Date of issue: 20/11/2013
revised date 25/07/2017

Safety Data Sheet

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

Product identifier:

Product name: N,N-Dimethylformamide

Product code(SDS NO): 35770jis_E1-2

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-Cho, Koshigaya, Saitama 343-0844, Japan

Division: Quality Assurance Department

Telephone number: +81-48-986-6161

FAX: +81-48-989-2787

e-mail address: shiyaku-t@junsei.co.jp

2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL HAZARDS

Flammable liquids: Category 3

HEALTH HAZARDS

Acute toxicity Inhalation: Category 3

Serious eye damage/eye irritation: Category 1

Germ cell mutagenicity: Category 2

Carcinogenicity: Category 1B

Reproductive toxicity: Category 1B

Specific target organ toxicity - single exposure: Category 1(liver)

Specific target organ toxicity - single exposure: Category 2(respiratory system)

Specific target organ toxicity - repeated exposure: Category 1(liver)

(Note) GHS classification without description: Not applicable/Out of classification/Not classifiable

Label elements

Signal word: Danger

HAZARD STATEMENT

Flammable liquid and vapor

Toxic if inhaled

Causes serious eye damage

Suspected of causing genetic defects

May cause cancer

May damage fertility or the unborn child

Causes damage to organs(liver) after single exposure

May cause damage to organs(respiratory system) after single exposure

Causes damage to organs(liver) through prolonged or repeated exposure

PRECAUTIONARY STATEMENT

Prevention

Do not handle until all safety precautions have been read and understood.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Keep container tightly closed.

Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
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/eye protection/face protection.
Wear eye protection/face protection.
Use personal protective equipment as required.
Do not eat, drink or smoke when using this product.

Response

In case of fire: Use appropriate media for extinction.
Get medical advice/attention if you feel unwell.
Immediately call a POISON CENTER or doctor/physician.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

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

Disposal

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

Physical and Chemical hazards

Flammable liquid. Vapor/air mixture may explode.

3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name:N,N-Dimethylformamide
Content(%):99.0<
Chemical formula:C3H7NO
Chemicals No, Japan:2-680
CAS No.:68-12-2
MW:73.09
ECNO:200-679-5

4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical attention/advice if you feel unwell.
Immediately call a POISON CENTER or doctor/physician.

IF INHALED

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

IF ON SKIN(or hair)

Take off immediately all contaminated clothing. Rinse skin with water/shower.
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. Do NOT induce vomiting.

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

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Sore throat. Abdominal pain. Diarrhoea. Vomiting. Jaundice.

※Symptoms may be delayed.

※Aspiration hazard!

(Symptoms when skin and/or eye contact)

Eye's redness. Eye's pain.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

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

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Cool container with water spray.

Special protective equipment and precautions for fire-fighters

Wear fire/flame resistant/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.

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ventilate area after material pick up is complete.

Wear proper protective equipment.

PUBLIC SAFTY: Ventilate closed spaces before entering.

Environmental precautions

Runoff to sewer may create fire or explosion hazard.

Vapor explosion hazard indoors, outdoors or in sewers.

Avoid release to the rivers, lakes, ocean and groundwater.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Use clean non-sparking tools to collect absorbed material.

All equipment used when handling the product must be grounded.

Preventive measures for secondary accident

Collect spillage.

Stop leak if you can do it without risk.

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Prevent entry into waterways, sewers, basements or confined areas.

A vapor suppressing foam may be used to reduce vapors.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe vapors.

(Protective measures against fire & explosion)

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Exhaust/ventilator

Exhaust/ventilator should be available.

Safety treatments

Avoid contact with skin.

Avoid contact with eyes.

Avoid breathing vapor.

Safety Measures/Incompatibility

Do not handle until all safety precautions have been read and understood.

Use only outdoors or in a well-ventilated area.

Wear protective gloves, protective clothing or face protection.

Wear protective gloves and face protection.

Wear eye protection/face protection.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Conditions for safe storage, including any incompatibilities

Recommendation for storage

Store in a well-ventilated place. Keep container tightly closed.

Keep cool. Protect from sunlight.

Store locked up.

8. Exposure controls/personal protection

Control parameters

Control value

Japan control value (1995) <= 10ppm

Adopted value

JSOH(1974) 10ppm; 30mg/m3 (dermal)

ACGIH(1995) TWA: (10ppm) (Liver dam)

Notation･･･Skin

OSHA-PEL

TWA 10ppm, 30mg/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.

Wear positive pressure self-contained breathing apparatus (SCBA).

Hand protection

Wear protective gloves. Recommended material(s): butyl rubber

Consult with your glove and/or personnel equipment manufacturer for selection of appropriate compatible materials.

Eye protection

Wear safety glasses with side-shields.

Wear eye/face protection.

Safety and Health measures

Wash ... thoroughly after handling.

Do not eat, drink or smoke when using this product.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical properties

Appearance: Liquid

Color: Colorless～Yellow

Odor: Characteristic odor

pH: 6.7 (0.5 M solution in water)

Phase change temperature

Initial Boiling Point/Boiling point: 153℃

Melting point/Freezing point: -61℃

Decomposition temperature data N.A.

Flash point: (C.C.) 58℃

Auto-ignition temperature: 445℃

Explosive properties: Flammability or explosive limit

lower limit: 2.2vol %

upper limit: 16vol %

Vapor pressure: 0.49 kPa (25℃)

Relative Vapor Density (Air=1): 2.5

Relative density of the Vapor/air-mixture at 20℃ (Air = 1): 1.00

Specific gravity/Density: 0.95g/cm3(20℃)

Kinematic viscosity: 0.85mm2/s(25℃)

Solubility

Solubility in water: 1000g/liter(25℃)

Solubility in solvent: Very soluble in ethanol and diethyl ether.

n-Octanol /water partition coefficient: log Pow-0.87

10. Stability and Reactivity

Reactivity

Runaway polymerization will not occur.

Chemical stability

Stable under normal storage/handling conditions.

Flammable.

Possibility of hazardous reactions

Decomposes on heating. This produces toxic fumes.

Reacts violently with strong oxidants, halogens, halogenated hydrocarbons and nitrates.

Attacks some plastics(e.g. Polyvinyl chloride) and rubber(e.g. Natural rubber and Nitrile rubber).

Conditions to avoid

Contact with incompatible materials.

Open flames. Heat. Sparks

Incompatible materials

Strong oxidizing agents, Halogens, Halogenated hydrocarbons, Nitrates.

Hazardous decomposition products

Carbon oxides, Nitrogen oxides

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

rat LD50=3000～7170 mg/kg (EHC 114, 1991)

Acute toxicity (Dermal)

[GHS Cat. Japan, base data]

rat LD50=3500 mg/kg (EPA risk assesment vol.1, 2002)

Acute toxicity (Inhalation)

[GHS Cat. Japan, base data]

vapor : mouse LC50=4.7 mg/L/4hr (HSDB, 2005)

Labor standard law, Japan; Toxic

N,N-Dimethylformamide

Irritant properties

Skin corrosion/irritation

[GHS Cat. Japan, base data]

animals : not irritating （ CERI/NITE hazard assessment, 2005 ）

Serious eye damage /irritation

[GHS Cat. Japan, base data]

rabbit : severe damage (EHC 114, 1991)

No Allergenic and sensitizing effects data available

Germ cell mutagenicity

[GHS Cat. Japan, base data]

cat.2; CERI/NITE hazard assessment No.8, 2005

Carcinogenicity

[GHS Cat. Japan, base data]

cat.1B; MHLW carcinogenicityity examination, 2000

IARC-Gr.2A : Probably carcinogenic to humans

ACGIH-(A4)(1995) : Not Classifiable as a Human Carcinogen

JSOH-2B: Insufficient Evidence of Carcinogenicity for Humans

Reproductive toxicity

[GHS Cat. Japan, base data]

cat.1B; CERI/NITE hazard assessment No.8, 2005

Delayed and immediate effects and also chronic effects from short- and long-term exposure

STOT

STOT-single exposure

[cat.1]

[Japan published data]

liver (CERI/NITE hazard assessment, 2005)

[cat.2]

[Japan published data]

respiratory apparatus/system (CERI/NITE hazard assessment No.8, 2005)

STOT-repeated exposure

[cat.1]

[Japan published data]

liver (CERI/NITE hazard assessment, 2005)

No Aspiration hazard data available

12. Ecological Information

Toxicity

Aquatic toxicity

Aquatic acute toxicity component(s) data

[GHS Cat. Japan, base data]

Fish（Oryzias Latipest） LC50 > 100mg/L/96hr (MOE eco-toxicity tests of chemicals (1995) and others.)

Water solubility

100 g/100 ml (PHYSPROP Database, 2005)

Persistence and degradability

BOD_Degradation: 4.4% (Registered chemicals data check & review, Japan)

Bioaccumulative potential

BCF=0.3～0.8 (conc. 20 ppm), 0.3～1.2(conc. 2 ppm) (Registered chemicals data check & review, Japan); log Pow=-0.87 (ICSC, 2014)

13. Disposal considerations

Waste treatment methods

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

14. Transport Information

UN No, UN CLASS

UN number: 2265

UN proper shipping name: N,N-DIMETHYLFORMAMIDE

Transport hazard class(es): 3

Packing group: III

ERG GUIDE NO.: 129

Transport in bulk according to Annex II of MARPOL73/78 and IBC Code

Noxious Liquid ; Cat. Y…N,N-Dimethylformamide

15. Regulatory Information

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

US major regulations

TSCA

N,N-Dimethylformamide

Other regulatory information

We are not able to check up the regulatory information in regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.
Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.
Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

GHS classification and labelling

Flam. Liq. 3: H226 Flammable liquid and vapor
Acute Tox. 3: H331 Toxic if inhaled
Eye Dam. 1: H318 Causes serious eye damage
Muta. 2: H341 Suspected of causing genetic defects
Carc. 1B: H350 May cause cancer
Repr. 1B: H360 May damage fertility or the unborn child
STOT SE 1: H370 Causes damage to organs(liver) after single exposure

STOT SE 2: H371 May cause damage to organs(respiratory system) after single exposure

STOT RE 1: H372 Causes damage to organs(liver) through prolonged or repeated exposure

Reference Book

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 19th edit., 2015 UN
Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)
2012 EMERGENCY RESPONSE GUIDEBOOK(US DOT)
2017 TLVs and BEIs. (ACGIH)
http://monographs.iarc.fr/ENG/Classification/index.php
Supplier's data/information
Chemical Risk Information Platform (CHRIP)(NITE) http://www.safe.nite.go.jp/japan/db.html
GHS Classification Guidance for Enterprises 2013 Revised Edition (August, 2013,METI)

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