Date of issue: 25/09/2017
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Safety Data Sheet

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

Product identifier:
- Product name: Phenol reagent
- SDS No. : E0092E-2

Details of the supplier of the safety data sheet
- Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.
- Address: 3-1, Honmachibashi, Chuo-ku,Osaka ,JAPAN
- Division: Safety Management Dept. of Chemicals
- Telephone number: +81-6-6946-8061
- FAX: +81-6-6946-1607
- e-mail address: kagakuhinanzenkanri@kishida.co.jp

2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

HEALTH HAZARDS
- Acute toxicity (Oral): Category 4
- Acute toxicity (Inhalation): Category 3
- Skin corrosion/irritation: Category 1
- Serious eye damage/eye irritation: Category 1
- Respiratory sensitization: Category 1
- Germ cell mutagenicity: Category 2
- Carcinogenicity: Category 2
- Specific target organ toxicity - single exposure: Category 2(respiratory system)
- Specific target organ toxicity - repeated exposure: Category 2(systemic toxicity; testis; teeth; respiratory system)

ENVIRONMENT HAZARDS
- Hazardous to the aquatic environment (Acute): Category 2
- Hazardous to the aquatic environment (Long-term): Category 3

Label elements

Signal word: Danger

HAZARD STATEMENT
- Harmful if swallowed
- Toxic if inhaled
- Causes severe skin burns and eye damage
- Causes serious eye damage
- May cause allergy or asthma symptoms or breathing difficulties if inhaled
- Suspected of causing genetic defects
- Suspected of causing cancer
- May cause damage to organs after single exposure(respiratory system)
- May cause damage to organs through prolonged or repeated exposure(systemic toxicity; testis; teeth; respiratory system)
- Toxic to aquatic life
- Harmful to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

Avoid release to the environment.
Do not breathe dust/fume/gas/mist/vapors/spray.
In case of inadequate ventilation wear respiratory protection. (as specified by the manufacturer/supplier or the competent authority.)
Use only outdoors or in a well-ventilated area.
Wash contaminated parts thoroughly after handling.
Wear protective gloves, protective clothing or face protection.
Wear eye protection/face protection.
Do not eat, drink or smoke when using this product.

Response

Get medical advice/attention if you feel unwell.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER or doctor/physician.
IF exposed or concerned: Call a POISON CENTER or doctor/physician.
If experiencing respiratory symptoms: 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.
Wash contaminated clothing before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

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

Disposal

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

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3. Composition/information on ingredients

Mixture/Substance selection:

Mixture

Ingredient name:Sodium tungstate
Content (%):7.3
Chemical formula:Na2O4W
Chemicals No, Japan:1-794
CAS No.:13472-45-2
ECNO:236-743-4

Ingredient name:Disodium molybdate
Content (%):1.7
Chemical formula:MoNa2O4
Chemicals No, Japan:1-478
CAS No.:7631-95-0
MW:205.9
ECNO:231-551-7

Ingredient name:Phosphoric acid
Content (%):5.9
Chemical formula:H3PO4
Chemicals No, Japan:1-422
CAS No.:7664-38-2

MW:98.00
ECNO:231-633-2

Ingredient name:Hydrochloric acid
Content (%):3.6
Chemical formula:ClH
Chemicals No, Japan:1-215
CAS No.:7647-01-0
MW:36.5
ECNO:231-595-7

Ingredient name:Lithium sulfate
Content (%):11
Chemical formula:Li2O4S
Chemicals No, Japan:1-769
CAS No.:10377-48-7
MW:109.94
ECNO:233-820-4

Ingredient name:Bromine
Content (%):0.42
Chemical formula:Br2
CAS No.:7726-95-6
MW:159.8
ECNO:231-778-1

Ingredient name:Water
Content (%):71
Chemical formula:H2O
CAS No.:7732-18-5
MW:18.02
ECNO:231-791-2

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

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4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical attention/advice if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
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.

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

Containers may explode when heated.

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

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

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

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

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

Preventive measures for secondary accident

Collect spillage.

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/sparks/open flames/hot surfaces. - No smoking.

(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 or face protection.

Wear 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.
Wash contaminated clothing before reuse.

Storage

Conditions for safe storage

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

Container and packaging materials for safe handling

Glass
Polyethylene

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8. Exposure controls/personal protection

Control parameters

Adopted value

(Sodium tungstate)
ACGIH(2016) TWA: 3mg-W/m3(R)(Lung dam)
(Disodium molybdate)
ACGIH(1999) TWA: 0.5mg-Mo/m3(R) (LRT irr) (soluble compounds)
TWA: 10mg-Mo/m3(I); 3mg-Mo/m3(R) (LRT irr) (insoluble compounds)
(Phosphoric acid)
ACGIH(1992) TWA: 1mg/m3;
STEL: 3mg/m3 (URT, eye & skin irr)
(Hydrochloric acid)
ACGIH(2000) STEL: C 2ppm (URT irr)
(Bromine)
ACGIH(1991) TWA: 0.1ppm;
STEL: 0.2ppm (URT & LRT irr; lung dam)

OSHA-PEL

(Bromine)
TWA: 0.1ppm, 0.7mg/m3
(Hydrochloric acid)
STEL: C 5ppm, 7mg/m3
(Disodium molybdate)
TWA: 5mg-Mo/m3 (Soluble compounds)
TWA: 15mg-Mo/m3 (Insoluble compounds-Total dust)
(Phosphoric acid)
TWA: 1mg/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.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid
Color: Yellow
Odor: Slightly irritating odor
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: Soluble
n-Octanol/water partition coefficient data is not available.
Vapor pressure data is not available.
Density and/or relative density: 1.22
Relative vapor density (Air=1) data is not available.
No Particle characteristics data is not available.

10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

(Disodium molybdate)
Decomposes on heating. This produces toxic fumes including sodium oxide. Reacts violently with halogens. This generates fire and explosion hazard. (ICSC 1010)
(Phosphoric acid)
The substance is a medium strong acid. Reacts violently with bases. The substance violently polymerizes under the influence of azo compounds and epoxides. On combustion, forms toxic fumes of phosphorus oxides. Decomposes on contact with alcohols, aldehydes, cyanides, ketones, phenols, esters, sulfides or halogenated organics. This produces toxic fumes. Attacks many metals. This produces flammable/explosive gas (hydrogen). (ICSC 1008)
(Hydrochloric acid)
The gas is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen.
The solution in water is a strong acid. It reacts violently with bases and is corrosive. Reacts violently with oxidants. This produces toxic gas (chlorine). Attacks many metals in the presence of water. This produces flammable/explosive gas (hydrogen). (ICSC 0163)
(Bromine)
The vapour is heavier than air.
Upon heating, toxic fumes are formed. The substance is a strong oxidant. It reacts violently with combustible and reducing materials. The substance reacts with most organic and inorganic compounds, causing fire and explosion hazard. Attacks metal, some forms of rubber, plastic and coatings. (ICSC 0107)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Bases, Oxidizing agents, Reducing agents, Halogens, Alcohols, Aldehydes, Cyanides, Ketones, Phenols, Esters, Sulfides, Halogenated organics, Metals, Combustible materials, Organic and inorganic compounds

Hazardous decomposition products

Sodium oxide, Phosphorus oxides, Hydrogen, Chlorine

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11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

(Sodium tungstate)

rat LD50=1190mg/kg (DFGOT vol.23, 2007)

(Disodium molybdate)

rat LD50=250mg/kg (MOE risk assessment vol.10, 2012)

(Phosphoric acid)

rat LD50=ca. 2000mg/kg (SIDS, 2011)

(Hydrochloric acid)

rat LD50=238mg/kg (SIDS, 2009)

(Lithium sulfate)

rat LD50=613mg/kg (RTECS, 2005)

(Bromine)

rat LD50=2600, 3100mg/kg (HSDB, 2014)

Acute toxicity (Dermal)

[GHS Cat. Japan, base data]

(Phosphoric acid)

rabbit LD50=1260mg/kg (85%)(100% conversion value:1071 mg/kg)(SIDS, 2011)

Acute toxicity (Inhalation)

[GHS Cat. Japan, base data]

(Phosphoric acid)

mist: rat LC50=0.9615mg/L/4hr (SIDS, 2011)

(Hydrochloric acid)

mist: rat LC50=0.42mg/L/4hr (SIDS, 2009)

(Bromine)

vapor: mouse LC50=120ppm/4hr

Irritant properties

Skin corrosion/irritation

[GHS Cat. Japan, base data]

(Disodium molybdate)

severe irritation (HSDB, 2015)

(Phosphoric acid)

rabbit 85% solution/corrosive (SIDS, 2011); irritation I (EPA Pesticide)

(Hydrochloric acid)

rabbit/mouse/rat/human corrosive (SIDS, 2009)

(Bromine)

human extreme irritation (ACGIH 7th, 2001)

Serious eye damage/irritation

[GHS Cat. Japan, base data]

(Sodium tungstate)

rabbit mild conjunctiva irritation (PATTY 6th, 2012)

(Disodium molybdate)

eyes irrtation (HSDB, 2015)
(Phosphoric acid)
rabbit (75-85%) corrosive (SIDS, 2011)
(Hydrochloric acid)
rabbit corrosive (SIDS, 2002)
(Bromine)
severe eyes irritation (ACGIH 7th, 2001)

Sensitization
Respiratory sensitization
[GHS Cat. Japan, base data]
(Hydrochloric acid)
cat. 1; Occupational/Environmental Allergy Society, Japan

Germ cell mutagenicity
[GHS Cat. Japan, base data]
(Disodium molybdate)
cat. 2; MOE risk assessment vol.10, 2012

Carcinogenicity
[GHS Cat. Japan, base data]
(Disodium molybdate)
cat.2; ACGIH A3 (ACGIH 7th, 2003 (Soluble molybdenum compounds))
(Hydrochloric acid)
IARC-Gr.3 : Not Classifiable as a Human Carcinogen
(Hydrochloric acid)
ACGIH-A4(2000) : Not Classifiable as a Human Carcinogen
(Disodium molybdate)
ACGIH-A3(1999) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

Reproductive toxicity
[GHS Cat. Japan, base data]
(Disodium molybdate)
cat. 2; MOE risk assessment vol.10, 2012

STOT
STOT-single exposure
[cat.1]
[GHS Cat. Japan, base data]
(Phosphoric acid)
respiratory system (SIDS, 2011; HSDB, 2014)
(Hydrochloric acid)
respiratory system (ACGIH, 2003)
[cat.3 (resp. irrit.)]
[GHS Cat. Japan, base data]
(Disodium molybdate)
respiratory tract irritation (MOE risk assessment vol.10, 2012)
STOT-repeated exposure
[cat.1]
[GHS Cat. Japan, base data]
(Disodium molybdate)
systemic toxicity; testis (Sodium molybdate dihydrate (CAS: 10102-40-6) MOE risk assessment vol.10, 2012)
(Hydrochloric acid)
teeth; respiratory system (SIDS, 2002)
[cat.2]
[GHS Cat. Japan, base data]
(Disodium molybdate)
kidney (Sodium molybdate dihydrate (CAS: 10102-40-6) SIDS/SIAP, 2013)

Aspiration hazard data is not available.

12. Ecological Information

Ecotoxicity

Aquatic toxicity

Toxic to aquatic life

Harmful to aquatic life with long lasting effects

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(Hydrochloric acid)

Crustacea (Daphnia magna) EC50=0.492mg/L/48hr (SIDS, 2005)

(Phosphoric acid)

Fish (Atheriniformes) LC50=75.1mg/L/96hr (SIDS, 2011)

(Bromine)

Crustacea (Daphnia magna) LC50=1mg/L/48hr (Aquire, 2003)

Water solubility

(Disodium molybdate)

84 g/100 ml (100℃) (ICSC, 2004)

(Hydrochloric acid)

67 g/100 ml (30℃) (ICSC, 2000)

(Phosphoric acid)

very good (ICSC, 2000)

(Bromine)

4.0 g/100 ml (20℃) (ICSC, 2009)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

(Hydrochloric acid)

log Pow=0.25 (ICSC, 2000)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

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 (– if this is not the intended use).

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

14. Transport Information

UN No. or ID No.: 1760

UN Proper Shipping Name :

CORROSIVE LIQUID, N.O.S.

Class or division (Transport hazard class) : 8

Packing group : III

ERG GUIDE No.: 154

Special provisions No.: 223; 274

IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 1760

Proper Shipping Name :
CORROSIVE LIQUID, N.O.S.
Class or division : 8
Packing group : III
Special provisions No.: 223; 274

IATA Dangerous Goods Regulations
UN No.: 1760
Proper Shipping Name :
CORROSIVE LIQUID, N.O.S.
Class or division : 8
Hazard labels : Corrosive
Packing group : III
Special provisions No.: A3; A803

Environmental hazards
MARPOL Annex III – Prevention of pollution by harmful substances
Marine pollutants (yes/no) : no

Maritime transport in bulk according to IMO instruments
Noxious Liquid ; Cat. Z
Hydrochloric acid; Phosphoric acid
Non Noxious Liquid ; Cat. OS
Water

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture
Chemicals listed in TSCA Inventory
Disodium molybdate; Hydrochloric acid; Phosphoric acid; Bromine; Water; Lithium sulfate; Sodium tungstate

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

16. Other information

GHS classification and labelling
Acute Tox. 4: H302 Harmful if swallowed
Acute Tox. 3: H331 Toxic if inhaled
Skin Corr. 1: H314 Causes severe skin burns and eye damage
Eye Dam. 1: H318 Causes serious eye damage
Resp. Sens. 1: H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
Muta. 2: H341 Suspected of causing genetic defects
Carc. 2: H351 Suspected of causing cancer
STOT SE 2: H371 May cause damage to organs after single exposure
STOT RE 2: H373 May cause damage to organs through prolonged or repeated exposure
Aquatic Acute 2: H401 Toxic to aquatic life
Aquatic Chronic 3: H412 Harmful to aquatic life with long lasting effects

Reference Book
Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)
IATA Dangerous Goods Regulations (62nd Edition) 2021
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2020 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 2019).