Issue date: 11/10/2003
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Safety Data Sheet

1. Chemical product and company identification

Product name	:	Iron(Ⅱ) sulfate heptahydrate

Company information

Name of manufacturer	:	KANTO CHEMICAL CO., INC.
Address	:	2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
Name of section	:	Business Administration Department, Reagent Division
Telephone number	:	+81-3-6214-1090
Facsimile number	:	+81-3-3241-1047
Mail address	:	BC32@kanto.co.jp
Reference No	:	16038
Product numbers applied by the SDS	:	16038, 20082, 58613
Recommended use	:	For research use only
Restrictions on use	:	Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Health hazards	Acute toxicity (oral)	Category 4
Environmental hazards	Aquatic acute	Category 3

Hazard pictograms

Signal word	:	Warning
Hazard statements	:	Harmful if swallowed Harmful to aquatic life

Precautionary statements

Prevention	:	Wash hands, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment.
Response	:	IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.
Disposal	:	Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

Distinction of substance or mixture	:	Substance
Synonyms	:	Ferrous sulfate

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Iron(Ⅱ) sulfate heptahydrate	≥ 98	FeSO4·7H2O	Listed	238-676-6	7782-63-0

4. First aid measures

First aid measures

First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.

First-aid measures after skin contact : Wash the affected areas under running water.

First-aid measures after eye contact : Wash the affected areas under running water.

First-aid measures after ingestion : Give the victim water or salt water and make him vomit. Get medical attention.

Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

Suitable extinguishing media : This product is noncombustible.

Unsuitable extinguishing media : None

Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.

Personal protection (Emergency response) : Firefighters should wear protective equipment.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of dust. Conduct operations from upwind and evacuate people downwind.

Environmental precautions

Environmental precautions : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

Methods and Equipment for Containment and Cleaning up

For containment : Sweep up in a chemical waste container. Flush contaminated area with copious amounts of water.

7. Handling and storage

Handling

Technical measures : If necessary, wear appropriate protective equipment to avoid contact with skin or inhalation of dust. Keep away from fire. Avoid heating, friction or shock.

Precautions for safe handling : Avoid formation of dust and aerosols.

Storage

Storage conditions	:	Keep the bottle tightly closed and store in a cool place (below 30 ℃).
Material used in packaging/containers	:	Glass, polyethylene, polypropylene.

8. Exposure controls / Personal protection equipment

ACGIH TWA	1 mg/m³ (as Fe)

Appropriate engineering controls	:	Use with an enclosed system or a local exhaust ventilation.

Protective equipment

Respiratory protection	:	If necessary, wear dust mask
Hand protection	:	Impervious protective gloves
Eye protection	:	Safety goggles
Skin and body protection	:	Protective clothing, protective boots

9. Physical and chemical properties

Physical state	:	Solid
Color	:	Pale bluish green
Odor	:	Odorless
pH	:	≥ 3.4 (1g/10mL water)
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	It loses 3 molecules of water at 20-73 ℃ and 6 molecules of water at 80-123 ℃. It changes to basic iron (III) sulfate at about 156 ℃.
Flammability	:	Non flammable.
Vapor pressure	:	No data available
Relative density	:	1.895 (25/4℃)
Density	:	No data available
Relative gas density	:	No data available
Solubility	:	Water: 24.7 % (0℃)
Partition coefficient n-octanol/water (log Pow)	:	No data available
Explosive limits (vol %)	:	No data available
Viscosity, kinematic	:	No data available
Particle characteristics	:	No data available

10. Stability and reactivity

Reactivity	:	Has reducing properties.
Chemical stability	:	Stable under normal conditions. The chemical effloresces in dried air and the surface becomes white. It is gradually oxidized in

		moist air, rapidly oxidized at 30-40 ℃, and its surface is covered with yellowish brown basic iron (III) sulfate.
Possibility of hazardous reactions	:	Stable under normal conditions of use.
Conditions to avoid	:	Light, heat.
Incompatible materials	:	Oxidizing substances.
Hazardous decomposition products	:	Sulfur oxides.

11. Toxicological information

Acute toxicity (oral)	:	Harmful if swallowed rat LD50=1389mg/kg
Acute toxicity (dermal)	:	Classification not possible
Acute toxicity (inhalation)	:	No classification (gas) No classification (vapor) Classification not possible (dust, mist)
Skin corrosion/irritation	:	Classification not possible
Serious eye damage/irritation	:	Classification not possible
Respiratory sensitization	:	Classification not possible
Skin sensitization	:	Classification not possible
Germ cell mutagenicity	:	No classification As for in vivo, there are negative data on micronucleus assay in cells of stomach, duodenum, colon. As for in vitro, there are negative data on reverse mutation test in bacteria, positive data on chromosome aberration test in cultured mammalian cells.
Carcinogenicity	:	Classification not possible
Reproductive toxicity	:	Classification not possible In a combined oral toxicity and reproductive toxicity study in rats, no effect on fertility was observed at doses that affected the parent animal. In addition, no effect on newborns has been observed. However, since there are not enough reports on developmental toxicity, it was classified as "Classification not possible".
STOT-single exposure	:	Classification not possible In forced oral administration to rat, there was reported that a decrease in locomotor activity, salivation, transient weight loss were observed at highest dose(2,000mg/kg) of guidance, however, there was not observed other toxic symptoms.
STOT-repeated exposure	:	Classification not possible In repeated dose toxicity, reproductive and developmental toxicity annexation test by forced oral administration to rat, extramedullary hematopoiesis elevated (male only) is observed in spleen at dosage or more(163mg/kg/day (90 days conversion)) than guidance value range of category 2. From these results, oral route is set into out of category, there is not other toxic information on other route, therefore, it is not possible to classify because of insufficient data.
Aspiration hazard	:	Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	:	Harmful to aquatic life Daphnia magna EC50=91mg/L/48h

Aquatic chronic	:	No classification Daphnia magna NOEC=10mg/L/21-day

Persistence and degradability

No additional information available

Bioaccumulative potential

Low bioconcentration
BCF : ≤2-2.9 (5mg/L), ≤20 (0.5mg/L)

Mobility in soil

No additional information available

Hazardous to the ozone layer

Ozone	:	Classification not possible

13. Disposal considerations

Ecological waste information	:	Dissolve the chemical in a large amount of water and form iron hydroxide precipitation by addition of calcium hydroxide solution or sodium carbonate solution. Filter the precipitation and bury in a landfill site approved for hazardous waste disposal. Or consult approved disposal companies.
Contaminated container and packaging	:	In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG)	:	Not applicable
Proper Shipping Name (IMDG)	:	Not applicable
Packing group (IMDG)	:	Not applicable
Transport hazard class(es) (IMDG)	:	Not applicable

Air transport(IATA)

UN-No. (IATA)	:	Not applicable
Proper Shipping Name (IATA)	:	Not applicable
Packing group (IATA)	:	Not applicable
Transport hazard class(es) (IATA)	:	Not applicable
Marine pollutant	:	Not applicable

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources	:	Dangerous Properties of Industrial Materials,6th ed. N.I.Sax Van Nostrand Reinhold Company (1984) . Handbook of Dangerous Substances Springer-Verlag Tokyo (1991) . Handbook of 17322 Chemical Products, The Chemical Daily Co.

(2022) .
NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully.The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements.The information herein is only provision of information, and it does not represent a guarantee the properties of the product.The Safety Data Sheet(SDS) is prepared based on JIS Z7253.