

Material Safety Data Sheet

1. Chemical Product and Company Identification

Trade Name	JA-210(Hardner)
General Use	Epoxy adhesive sandpaper
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 3 Eye Irrit. : Category 1 Skin Sens. : Category 1 Carcinogenicity : Category1B STOT Rep. : Category 3 Aquatic Chronic : Category 3
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b. Hazards Description:

Pictogram



Signal word	DANGER
Hazards Classification and Statements	H302 May be harmful if swallowed H311: Toxic in contact with skin H314 Causes severe skin burns and eye damage H317 May cause an allergic skin reaction H318 Causes serious eye damage H330 Fatal if inhaled H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled H360 May damage fertility or the unborn child H411 Toxic to aquatic life with long lasting effects
Prevention precautionary statements	P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P260 Do not breathe dust/fume/gas/mist/vapours/spray. P261 Avoid breathing dust/fume/gas/mist/vapours/spray P264 Wash...thoroughly after handling P270 Do not eat, drink or smoke when using this product. P271 May cause fire or explosion: strong oxidizer P272 Contaminated work clothing should not be allowed out of the workplace. P273 Avoid release to the environment. P280 Wash...thoroughly after handling P281 Use personal protective equipment as required.
Response precautionary statements	P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P302+P352 IF ON SKIN (or hair): Wash with plenty of soap and water. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P307+P311 IF exposed: Call a POISON CENTER or doctor/physician. P308+P313 IF exposed or concerned: Get medical advice/attention. P314 Get medical advice/attention if you feel unwell. P321 Specific treatment (see ... on this label). P330 Rinse mouth. P332+P313 If skin irritation occurs: Get medical advice/attention. P333+P313 If skin irritation or rash occurs: Get medical advice/attention. P337+P313 If eye irritation persists: Get medical advice/attention. P362 Take off contaminated clothing and wash before reuse. P363 Wash contaminated clothing before reuse.

	P391 Collect spillage.
Storage precautionary statements	P405 Store locked up
Disposal precautionary statements:	P501 Dispose of contents/container in accordance with local/regional/national/international regulation (to be specified).
c. Other harmful or danger characteristic (NFPA)	
Diethylenetriamine	
Health hazard	3
Fire	1
Reactivity Hazard	0
BISPHENOL A-EPICHLOROHYDRIN RESIN	
Health hazard	2
Fire	1
Reactivity Hazard	0
(POLY(OXYPROPYLENE)DIAMINE)	
Health hazard	3
Fire	1
Reactivity Hazard	0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS NO.	Amount(%)
Diethylenetriamine	111-40-0	30~40
BISPHENOL A-EPICHLOROHYDRIN RESIN	25068-38-6	20~25
(POLY(OXYPROPYLENE)DIAMINE)	9046-10-0	30~40

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 occur.
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
Special fire fighting Procedures	When fire fighting, wear full protective equipment including self-contained breathing

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 respiratory controls, such as exhaust ventilation. Wear gloves and face shield. Do not eat

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-701.

8. Exposure controls/personal protection

a. Exposure Limits

National regulations

Diethylenetriamine TWA - 1 ppm 4mg/m³

BISPHENOL A-EPICHLOROHYDRIN RESIN No Data

2,4,6-Tris(dimethylaminomethyl)phenol No Data

ACGIH regulations

Diethylenetriamine TWA 1ppm

BISPHENOL A-EPICHLOROHYDRIN RESIN No Data

2,4,6-Tris(dimethylaminomethyl)phenol No Data

Biological exposure limits

Diethylenetriamine No Data

BISPHENOL A-EPICHLOROHYDRIN RESIN No Data

2,4,6-Tris(dimethylaminomethyl)phenol 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 ventilation or handle in a ventilated enclosure. For greater protection a face piece chemical cartridge respirator is recommended.

9. Physical and chemical properties

1. Appearance

Type Liquid

Color Transparent

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 0.95~1.05

15. n-Octanol/Water Partition coefficient No Data

16. Autoignition Temperature No Data

17. Decomposition Temperature No Data

18. Viscosity(at 25℃) 100~200cps(at 25℃)

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

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.

(POLY(OXYPROPYLENE)DIAMINE)	No Data
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b. Acute Toxicity Data

Acute toxic

Oral

Diethylenetriamine	LD50 1080 mg/kg Rat
BISPHENOL A-EPICHLOROHYDRIN RESIN	LD50 > 1000 mg/kg Rat
(POLY(OXYPROPYLENE)DIAMINE)	LD50 242mg/kg Rat

Dermal

Diethylenetriamine	LD50 672 mg/kg Rabbit
BISPHENOL A-EPICHLOROHYDRIN RESIN	LD50 > 20000 mg/kg Rabbit
(POLY(OXYPROPYLENE)DIAMINE)	LD50 360 mg/kg Rabbit

Inhalation

Diethylenetriamine	LC50 170ppm 4hr Rat
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
(POLY(OXYPROPYLENE)DIAMINE)	No Data

Skin Corrosion/Irritation

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
(POLY(OXYPROPYLENE)DIAMINE)	No Data

Serious Eye Damage/Irritation

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
(POLY(OXYPROPYLENE)DIAMINE)	No Data

Respiratory sensitization

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
(POLY(OXYPROPYLENE)DIAMINE)	No Data

Skin sensitization

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	R43
(POLY(OXYPROPYLENE)DIAMINE)	No Data

Carcinogenicity

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
(POLY(OXYPROPYLENE)DIAMINE)	No Data

IARC

Diethylenetriamine	Group 1 (Silica, crystalline (inhaled in the form of quartz or cristobalite from occupational sources))
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
(POLY(OXYPROPYLENE)DIAMINE)	No Data

OSHA

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
(POLY(OXYPROPYLENE)DIAMINE)	No Data

ACGIH

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
(POLY(OXYPROPYLENE)DIAMINE)	No Data

NTP

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
(POLY(OXYPROPYLENE)DIAMINE)	No Data

EU CLP

Diethylenetriamine	No Data
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BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data
Germ Cell Mutagenicity	
Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data
Reproductive toxicity	
Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data
Specific target organ toxicity (single exposure):	
Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data
Specific target organ toxicity (repeated exposure):	
Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data
Aspiration hazard	
Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data

12. Environmental information

a. Aquatic and terrestrial ecotoxicity:

Fish toxicity (Acute):

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	LC50 1.41 mg/l 96 hr <i>Oryzias latipes</i> No Data

Water flea toxicity (Acute):

Diethylenetriamine	EC50 16 mg/L 48hr
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	EC50 1.7 mg/l 48 hr No Data

Birds growth hinderance test (Acute):

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data

b. Persistence and degradability:

Persistence:

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	log Kow 2.821 No Data

Degradability:

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data

c. Bioaccumulative potential:

condenasability	
Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	BCF 0.56 ~ 0.67 No Data

biodegradability	
Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	0 (%) 28 day No Data

d. Mobility in soil:

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data

e. Other adverse effects:

Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data

(POLY(OXYPROPYLENE)DIAMINE) 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.	2735
b. Proper Shipping Name	
Diethylenetriamine	Diethylenetriamine
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.)
c. Transportation Class	
Diethylenetriamine	6.1
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	9 8
d. Packing Group	
Diethylenetriamine	2
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	III I
e. Marine Pollutant	
Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data
f. Special precautions for user	
fire emergency	
Diethylenetriamine	F-A
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	F-A F-A
spill Emergency	
Diethylenetriamine	S-B
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	S-F S-B

15. Regulation information

a. Industrial Safety and Health Act	
Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data
b. Toxic Chemical Control Act	
Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data
c. Dangerous Material Safety Control Act	
Diethylenetriamine	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	No Data No Data
d. Wastes Management Act	
Diethylenetriamine	Designated waste
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	Designated waste No Data
e. Other requirements in domestic and other countries	
National regulation	
Diethylenetriamine	Not applicable
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	Not applicable Not applicable
other countries	
U.S.A(OSHA)	
Diethylenetriamine	Not applicable
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	Not applicable Not applicable
U.S.A(CERCLA)	

Diethylenetriamine	Not applicable
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE) U.S.A(EPCRA 302)	Not applicable
Diethylenetriamine	Not applicable
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE) USA(EPCRA 304)	Not applicable
Diethylenetriamine	Not applicable
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE) EU	Not applicable
Diethylenetriamine	R21/22, R34, R43
BISPHENOL A-EPICHLOROHYDRIN RESIN (POLY(OXYPROPYLENE)DIAMINE)	R36/38, R43, R51/53 Not applicable

16. Other requirements in domestic and other countries

a. Information source and references

Diethylenetriamine

Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
 ECB-ESIS(European chemical Substances Information System)(<http://ecb.jrc.it/esis>)
 ECOTOX Database, EPA(<http://cfpub.epa.gov/ecotox>)
 IUCLID Chemical Data Sheet, EC-ECB
 International Chemical Safety Cards(ICSC)(<http://www.nihs.go.jp/ICSC>)
 TOXNET, U.S. National Library of Medicine(<http://toxnet.nlm.nih.gov>)
 The Chemical Database, The Department of Chemistry at the University of Akron(<http://ull.chemistry.uakron.edu/erd>)
 (<http://hazmat.nema.go.kr>)
 (<http://ncis.nier.go.kr>)

BISPHENOL A-EPICHLOROHYDRIN RESIN

National Institute of Technology and Evaluation(NITE)(http://www.safe.nite.go.jp/ghs/h18_bunrui.html)
 Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
 Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
 National Library of Medicine(NLM)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>)
 Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
 European chemical Substances Information System(ECB-ESIS)(<http://ecb.jrc.it/esis>)
 National Institute of Technology and Evaluation(NITE)(http://www.safe.nite.go.jp/ghs/h18_bunrui.html)
 Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)
 National Institute of Technology and Evaluation(NITE)(http://www.safe.nite.go.jp/ghs/h18_bunrui.html)
 European chemical Substances Information System(ECB-ESIS)(<http://ecb.jrc.it/esis>)
 National Library of Medicine/Chemical Carcinogenesis Research Information
 System(NLM/CCRIS)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CCRIS>)
 National Library of Medicine/genetic toxicology(NLM/GENETOX)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?GENETOX>)
 National Institute of Technology and Evaluation(NITE)(http://www.safe.nite.go.jp/ghs/h18_bunrui.html)
 Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)

b. Issuing date 2014-06-09

c. Revision number and date

Revision number -
 Date -

d. Others -