Date of issue: 2019/07/23
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Safety Data Sheet

Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:
Product name: Paraformaldehyde
SDS No. : 6161E-3
Relevant identified uses of the substance or mixture and uses advised against
Research and Development
Details of the supplier of the safety data sheet
Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.
Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN
Division: Chemical Safety Management Department
Telephone number: +81-6-6946-8061
FAX: +81-6-6946-1607

Section 2. Hazards identification

GHS classification and label elements of the product
Classification of the substance or mixture
PHYSICAL AND CHEMICAL HAZARDS
Flammable solids: Category 2
HEALTH HAZARDS
Acute toxicity (Oral): Category 4
Acute toxicity (Inhalation): Category 4
Skin corrosion/irritation: Category 2
Serious eye damage/eye irritation: Category 2
Carcinogenicity: Category 1A
Reproductive toxicity: Category 1B
Specific target organ toxicity - single exposure: Category 1 (respiratory system)
ENVIRONMENT HAZARDS
Hazardous to the aquatic environment, short-term (acute): Category 3
Hazardous to the aquatic environment, long-term (chronic): Category 3
(Note) GHS classification without description: Not classified/Classification not possible
Label elements

Signal word: Danger
HAZARD STATEMENT
Flammable solid
Harmful if swallowed
Harmful if inhaled
Causes skin irritation
Causes serious eye irritation
May cause cancer
May damage fertility or the unborn child
Causes damage to organs (respiratory system)
Harmful to aquatic life with long lasting effects
PRECAUTIONARY STATEMENT
Prevention

Avoid release to the environment.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Ground and bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Do not breathe dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wash contaminated parts thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not eat, drink or smoke when using this product.

Response

In case of fire: Use appropriate media to extinguish.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER/doctor/physician if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
IF SWALLOWED: Rinse mouth.

Disposal

Dispose of contents/container in accordance with local/national regulation.

Specific Physical and Chemical hazards

Flammable solid. Vapor/air mixture may explode.

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name:Paraformaldehyde
Content (%):91-93(As Formaldehyde)
Chemical formula:(CH2O)n
Chemicals No, Japan:9-1941
CAS No.:30525-89-4

Note : The figures shown above are not the specifications of the product.

Impurities

Methanol 0.50% (CAS No.67-56-1)
Formaldehyde 0.10% (CAS No.50-00-0)
Water 6.4-8.4% (CAS No.7732-18-5)

Section 4. First-aid measures

Descriptions of first-aid measures

General measures

IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER/doctor/physician if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.
Call a POISON CENTER/doctor/physician if you feel unwell.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

In case of fire, use water mist, foam, dry powder, CO2, dry sand to extinguish.

Unsuitable extinguishing media

Dry-powder firefighting equipment - other (except for phosphate etc.,hydrogen carbonate etc.)
Dry-powder extinguisher - other (except for phosphate etc.,hydrogen carbonate etc.)

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.
Wear protective gloves/protective clothing/eye protection/face protection.
Firefighters should wear self-contained breathing apparatus with full face peace operated positive pressure mode.

Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.
Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

Methods and materials for containment and cleaning up

Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident

Collect spillage.

Section 7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Ground and bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.
Avoid contact with eyes.

Safety Measures

Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity"

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.
Do not eat, drink or smoke when using this product.
Take off contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage

Keep container tightly closed.
Store in a cool, dry place. Do not store in direct sunlight.
Keep under lock and key.

Container and packaging materials for safe handling

Glass
Polyethylene

Section 8. Exposure controls/personal protection

Control parameters

Adopted value

(Methanol)
ACGIH(2009) TWA: 200ppm;
STEL: 250ppm (Headache; eye dam; dizziness; nausea)
(Formaldehyde)
ACGIH(2017) TWA: 0.1ppm;
STEL: 0.3ppm (URT & eye irr; URT cancer)

Notation

(Methanol)
Skin
(Formaldehyde)
DSEN;

OSHA-PEL

(Methanol)
TWA: 200ppm, 260mg/m3

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.
Eye wash station should be available.
Washing facilities should be available.

Individual protection measures

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Granular

Color: White

Odor: Pungent odor

Melting point/Freezing point: (decomposes) 120 through 180℃

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit:

Lower explosion limit: 7.0 vol %

Upper explosion limit: 73.0 vol %

Flash point: (Paraformaldehyde)71℃

Auto-ignition temperature: (Paraformaldehyde)300℃

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Insoluble

n-Octanol/water partition coefficient data is not available.

Vapor pressure: < 0.2 kPa (25 ℃)

Density and/or relative density data is not available.

Relative vapor density (Air=1): 1.03

Particle characteristics data is not available.

Section 10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

(Paraformaldehyde)

Dust explosion possible if in powder or granular form, mixed with air. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.

Decomposes on heating and on contact with acids, bases and oxidants. This produces flammable formaldehyde. (ICSC 0767)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Acids, Bases, Oxidizing agents

Hazardous decomposition products

Formaldehyde

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Data for components of the product]

[GHS Cat. Japan, base data]

(Paraformaldehyde)

rat LD50=800mg/kg (Canada CMP, 2019)
(Methanol)
human LD50=ca. 1400mg/kg (DFGOT vol.16, 2001)
(Formaldehyde)
rat LD50=600-700mg/kg, 800mg/kg (SIDS, 2003)

Acute toxicity (Dermal)
[Data for components of the product]
[GHS Cat. Japan, base data]
(Paraformaldehyde)
rabbit LD50=10000mg/kg (Canada CMP, 2019)
(Methanol)
rabbit LD50=15800mg/kg (DFGOT vol.16, 2001)
(Formaldehyde)
rabbit LD50=270mg/kg (HSDB, Access on Jun. 2017)

Acute toxicity (Inhalation)
[Data for components of the product]
[GHS Cat. Japan, base data]
(Paraformaldehyde)
dust: rat LC50=1.07mg/L/4hr (Canada CMP, 2019)
(Methanol)
vapor: rat LC50>31500ppm/4hr (DFGOT vol.16, 2001)
(Formaldehyde)
gas: rat LC50=480ppm/4hr (SIDS, 2003)

Irritant properties

Skin corrosion/irritation
[Data for components of the product]
[GHS Cat. Japan, base data]
(Paraformaldehyde)
skin irritant(Canada CMP, 2019)
(Formaldehyde)
human skin irritation (ATSDR Addendum, 2010); EU CLP Skin Corr. 1B (ECHA CL Invt., Access on Jun. 2017)

Serious eye damage/irritation
[Data for components of the product]
[GHS Cat. Japan, base data]
(Paraformaldehyde)
eye irritant(Canada CMP, 2019)
(Methanol)
rabbit category 2 : Draize test (EHC 196, 1997)
(Formaldehyde)
human/rabbit eyes irritation (EHC 89, 1989)

Sensitization

Respiratory sensitization
[Data for components of the product]
[GHS Cat. Japan, base data]
(Formaldehyde)
cat. 1; JSOH airway Gr.2, 2007; CICAD 40, 2002; DFGOT, 2014, Access on Jun. 2017

Skin sensitization
[Data for components of the product]
[GHS Cat. Japan, base data]
(Formaldehyde)
cat. 1; JSOH Skin Gr.1, 2007; EU CLP Skin Sens. 1 (ECHA CL Invt., Access on Jun. 2017)

Mutagenic effects data is not available.

Carcinogenicity

[Data for components of the product]
[GHS Cat. Japan, base data]
(Formaldehyde)
cat.1A; IARC Gr.1 (IARC 100F, 2012); NTP K (NTP RoC, 14th, 2016); ACGIH A1 (ACGIH 7th, 2017)
[IARC]
(Formaldehyde)
Group 1 : Carcinogenic to humans
[ACGIH]
(Formaldehyde)
A1(2017) : Confirmed Human Carcinogen
[EU]
(Formaldehyde)
Category 1B; Substances presumed to have carcinogenic potential for humans

Reproductive toxicity
[Data for components of the product]
[GHS Cat. Japan, base data]
(Methanol)
cat. 1B; mouse : PATTY 5th, 2001

Specific target organ toxicity (STOT)
STOT-single exposure
[Data for components of the product]
[cat.1]
[GHS Cat. Japan, base data]
(Paraformaldehyde)
respiratory system (AICIS IMAP, 2019)
[cat.3 (narcotic effects)]
[GHS Cat. Japan, base data]
(Methanol)
narcotic effect (PATTY 5th, 2001)
STOT-repeated exposure data is not available.

Aspiration hazard data is not available.

Section 12. Ecological Information

Toxicity

Aquatic toxicity
[Data for components of the product]
Hazardous to the aquatic environment, short-term (acute)
[GHS Cat. Japan, base data]
(Paraformaldehyde)
Fish (bluegill) LC50=39.1mg/L/96hr (EPA AQUIRE 2018 et al.)
(Methanol)
Crustacea (Brine shrimp) LC50=900.73mg/L/24hr (EHC196, 1998)
(Formaldehyde)
Crustacea (Daphnia magna) LC50=2mg/L/24hr (WHO EHC, 1989)
Hazardous to the aquatic environment, long-term (chronic)
[GHS Cat. Japan, base data]
(Formaldehyde)
Crustacea (Ceriodaphnia dubia) NOEC (survival rate)=1.0mg/L/7days (NICNAS PEC, 2006)

Water solubility
(Paraformaldehyde)
poor (ICSC, 2006)
(Methanol)
100 g/100 ml (PHYSPROP_DB, 2009)

(Formaldehyde)
Miscible (ICSC, 2012)

Persistence and degradability
[Data for components of the product]
(Formaldehyde)
Rapidly degradable (BOD_Degradation:91% (CSCL DB, 1989))

Bioaccumulative potential
[Data for components of the product]
(Methanol)
log Pow=-0.82/-0.66 (ICSC, 2000)
(Formaldehyde)
log Pow=0.35 (PHYSPROP DB, 2005)

Mobility in soil
Mobility in soil data is not available.

Other adverse effects
Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods
Avoid release to the environment.
Dispose of contents/container in accordance with local/national regulation.

Section 14. Transport Information

UN Number or ID Number : 2213
UN Proper Shipping Name :
PARAFORMALDEHYDE
Class or division (Transport hazard class) : 4.1
Packing group : III
ERG GUIDE No.: 133
Special provisions No.: 223

IMDG Code (International Maritime Dangerous Goods Regulations)
UN Number or ID Number : 2213
UN Proper Shipping Name :
PARAFORMALDEHYDE
Class or division (Transport hazard class) : 4.1
Packing group : III
Special provisions No.: 223; 967

IATA (Dangerous Goods Regulations)
UN Number or ID Number : 2213
UN Proper Shipping Name :
PARAFORMALDEHYDE
Class or division (Transport hazard class) : 4.1
Hazard labels : Flamm.solid
Packing group : III
Special provisions No.: A3; A803

Environmental hazards
Marine pollutants (yes/no) : no

Section 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

Formaldehyde; Methanol; Water; Paraformaldehyde

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Section 16. Other information

GHS classification and labelling

Flammable solids, Category 2: H228 Flammable solid
Acute toxicity, Category 4: H302 Harmful if swallowed
Acute toxicity, Category 4: H332 Harmful if inhaled
Skin corrosion/irritation, Category 2: H315 Causes skin irritation
Serious eye damage/eye irritation, Category 2: H319 Causes serious eye irritation
Carcinogenicity, Category 1A: H350 May cause cancer
Reproductive toxicity, Category 1B H360 May damage fertility or the unborn child
STOT - single exposure, Category 1: H370 Causes damage to organs
Hazardous to the aquatic environment, short-term (acute), Category 3: H402 Harmful to aquatic life
Hazardous to the aquatic environment, long-term (chronic), Category 3: H412 Harmful to aquatic life with long lasting effects

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN
IMDG Code, 2020 Edition (Incorporating Amendment 40-20)
IATA Dangerous Goods Regulations (62nd Edition) 2021
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2022 TLVs and BEIs. (ACGIH)
Supplier's data/information

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.
The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.
The GHS classification data given here is based on current Japan official data (NITE published in 2021).