

15. REGULATORY INFORMATION

CERCLA/SARA Hazardous Substances

7647-01-0 Hydrogen chloride

7705-08-0 Iron trichloride

DEA List I and II Chemicals

7647-01-0 Hydrogen chloride

OSHA Process Safety Management Highly Hazardous Chemicals

7647-01-0 Hydrogen chloride

U.S. Clean Air Act Toxic and Flammable Substances

7647-01-0 Hydrogen chloride

SARA 313

7647-01-0 Hydrogen chloride

TSCA 8(b) Inventory

7647-01-0 Hydrogen chloride

7705-08-0 Iron trichloride

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16. 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:

AICS: Australian Inventory of Chemical Substances

ASTM: American Society for the Testing of Materials

ACGIH: American Conference of Industrial Hygienists

bw: Body Weight

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

DIN: Standard of the German Institute for Standardization

DSL: Domestic Substances List (Canada)

ECx: Concentration associated with x% response

EmS: Emergency Schedule
ENCS: Existing and New Chemical Substances
ErCx: Concentration associated with x% growth rate response
ERG: Emergency Response Guide
FG: Food grade
FIFRA: Federal Insecticide, Fungicide, and Rodenticide Act
GHS: Globally Harmonized System of Classification and Labeling of Chemicals
GLP: Good laboratory practice
H-statement: Hazard Statement
HMIRC: Hazardous Materials Information Review Commission
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA)
IBC: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50: Half maximal inhibitory concentration
ICAO: International Civil Aviation Organization
ICAO-TI (ICAO): Technical Instructions by the "International Civil Aviation Organization"
IECSC: Inventory of Existing Chemical Substances in China
IMDG: International Maritime Code for Dangerous Goods
IMO: International Maritime Organization
ISHL: Industrial Safety and Health Law (Japan)
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
KECI: Korea Existing Chemicals Inventory
MARPOL: International Convention for the Prevention of Pollution from Ships
MSHA: Mine Safety and Health Administration
n.o.s.: Not otherwise Specified
NFPA: National Fire Protection Association
NO(A)EC: No Observable Effect Loading Rate
NO(A)EL: No Observable (Adverse) Effect Level
NTP: National Toxicology Program
NIOSH: National Institute for Occupational Safety and Health
NOELR: No Observable Effect Loading Rate
NZIoC: New Zealand Inventory of Chemicals
OECD: Organization for Economic Co-operation and Development
OPPTS: Office of Chemical Safety and Pollution Prevention
OEL: Occupational Exposure Limit
OSHA: Occupational Safety and Health Administration
P-Statement: Precautionary Statement
PBT: Persistent, Bioaccumulative and Toxic
PICCS: Philippines Inventory of Chemicals and Chemical Substances
PMRA: Health Canada Pest Management Regulatory Agency
PPE: Personal Protective Equipment
Q SAR: (Quantitative) Structure Activity Relationship
RCRA: Resource Conservation and Recovery Act
REACH: Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals
RQ: Reportable Quantity
RTK: Right to Know
SADT: Self Accelerating Decomposition Temperature
SARA: Superfund Amendments and Reauthorization Act
STEL: Short-term exposure limit
SDS Safety Data Sheet
STOT: Specific Target Organ Toxicity
TCSI: Taiwan Chemical Substance Inventory
TSCA: Toxic Substances Control Act (United States)
TLV: Threshold Limit Value
TWA: Time-weighted average
UN: United Nations
UNRTDG: United Nations Recommendations on the Transport of Dangerous Goods
vPvB: Very Persistent and Very Bioaccumulative
WEL: Workplace Exposure Level
WHMIS: Workplace Hazardous Materials Information System
(WAF): *water-accommodated fraction*