Issue date: 7/17/2003
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Safety Data Sheet

1. Chemical product and company identification

Product name	:	Zinc fluoride tetrahydrate, 3N5

Company information

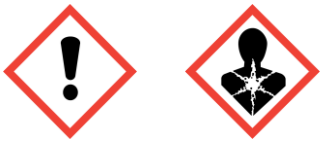
Name of manufacturer	:	KANTO CHEMICAL CO., INC.
Address	:	2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
Name of section	:	Business Administration Department, Reagent Division
Telephone number	:	+81-3-6214-1090
Facsimile number	:	+81-3-3241-1047
Mail address	:	BC32@kanto.co.jp
Reference No	:	48030
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	Serious eye damage/eye irritation	Category 2B
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation.)
	Specific target organ toxicity (repeated exposure)	Category 1 (bone)

Hazard pictograms



Signal word	:	Danger
Hazard statements	:	Causes eye irritation May cause respiratory irritation Causes damage to organs (bone) through prolonged or repeated exposure

Precautionary statements

Prevention	:	Do not breathe mist/vapors. Wash hands, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area.
Response	:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor if you feel unwell. Get medical advice/attention if you feel unwell. If eye irritation persists: Get medical advice/attention.

Storage	:	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
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

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Zinc fluoride tetrahydrate	≥ 99.95	ZnF2・4H2O	Listed	232-001-9	13986-18-0

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. If necessary, get medical treatment.
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 for at least 15 minutes. If necessary, get medical treatment.
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)	:	Wear breathing apparatus.

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 damage to the environment by flowing of spillage to rivers.

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	:	Wear appropriate protective equipment to avoid contact with skin or inhalation of dust.
Precautions for safe handling	:	Avoid formation of dust and aerosols.

Storage

Storage conditions	:	Store in a dark, cool place and tightly closed.
Material used in packaging/containers	:	Glass, polyethylene, polypropylene.

8. Exposure controls / Personal protection equipment

ACGIH TWA	2.5 mg/m³ (as F)

Appropriate engineering controls	:	Install a local ventilation system in case of dusty condition.

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	:	White
Odor	:	Odorless
pH	:	No data available
Melting point	:	872 ° C
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	100 ° C (Becomes anhydrous)
Flammability	:	Not flammable.
Vapor pressure	:	No data available
Relative density	:	2.535 (12℃)
Density	:	No data available
Relative gas density	:	No data available
Solubility	:	Water: 1.5 % (25℃)
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	:	May react with oxidizing substances.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Stable under normal conditions of use.
Conditions to avoid	:	Light, heat.
Incompatible materials	:	Oxidizing substances.
Hazardous decomposition products	:	Fluorine, hydrogen fluoride, zinc oxide.

11. Toxicological information

Acute toxicity (oral)	:	Classification not possible
Acute toxicity (dermal)	:	Classification not possible
Acute toxicity (inhalation)	:	No classification (gas) Classification not possible (vapor) Classification not possible (dust, mist)
Skin corrosion/irritation	:	Classification not possible There is description that skin irritation is present in humans. But there is no data which is supported, and since data is insufficient, it cannot be classified.
Serious eye damage/irritation	:	Causes eye irritation It irritates to the eye as fluoride, and also there is description which indicates eye irritation to humans. So it was classified into category 2B.
Respiratory sensitization	:	Classification not possible
Skin sensitization	:	Classification not possible
Germ cell mutagenicity	:	Classification not possible
Carcinogenicity	:	No classification It is classified into A4 as fluoride in ACGIH-TLV, and it is classified into I as zinc compounds in IRIS. Thus, it was classified as "No classification".
Reproductive toxicity	:	Classification not possible
STOT-single exposure	:	May cause respiratory irritation The substance was classified into category 3 (respiratory tract irritation) because there is a report in ACGIH-TLV, that exposure to the fluoride causes irritation to the airways, and because there is also report in HSFS, that it displays airway irritant properties in humans.
STOT-repeated exposure	:	Causes damage to organs (bone) through prolonged or repeated exposure Since there was description that it has influence (fluorosis) on a bone by exposure of a fluoride, and there was the same knowledge of a fluoride to humans also, it was classified into category 1 (bone).
Aspiration hazard	:	Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	:	Classification not possible
Aquatic chronic	:	Classification not possible

Persistence and degradability

No additional information available

Bioaccumulative potential

No additional information available

Mobility in soil

No additional information available

Hazardous to the ozone layer

Ozone : Classification not possible

13. Disposal considerations

Ecological waste information : Disposal should be made by one of following methods. Or entrust approved waste disposal companies with the disposal.

Solidification method :
Solidify with cement and bury in a landfill site approved for hazardous waste disposal.

Roasting method :
In case of a large amount of the chemical, recover metal zinc by roast reduction method.

<Note>
＊In case of disposal by roasting method, it is desirable to entrust to 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 : Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .
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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.