

Material Safety Data Sheet

1. Chemical Product and Company Identification

가. Trade Name	HOC-301(Hardner)
General Use	Indoor heavy electric machine epoxy resin
Manufacturer	Jeil Chemical Co., Ltd. 38-16. Hoehak 3-gil, Onsan-Eup, Ulju-Gun, Ulsan, South Korea 052-227-5003

2. Hazards Identification

a. Hazards Classification and Statements	Acute. Tox. : Category 4 Skin Irrit. : Category 2 Eye Irrit. : Category 2 Skin Sens. : Category 1 Carcinogenicity : Category1B Carcinogenicity : Category1A STOT Rep. : Category 1 Aquatic Chronic : Category 2
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b. Hazards Description:

Pictogram



Signal word

DANGER

Hazards Classification and Statements

H290 May be corrosive to metals
H312 Harmful in contact with skin
H314 Causes severe skin burns and eye damage
H317 May cause an allergic skin reaction
H318 Causes serious eye damage
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 May cause respiratory irritation
H373 May cause damage to organs through prolonged or repeated exposure

Prevention precautionary statements

P234 Keep only in original container
P260 Do not breathe dust/fume/gas/mist/vapours/spray
P261 Avoid breathing dust/fume/gas/mist/vapours/spray
P264 Wash ... thoroughly after handling
P271 Use only outdoors or in a well-ventilated area
P272 Contaminated work clothing should not be allowed out of the workplace
P280 Wear protective gloves/protective clothing/eye protection/face protection

Response precautionary statements

P285 In case of inadequate ventilation wear respiratory protection
P301+P330+P331 Toxic if swallowed Fatal if inhaled Toxic if inhaled
P302+P352 IF ON SKIN: Wash with soap and water
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing Rinse skin with water/shower

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician
P312 Call a POISON CENTER or doctor/physician if you feel unwell
P314 Get Medical advice/attention if you feel unwell
P321 Specific treatment (see ... on this label)
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P363 Wash contaminated clothing before reuse
P403+P233 Store in a well ventilated place Keep container tightly closed
P405 Store locked up
P406 Store in a corrosive resistant/... container with a resistant inner liner
P501 Dispose of contents/container in accordance with local/regional/national/international regulation (to be specified).

Storage precautionary statements

Disposal precautionary statements:

C. Other harmful or danger characteristic (NFPA)

Neopentyl glycol

Health hazard	1
Fire	1
Reactivity Hazard	0

ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE

Health hazard	3
Fire	1
Reactivity Hazard	0

hexahydrophthalic anhydride

Health hazard	2
Fire	1
Reactivity Hazard	0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS NO.	Amount(%)
Neopentyl glycol	DIMETHYLOLPROPANE 126-30-7	0~5
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	(1,3-ISOBENZOFURANDIONE, 26590-20-5	60~65
hexahydrophthalic anhydride	1,3-ISOBENZOFURANDIONE, HEXAHYDRO- 85-42-7	25~30

4. First aid measures

- a. Eye contact
Flush eyes with plenty of water for at least 15 minutes while holding eyelids open.
Consult a physician if signs of irritation appear.
- b. Skin contact
Immediately remove contaminated clothing or shoes, wash skin with plenty of water for at least 15 minutes. Use soap if readily available, or follow by thoroughly washing soap and water. Do not reuse clothing until thoroughly decontaminated.
- c. Inhalation
Move person to fresh air area and provide oxygen if breathing is difficult. Consult a physician if effects
- d. Ingestion
Do not induce vomiting because of risk of aspiration. Rinse mouth with water. Consult a physician if effects occur.

5. Fire fighting measures

Hazardous products of Combustion In case of fire, toxic fumes might be formed
Extinguishing media Water spray, foam, dry chemical, or carbon dioxide

Unusual fire or explosion Hazards

May produce hazardous fumes of hazardous decomposition products

When fire fighting, wear full protective equipment including self-contained breathing apparatus

6. Accidental release measures

Personal precautions

Put on adequate protective equipment. See section 8, Exposure control/ Personal Protection

Environmental precautions

Keep away from drains, surface-water, ground water and soil.

Clean-up Method

Sweep spilled material into non-leaking containers.
All disposal methods must be in compliance

with applicable local regulations.

7. Handling and storage

a. Storage

Keep away from: acids, alkalis, oxidizers. Keep in cool, dry, ventilate storage and in closed containers. Store in steel containers preferably located outdoors, above ground, and surrounded by dikes to contain spills or leaks. Avoid freezing temperatures during storage. Do not store in reactive metal containers. Product may partially freeze with extended exposure to cold temperatures.

b. Handling

When handling, do not eat, drink, or smoke. Avoid contact with eyes. Avoid contact with skin. Spraying increases the risk of hazardous exposure. In atmospheres where the material is sprayed, workers should avoid contact with aerosols containing S through proper engineering controls, such as exhaust ventilation. Wear goggles and face shield. Do not get into the eyes. Other individuals working in the vicinity of the product where exposure can occur should also be fitted with chemical splash goggles. Contaminated clothing should be properly disposed of in a manner that will not cause additional exposure. Workers should be strongly encouraged to follow good personal hygiene practices, such as thorough washing of hands, arms, neck and face following working with HOC-301

8. Exposure controls/personal protection

a. Exposure Limits

National regulations

No Data

ACGIH 규정

STEL 0.005 mg/m³

Biological exposure limits

No Data

b. Suitable Engineering Management

Use process isolation, local ventilation or other engineering management to maintain air quality under exposure limits.

Set wash up facilities and safe shower system, where storage or use of this material.

c. Personal protector

Eye protection

Safety glasses with side shields.

Hands protection

Chemical resistant gloves.

Skin and body protection

Chemical resistant protective suit. Chemicals resistant boots.

Respiratory protection

Never exceed the national Occupational Exposure Limit. Use local. Exhaust

9. Physical and chemical properties

1. Appearance

Type

Liquid

Color

Yellow

2. Odor

No Data

3. Odour threshold

No Data

4. pH	No Data
5. Melting Point/Freezing Point	No Data
6. Boiling Point	No Data
7. Flash Point	No Data
8. Evaporation Rate	No Data
9. Flammability	No Data
10. Flammable Limits	No Data
11. Vapor Pressure	No Data
12. Solubility in WATER	No Data
13. Vapor density(water=1)	No Data
14. Density	No Data
15. n-Octanol/Water Partition coefficient	No Data
16. Autoignition Temperature	No Data
17. Decomposition Temperature	No Data
18. Viscosity(at 25°C)	200~300 cps(25°C)
19. Molecular Weight	No Data

10. Stability and reactivity

Conditions to avoid	Can react strongly with epoxy resins at elevated temperature
Materials to avoid	Acids, amines, bases, oxidizing agents
Hazardous reaction	Hazardous polymerization does not occur by itself
Decomposition temperature	Not available
Hazardous decomposition component	Hazardous decomposition products are not expected to form during normal storage

11. Toxicological information

a. Information on the likely routes of exposure

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.

b. Acute Toxicity Data

Acute toxic

Oral

Neopentyl glycol	LD50 3200 mg/kg Rat
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	LD50 2140 mg/kg Rat
hexahydrophthalic anhydride	LD50 4040 mg/kg Rat

Dermal

Neopentyl glycol	LD50 > 4000 mg/kg Guinea pig
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	LD50 1410 mg/kg Rabbit
hexahydrophthalic anhydride	No Data

Inhalation

No Data

Skin Corrosion/Irritation

No Data

Serious Eye Damage/Irritation

No Data

Respiratory sensitization

Hazard Category: Resp. Sens

Skin sensitization

Hazard Category: Skin Sens

Carcinogenicity	No Data
IARC	No Data
OSHA	No Data
ACGIH	No Data
NTP	No Data
EU CLP	No Data
Germ Cell Mutagenicity	Ames test, Salmonella typhimurium
Reproductive toxicity	No Data
Specific target organ toxicity (single exposure):	No Data
Specific target organ toxicity (repeated exposure):	No Data
Aspiration hazard	No Data

12. Environmental information

a. Aquatic and terrestrial ecotoxicity

Fish toxicity (Acute)

Neopentyl glycol	LC50 > 1000 mg/l 96 hr Oryzias latipes
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	No Data
hexahydrophthalic anhydride	LC50 660 mg/l 48 hr Leuciscus idus

Water flea toxicity (Acute)

Neopentyl glycol	LC50 3908.954 mg/l 48 hr
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	No Data
hexahydrophthalic anhydride	EC50 103 mg/l 24 hr Daphnia magna

Birds growth hinderance test (Acute)

Neopentyl glycol	EC50 2198.166 mg/l 96 hr
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	EC50 16.415 mg/l 96 hr
hexahydrophthalic anhydride	EC50 95.6 mg/l 72 hr Scenedesmus subspicatus

b. Persistence and degradability

Persistence

Neopentyl glycol	log Kow 0.16
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	log Kow 2.51
hexahydrophthalic anhydride	log Kow 2.17

Degradability

No Data

c. Bioaccumulative potential:

condenasability

Neopentyl glycol	BCF 0.3 ~ 0.5
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	BCF 21
hexahydrophthalic anhydride	No Data

biodegradability	
Neopentyl glycol	(< 5%)
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	No Data
hexahydrophthalic anhydride	98 (%) 28 day
d. Mobility in soil:	No Data
e. Other adverse effects	No Data

13. Disposal considerations

Incineration is the recommended disposal method for all chemical wastes. Material collected on absorbent material may be disposed in a landfill in accordance with all applicable local, state and federal regulations

14. Transport information

a. UN No.	1760
b. Proper Shipping Name	(CORROSIVE LIQUID, N.O.S.)
c. Transportation Class	8
d. Packing Group	1
e. Marine Pollutant	No Data
f. Special precautions for user	
fire emergency	F-A
spill Emergency	S-B

15. Regulation information

a. Industrial Safety and Health Act	No Data
b. Toxic Chemical Control Act	No Data
c. Dangerous Material Safety Control Act	No Data
d. Wastes Management Act	No Data
e. Other requirements in domestic and other countries	
National regulation	
POPs Control Act	Not applicable
other countries regulation	
U.S.A(OSHA)	Not applicable
U.S.A(CERCLA)	Not applicable
U.S.A(EPCRA 302)	Not applicable

	Not applicable
USA(EPCRA 304)	
	Not applicable
USA(EPCRA 313)	
	Not applicable
EU	
Neopentyl glycol	Not applicable
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	Xi; R41R42/43
hexahydrophthalic anhydride	Xi; R41R42/43
EU	
Neopentyl glycol	Not applicable
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	R41, R42/43
hexahydrophthalic anhydride	R41, R42/43
EU	
Neopentyl glycol	Not applicable
ISOMETHYLTETRAHYDROPHthalic ANHYDRIDE	S2, S22, S24, S26, S37/39
hexahydrophthalic anhydride	S2, S23, S24, S26, S37/39

16. Other requirements in domestic and other countries

a. Information source and references

hexahydrophthalic anhydride

International Uniform Chemical Information Database(IUCLID)(<http://ecb.jrc.it/esis>)

National Institute of Technology and Evaluation(NITE)(http://www.safe.nite.go.jp/ghs/h18_bunrui.html)

CRC

Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)

International Uniform Chemical Information Database(IUCLID)(<http://ecb.jrc.it/esis>)

Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)

International Uniform Chemical Information Database(IUCLID)(<http://ecb.jrc.it/esis>)

IUCLID

The Chemical Database, The Department of Chemistry at the University of Akron(<http://ull.chemistry.uakron.edu/erd>)

b. Issuing date 2014-09-12

c. Revision number and date

Revision number

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Date

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d. Others