

## Safety Data Sheet

### 1. Product and company identification

Product name : DEHYDRATED SOLVENT FM

Part No. : D312136-1

#### Company information

Name of supplier : 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

Name of Manufacturer : KANTO CHEMICAL CO., INC.

Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo,  
103-0022, JAPAN

Recommended use : For research use only

Restrictions on use : Seek expert judgment when using the product for  
applications other than those recommended.

### 2. Summary of danger and Hazard

#### GHS classification

Physical and chemical hazard

Flammable liquids : Category 3

Human health hazard

Acute toxicity (oral)  
: Category 4

Serious eye damage/eye irritation  
: Category 2A

Carcinogenicity : Category 2

Reproductive toxicity  
: Category 1B

Specific target organ toxicity (single exposure)  
: Category 1 (central nervous system, visual organs, systemic  
toxicity),  
Category 3 (narcosis)

Specific target organ toxicity (repeated exposure)  
: Category 1 (central nervous system, visual organs)  
Category 2 (reproductive organs (male))

Pictograms or symbols



Signal word	: Danger
Hazard statements	: flammable liquid and vapor Harmful if swallowed Causes serious eye irritation May cause drowsiness and dizziness Suspected of causing cancer May damage fertility or the unborn child Causes damage to organs (central nervous system, visual organs, systemic toxicity) Causes damage to organs (central nervous system, visual organs) through prolonged or repeated exposure May causes 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 away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take action to prevent static discharges. 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. Wear protective gloves/protective clothing/eye protection/face protection.
Response	: If swallowed: Call a POISON CENTER or doctor if you feel unwell. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

- 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.
- If exposed or concerned: Call a POISON CENTER or doctor.
- 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.
- Rinse mouth.
- If eye irritation persists: Get medical advice/attention.
- Storage : Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. 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

Substance/Mixture : Mixture

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Formamide	74	HCONH <sub>2</sub>	Listed	200-842-0	75-12-7
Methanol	26	CH <sub>3</sub> OH	Listed	200-659-6	67-56-1

### 4. First aid measures

#### 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.

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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 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 : 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.

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## 7. Cautions of handling and storage

### Handling

Engineering measures

: Wear proper equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited.  
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 in a dark, cool place and tightly closed.

Safety adequate container materials

: Glass, fluorine resin, stainless steel  
Do not use vinyl chloride resin, acrylic resin, polystyrene etc.

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**8. Exposure control/Personal protection**

Formamide	ACGIH TWA : 10ppm Remark (ACGIH) : Skin
Methanol	ACGIH TWA : 200ppm ACGIH STEL : 250ppm Remark (ACGIH) : Skin

Engineering measures

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

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

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**9. Physical and chemical properties**

Physical state

: Liquid

Color

: Colorless

Odor

: Characteristic odor

pH	: No data available
Melting point	: -97.49 °C (as methanol)
Freezing point	: No data available
Boiling point	: 64.51 °C (as methanol)
Flash point	: 33 °C
Auto ignition temperature	: 470 °C (as Methanol)
Decomposition temperature	: No data available
Flammability	: Flammable
Vapor pressure	: 128 hPa (20 °C) (as methanol)
Density	: Approx. 1.0 g/cm <sup>3</sup> (20 °C)
Relative gas density	: 1.1 (as methanol)
Solubility	: Water : Miscible. Organic solvents : Miscible with many kinds of organic solvents like ethanol, diethyl ether.
Partition coefficient n-octanol/water (log Pow)	: No data available
Explosive limits (vol %)	
Explosion limit	: 6.0 - 36.5 vol % (as methanol)
Viscosity, kinematic	: No data available
Particle characteristics	: No data available

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## 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	: Carbon monoxide, nitrogen oxides, hydrogen cyanide.

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## 11. Toxicological information

Acute toxicity (oral)	: Harmful if swallowed (category 4) ATEmix=1331 mg/kg
Acute toxicity (dermal)	

- : No classification  
ATEmix>2000 mg/kg
- Acute toxicity (inhalation)
- : No classification (gas)  
Classification not possible (vapor)  
Classification not possible (dust, mist)
- Skin corrosion/irritation
- : Classification not possible
- Serious eye damage/eye irritation
- : Causes serious eye irritation  
The product contains methanol (category 2A) and was classified as category 2A based on its content.  
Methanol : In a rabbit Draize test, mean scores of conjunctivitis were judged to be 2 and higher (2.1) at 24, 48 and 72-hour after installation. Chemosis (score of 2.00) observed up to 4-hour had decreased significantly by 72-hour (score of 0.50). Since it is not clear whether the effects reversed within 7 days, sub-categorization was not performed. Based on the data, the substance was classified into category 2A.
- Respiratory sensitization
- : Classification not possible
- Skin sensitization : Classification not possible
- Germ cell mutagenicity
- : Classification not possible
- Carcinogenicity : Suspected of causing cancer(category 2)  
The product contains formamide (category 2) and was classified as category 2 based on its content.  
Formamide : ACGIH classifies it as the group A3 (confirmed animal carcinogen with unknown relevance to humans).
- Reproductive toxicity
- : May damage fertility or the unborn child (category 1B)  
The product contains formamide (category 1B) and methanol (category 1B) and was classified as category 1B based on their content.  
Formamide : 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.

Methanol : In a developmental toxicity test by inhalation exposure to mice during organogenesis period, fetal resorptions and exencephaly were observed. Additionally, similar effects including cleft palate were reported in other inhalation and oral exposure tests. For effects of methanol on reproduction, scientific decisions concerning health risks are generally based on what is known as weight-of-evidence approach. Recognizing the lack of human data and the clear evidence of laboratory animal effects, it was concluded that methanol may adversely affect human development if exposures are sufficiently high. Based on the information, the substance was considered to be a presumed human reproductive toxicant and it was classified into category 1B.

Specific target organ toxicity (single exposure)

: Cause damage to organs (central nervous system, visual organs, systemic toxicity) (category 1)

May cause drowsiness and dizziness(category 3)

The product contains methanol (category 1, category 3) and formamide (category 3), and based on their content, was classified as category 1 (central nervous system, visual organs, systemic toxicity) and category 3 (narcosis).

Methanol : The symptoms of acute poisoning from the substance include CNS-depression. Formate accumulates in the blood during a latency period which leads to metabolic acidosis, visual impairment or even total blindness, headaches, dizziness, nausea, vomiting, Kussmaul breathing and coma. In some cases death is the final outcome. Further, CNS disorders, especially parkinsonism-like extrapyramidal symptoms were reported. Morphological changes, necrosis in the white substance of the brain were demonstrated. Based on the human information, the substance was classified into category 1 (central nervous system). Additionally, the eye was regarded as a target organ since visual impairment is a characteristic effect. Additionally, systemic toxicity is regarded as a target organ based on the reports of headache, nausea, vomiting, tachypnea and coma as signs of metabolic acidosis. The effects of

single exposures by inhalation include narcosis. As an acute toxicity in humans, a narcotic effect results from central nervous system depression. Based on the data, the substance was classified into category 3 (narcosis).

Formamide : 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 8<sup>th</sup> day after exposure. Based on the above, it was classified into category 3 (narcosis).

Specific target organ toxicity (repeated exposure)

: Cause damage to organs (central nervous system, visual organs) through prolonged or repeated exposure (category 1)  
May cause damage to organs (reproductive organs (male)) through prolonged or repeated exposure (category 2)

The product contains methanol (category 1) and formamide (category 2), and was classified as category 1 (central nervous system, visual organs) and category 2 (reproductive organs (male)) based on their content.

Methanol : Based on a report that the most noted health consequence of longer-term exposure to lower levels of methanol is a broad range of ocular effects, and that cases of chronic poisoning from occupational exposure to methanol were manifested by bilateral blindness, it was classified into category 1 (visual organs). Additionally, based on the report that cases of chronic poisoning from repeated exposure to methanol vapour are manifested by headache, giddiness, insomnia, and gastric disturbances, it was classified into category 1 (central nervous system).

Formamide : 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 hematopoietic 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

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## 12. Ecological information

### Ecotoxicity

Aquatic acute : No classification

Methanol : Crangon crangon LC50=1340 mg/L/96h

Formamide : Pseudokirchneriella subcapitata

ErC50>1000 mg/L/72h

Aquatic chronic : No classification

### 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

: Classification not possible

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## 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.

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## 14. Transport information

### International Regulations

#### Transport by sea (IMDG)

UN-No. (IMDG) : 1992

Proper Shipping Name (IMDG)

: FLAMMABLE LIQUID, TOXIC, N.O.S. (formamide, methanol, solution)

Packing group (IMDG)

: III

Transport hazard class(es) (IMDG)

: 3 (6.1)

**Air transport(IATA)**

UN-No. (IATA) : 1992

Proper Shipping Name (IATA)

: Flammable liquid,toxic, n.o.s. (formamide, methanol, solution)

Packing group (IATA)

: II

Transport hazard class(es) (IATA)

: 3 (6.1)

Marine pollutant : Not applicable

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Pollutant category : Y

MFAG-No : 131

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**15. Regulatory information**

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

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**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 concentrations or ranges of concentrations shown in "3. Composition/Information on ingredients" are examples calculated based on the amounts used at the time of manufacture and do not guarantee the concentrations in the product. The total value may not be 100% due to fractional processing. The Safety Data Sheet(SDS) is prepared based on JIS Z7253.