Date of issue : 3 Jun. 2020
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Safety Data Sheet

1. Product and company identification

Product name : Formamide dry F
Part No. : D312137-1
Name of manufacturer : HIRANUMA Co., Ltd.
Address : 1739 Motoyoshida, Mito, Ibaraki, 310-0836, JAPAN
Name of section : Quality assurance department
Telephone number : +81-29-247-7343
Facsimile number : +81-29-240-0381
Mail address : info-f2@hiranuma.com

2. Summary of danger and Hazard

GHS classification

Physical hazards

Corrosive to metals : Category 1

Health hazard

Carcinogenicity : Category 2

Reproductive toxicity : Category 1B

Specific target organ toxicity (single exposure) : Category 3 (narcosis)

Specific target organ toxicity (repeated exposure) : Category 2 (reproductive organs (male))

Hazard

Pictogram or symbol

Signal word : Danger

Hazard statement : May be corrosive to metals
May cause drowsiness or dizziness
Suspected of causing cancer

May damage fertility or the unborn child
May cause damage to organs (reproductive organs (male)) through prolonged or repeated exposure

Precautionary statements

Prevention : Do not handle until all safety precautions have been read and understood.
Keep only in original container.
Do not breathe mist/vapors.
Use only outdoors or in a well-ventilated area.
Wear appropriate protective gloves, glasses, clothing, face shield, or mask.

Response : IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER or doctor if you feel unwell.
Get medical advice/attention if you feel unwell.
Absorb spillage to prevent material-damage.

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
Formamide	≥ 98.5	$HCONH_2$	Listed	200-842-0	75-12-7

4. First aid measures

Inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.

Skin contact : Wash the affected areas under running water.

Eye contact : Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.

Ingestion : The chemical is volatile. Do not induce vomiting because it

increases the risk of aspiration into the lungs. Get medical attention immediately. If necessary, rinse mouth with water.

Protection for first aid person

: Rescuers should wear proper protective equipment like rubber gloves, goggles.

Anticipated acute and delayed symptoms

: Inhalation causes lethargy, headache, nausea, unconsciousness.

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5. Fire fighting measures

Extinguishing media : Water, dry chemical powder, carbon dioxide, dry sand, alcohol resistant foam

Prohibited extinguishing media

: Foam extinguisher

Particular fire fighting

: 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.
Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Alcohol-resistant foam extinguisher is effective for a large scale fire.

Protection for firefighters

: Wear breathing apparatus.

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6. Accidental release measures

Cautions for personnel

: Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Remove all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.

Cautions for environment

: Attention should be given not 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.

Removal measure : Absorb spill with inert material (e.g., diatomaceous earth, sand) and flush residual area with copious amounts of water.

Prevention of second accident

: Remove nearby sources of ignition and prepare extinguishing media.

7. Cautions of handling and storage

Handling

Technical measures

: Wear proper equipment not to contact with skin or inhale the vapor. Pay attention to fire.
Ventilate well at working places.

Cautions for safety handling

: Use with an enclosed system or a local exhaust ventilation.
Use in well-ventilated areas.

Cautions : Do not contact with oxidizing substances.

Storage

Adequate storage condition

: Store the bottle tightly closed in a cool, dark place because the substance has hygroscopic property.

Safety adequate container materials

: Glass, fluorine resin, stainless steel
Do not use polyvinyl chloride resin, polystyrene.

8. Exposure control/Personal protection

ACGIH TWA	10ppm
Remark (ACGIH)	Skin

Engineering measures

: Use only with adequate ventilation and in closed systems.

Protective equipment

Respiration protective equipment

: Chemical cartridge respirator with an organic vapor cartage or airline respirator

Hands protective equipment

: Impervious protective gloves

Eyes protective equipment

: Safety goggles

Skin and body protective equipment

: Protective clothing, protective boots

9. Physical and chemical properties

Physical state	: Liquid
Color	: Colorless
Odor	: Ammonia like
pH	: Weak alkalinity
Melting point	: 2.55 °C
Freezing point	: No data available
Boiling point	: 210.5 °C (Partially disassembled)
Flash point	: 175 °C (C.C.)
Auto-ignition point	: more than 500 °C
Decomposition point	: No data available
Flammability	: Flammable
Vapor pressure	: 0.004 hPa (20 °C)
Relative density	: No data available
Density	: 1.133 - 1.138 g/cm^3 (20 °C)
Relative gas density	: 1.6
Solubility	: Water: Miscible. Organic solvents: Miscible with ethanol, acetone.
Partition coefficient n-octanol/water (Log Pow)	: -1.51
Explosive limit	: 2.7 - 19vol%
Viscosity, kinematic	: 3.31 mm²/s (20℃)
Particle characteristics	: No data available

10. Stability and reactivity

Reactivity	: When hydrolyzed, it becomes ammonium formate, but when it is dehydrated by heating, it becomes formamide again. Corrodes copper, brass and mild steel.
Chemical stability	: Stable under normal conditions. Hygroscopic.
Possibility of hazardous reactions	: N, N-dichloromethane produced by reacting with hypochlorous acid is explosive. Hydrogen cyanide is produced by a powerful dehydrating agent such as phosphorus pentoxide.
Conditions to avoid	: Light, heat, moisture.
Incompatible materials	: Oxidizing substances.
Hazardous decomposition products	: Carbon monoxide, nitrogen oxides, hydrogen cyanide.

11. Toxicological information

Acute toxicity (oral) : No classification
rat LD50=3200mg/kg

Acute toxicity (dermal)
: No classification
rabbit LD50=6000mg/kg

Acute toxicity (inhalation)
: No classification (gas)
Classification not possible (vapor)
No classification (mist)
rat LC50>21mg/L/4h

Skin corrosion/irritation
: No classification
The substance has been reported to be slightly irritating to skin and eyes.

Serious eye damage/irritation
: No classification
In a rabbit eye irritation test (corresponding to OECD TG405), the overall average scores for 24/48/72 hours were 1.91 for conjunctival redness, 0.44 for edema, and 0.17 for corneal opacification. Based on the above, it has been reported that this substance is slightly irritating to the eyes of rabbits.

Respiratory sensitization
: Classification not possible

Skin sensitization : Classification not possible

Germ cell mutagenicity
: Classification not possible
As for in vivo, it was negative in a dominant lethal test with mice, negative in a micronucleus test with mouse peripheral blood erythrocytes, and positive in a mouse bone marrow micronucleus test by intraperitoneal administration. As for in vitro, it was negative in bacterial reverse mutation tests. Micronucleus test findings are conflicting, with multiple oral doses being negative and single intraperitoneal doses being positive. The micronucleus inducibility was unclear due to the limitations of each test, and it was classified as ″classification not possible″ due to lack of data.

Carcinogenicity : Suspected of causing cancer
ACGIH classifies it as the group A3 (confirmed animal carcinogen with unknown relevance to humans).

Reproductive toxicity : May damage fertility or the unborn child
There is a report that in a continuous breeding study with mice by the oral route, fertility effects were observed at a dose where parental toxicity. There is a report that in a teratogenicity test with mice by the oral route, skeletal malformations were observed in fetuses at a dose where no maternal toxicity was observed. From the above, it was classified into category 1B.

Specific target organ toxicity (single exposure)
: May cause drowsiness or dizziness
In a single inhalation exposure test using rats, symptoms of "lethargy, hunchback posture, clear or red eye discharge, red nasal discharge, partially closed eyes, diarrhea, and brown staining of the lower abdomen" were observed at doses of 14-21 mg/L. It is reported that the symptoms almost disappeared on the 8th day after exposure. Based on the above, it was classified into category 3 (narcosis).

Specific target organ toxicity (repeated exposure)
: May cause damage to organs (reproductive organs (male)) through prolonged or repeated exposure
In a 2-year combined chronic toxicity/carcinogenicity study by oral gavage in rats and mice, hyperplasia of bone marrow in rats, calcification of testicular arteries and sheath of testis and spleen in mice at 80 mg/kg/day. It has been reported that he matopoietic cell proliferation was observed. There is also a report that blood effects were observed at 300 mg/kg/day in two 90-day repeated dermal administration studies using rats. Furthermore, in a 2-week repeated inhalation exposure test using rats, it was reported that platelet count decreased at 500ppm or more, and kidney effects and testicular degeneration were observed at 1500ppm. Based on the above, the substance was classified into category 2 (reproductive organs (male)) because effects on testis were observed within the dose range of category 2.

Aspiration hazard : Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute : No classification
Pseudokirchneriella subcapitata ErC50>1000mg/L/72h

Aquatic chronic : No classification
Pseudokirchneriella subcapitata NOEC>10mg/L/72h

Persistence and degradability
: Readily biodegradable
BOD : 99%

Bioaccumulative potential
: Low bioconcentration
log Pow : -1.51

Mobility in soil : High mobility
Koc : 3.6

Hazardous to the ozone layer
: Classification not possible

13. Disposal consideration

Residual disposal : Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.

Containers : 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) : 1760

Proper Shipping Name (IMDG)
: CORROSIVE LIQUID, N.O.S.

Packing group (IMDG)
: III

Transport hazard class(es) (IMDG)
: 8

Air transport (IATA)

UN-No. (IATA) : 1760

Proper Shipping Name (IATA)
: Corrosive liquid, n.o.s.

Packing group (IATA)
: III
Transport hazard class(es) (IATA)
: 8
Marine pollutant : Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Pollutant category : Y
MFAG-No : 154

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

References

1) Company data on file (SDS provided by manufacturer)
2) 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.