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# Safety Data Sheet

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

Product identifier:
Product name: (S)-Dibutyl Maruoka Catalyst(R)
SDS No. : KUA0126E-2
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
HEALTH HAZARDS
Serious eye damage/eye irritation: Category 1
Reproductive toxicity: Category 2
(Note) GHS classification without description: Not classified/Classification not possible
Label elements

Signal word: Danger
HAZARD STATEMENT
H318 Causes serious eye damage
H361 Suspected of damaging fertility or the unborn child
PRECAUTIONARY STATEMENT
Prevention
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear eye protection/face protection.
P280 Use personal protective equipment as required.
Response
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P310 Immediately call a POISON CENTER/doctor/physician.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage
P405 Store locked up.
Disposal
P501 Dispose of contents/container in accordance with local/national regulation.
Specific adverse human health effects
See "11. Toxicological Information".

## Section 3. Composition/information on ingredients

Mixture/Substance selection:

Mixture

| Ingredient name | Content (%) | CAS No. | ENCS | Chemical formula |
|---|---|---|---|---|
| (S)-4,4-Dibutyl-2,6-bis(3,4,5-trifluorophenyl)-4,5-dihydro-3H-dinaphtho[2,1-c:1',2'-e]azepinium bromide | - | 851942-89-7 | - | C42H36F6NBr |
| 1-Propanol | ≦3.0 | 71-23-8 | 2-207 | CH3CH2CH2OH |
| Toluene | <0.30 | 108-88-3 | 3-60; 3-2 | C6H5CH3 |

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

## Section 4. First-aid measures

Descriptions of first-aid measures

General measures

IF exposed or concerned: Get medical advice/attention.

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

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

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

## Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

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

Runoff from fire control or dilution water may cause pollution.

See "10.Stability and Reactivity".

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 a full facepiece operated in the positive pressure mode.

## Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.
Ventilate area until material pick up is complete.
Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, low areas or rivers. To be careful not discharged to the environment without being properly handled waste water contaminated.

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.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.
Avoid contact with eyes.

Safety Measures

Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands et al thoroughly after handling.
When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity".

Storage

Conditions for safe storage

Keep container tightly closed.
Store locked up. (P405)
Store in a cool, dry place. Do not store in direct sunlight.
Storage in accordance with local/national regulation.

Container and packaging materials for safe handling

Use closed unbreakable containers.

## Section 8. Exposure controls/personal protection

Control parameters

Control value and Concentration standard value

(Toluene)

Japan control value 20ppm

Adopted value

(Toluene)

JSOH(2013) 50ppm; 188mg/m3 (skin)

(Other inorganic and organic dust (third class dust ))

JSOH Respirable dust 2mg/m3, Total dust 8mg/m3

(1-Propanol)

ACGIH(2007) TWA: 100ppm (Eye & URT irr)

(Toluene)

ACGIH(2020) TWA: 20ppm (CNS, visual, & hearing impair; female repro system eff; pregnancy loss)

[ACGIH] Notation

(Toluene)

OTO

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

Recommend to use protective equipment in conformity with the standards.

Use appropriate protective equipment in accordance with local/national regulation.

Respiratory protection

Wear respiratory protection (dust-proof mask/gas mask). Select chemical cartridge corresponding to type of gases when using a gas mask.

Hand protection

Wear impervious protective glove.

Eye protection

Wear eye/face protection. Wear safety goggles in cases gas is generated.

Skin and body protection

Wear protective clothing.

## Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Powder

Color: Light gray

Odor: Odorless to practically odorless

Melting point/Freezing point data is not available.

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 data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.
pH data is not available.
Kinematic viscosity data is not available.
Solubility:
Solubility in water data is not available.
Solubility in solvent data is not available.
n-Octanol/water partition coefficient data is not available.
Vapor pressure data is not available.
Density and/or relative density data is not available.
Relative vapor density (Air=1) data is not available.
Particle characteristics data is not available.
Other information
Other information is not available.

## Section 10. Stability and Reactivity

Reactivity
Not available.
Chemical stability
Stable under normal storage/handling conditions.
Possibility of hazardous reactions
(1-Propanol)
Reacts with strong oxidants and strong acids. This generates fire and explosion hazard. This produces irritating and toxic gases. Attacks some forms of plastic and rubber. On combustion, forms toxic gases including carbon monoxide. (ICSC 0553)
(Toluene)
Reacts violently with strong oxidants. This generates fire and explosion hazard. (ICSC 0078)
Conditions to avoid
Contact with incompatible materials.
Contact with fire source.
Incompatible materials
Strong acids, Strong oxidizing agents
Hazardous decomposition products
Carbon oxides, Nitrogen oxides, Fluorine compounds, Bromine compounds

## Section 11. Toxicological Information

Information on toxicological effects
Acute toxicity
Acute toxicity (Oral)
[Data for components of the product]
[GHS Cat. Japan, base data]
(1-Propanol)
rat LD50=2200mg/kg (MOE risk assessment vol.6, 2008)
Acute toxicity (Dermal)
[Data for components of the product]
[GHS Cat. Japan, base data]
(1-Propanol)
rabbit LD50=4000mg/kg (PATTY 5th, 2001)
Acute toxicity (Inhalation)

[Data for components of the product]
[GHS Cat. Japan, base data]
(Toluene)
vapor: rat LC50=3319-8800ppm/4hr (EU-RAR, 2003) et al.

Irritant properties

Skin corrosion/irritation

[Data for components of the product]
[GHS Cat. Japan, base data]
(Toluene)
rabbit moderate irritation (EU-RAR, 2003)

Serious eye damage/irritation

[Product]
Category 1, Causes serious eye damage

[Data for components of the product]
[GHS Cat. Japan, base data]
(1-Propanol)
rabbit severe irritation (ACGIH, 2004 et al)
(Toluene)
rabbit slight eyes irritation (EU-RAR, 2003)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenicity

[Data for components of the product]
[IARC]
(Toluene)
Group 3 : Not classifiable as to its carcinogenicity to humans
[ACGIH]
(1-Propanol)
A4(2007) : Not Classifiable as a Human Carcinogen
(Toluene)
A4(2020) : Not Classifiable as a Human Carcinogen

Reproductive toxicity

[Product]
Category 2, Suspected of damaging fertility or the unborn child

[Data for components of the product]
[GHS Cat. Japan, base data]
(1-Propanol)
cat. 2; rat : ACGIH, 2007
(Toluene)
cat. 1A; NITE Initial Risk Assessment Report 87, 2006
cat. add; SIDS(J), Access on Apr. 2012

Specific target organ toxicity (STOT)

STOT-single exposure

[Data for components of the product]
[cat.3 (respiratory tract irritation)]
[GHS Cat. Japan, base data]
(1-Propanol)
respiratory tract irritation
(Toluene)
respiratory tract irritation (PATTY 5th, 2001)

[cat.3 (narcotic effects)]
[GHS Cat. Japan, base data]
(1-Propanol)
narcotic effect (PATTY 5th, 2001)
(Toluene)
narcotic effect (EHC 52, 1985; IARC 47, 1989)
STOT-repeated exposure data is not available.
Aspiration hazard
[Data for components of the product]
[cat.1]
[GHS Cat. Japan, base data]
(Toluene)
cat. 1; hydrocarbon, kinematic viscosity =0.86 mm2/s (40℃) (cal.) (Dynamic viscosity : 0.727 mPa・s (Renzo,1986), Density : 0.8483 g/mL (CRC 91st, 2010))
Information on other hazards
May cause lung disorders by massive inhalation of powdered substance.
-e.g. fibrosis of lung tissue, cough, sputum, breath shortness, dyspnea, decline of lung function, interstitial lung disease, pneumothorax

## 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]
(1-Propanol)
Crustacea (Daphnia) LC50=3025mg/L/48hr (EHC102, 1990)
(Toluene)
Crustacea (Ceriodaphnia dubia) EC50=3.78mg/L/48hr (NITE Initial Risk Assessment Report, 2006)
Hazardous to the aquatic environment, long-term (chronic)
[GHS Cat. Japan, base data]
(Toluene)
Crustacea (Ceriodaphnia dubia) NOEC=0.74mg/L/7days (NITE Initial Risk Assessment Report, 2006)
Water solubility
(1-Propanol)
100 g/100 ml (PHYSPROP_DB, 2005)
(Toluene)
none (ICSC, 2002)
Persistence and degradability
[Data for components of the product]
(Toluene)
BOD_Degradation : 123% (METI existing chemical safety inspections)
Bioaccumulative potential
[Data for components of the product]
(1-Propanol)
log Pow=0.25 (ICSC, 1999)
(Toluene)

log Kow=2.73 (PHYSPROP DB, 2008)

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

Dispose of contents/container as industrial waste. Accordance with local/national regulation.

## Section 14. Transport Information

UN Number or ID Number : Not regulated

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : Not regulated

IATA (Dangerous Goods Regulations)

UN Number or ID Number : Not regulated

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

1-Propanol; Toluene

Other regulatory information

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

## Section 16. Other information

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN
IMDG Code, 2022 Edition (Incorporating Amendment 41-22)
IATA Dangerous Goods Regulations (65th Edition) 2024
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2024 TLVs and BEIs. (ACGIH)
JIS Z 7252 : 2019
JIS Z 7253 : 2019
2023 Recommendation on TLVs (JSOH)
Supplier's data/information

General Disclaimer

Please provide SDS to customers for selling or transferring.
All chemicals have unknown hazard. Handle the product with care.
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 2022).