

# Material Safety Data Sheet

## 1. Chemical Product and Company Identification

가. Trade Name	JP-101S(Hardner)
General Use	Civil construction epoxy coating
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	Skin Irrit. : Category 2 Eye Irrit. : Category 2 Skin Sens. : Category 1 Carcinogenicity : Category 1A STOT Rep. : Category 1 Aquatic Chronic : Category 3
--	---

### b. Hazards Description:

Pictogram



Signal word

DANGER

Hazards Classification and Statements

H226 Flammable liquid and vapour  
H305 May be harmful if swallowed and enters airways  
H315 Causes skin irritation  
H317 May cause an allergic skin reaction  
H319 Causes serious eye irritation  
H336 May cause drowsiness or dizziness  
H360 May damage fertility or the unborn child  
H370 Causes damage to organs  
H372 Causes damage to organs through prolonged or repeated exposure  
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  
P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking  
P233 Keep container tightly closed  
P240 Ground/bond container and receiving equipment  
P241 Use explosion-proof electrical/ventilating/light/.../equipment  
P242 Use only non-sparking tools  
P243 Take precautionary measures against static discharge  
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 Use only outdoors or in a well-ventilated area  
P272 Contaminated work clothing should not be allowed out of the workplace  
P273 Avoid release to the environment

	P280 Wear protective gloves/protective clothing/eye protection/face protection
	P281 Use personal protective equipment as required
Response precautionary statements	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). 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	P403+P233 Store in a well ventilated place Keep container tightly closed P403+P235 Store in a well ventilated place Keep cool 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)

Xylene

Health hazard	No Data
Fire	No Data
Reactivity Hazard	No Data

BISPHENOL A-EPICHLOROHYDRIN RESIN

Health hazard	2
Fire	1
Reactivity Hazard	0

Ethylene glycol diethyl ether

Health hazard	2
Fire	3
Reactivity Hazard	0

POLYAMIDE RESIN

Health hazard	No Data
Fire	No Data
Reactivity Hazard	No Data

3. COMPOSITION/INFORMATION ON INGREDIENTS

	Component	CAS NO.	Amount(%)
Xylene	QUARTZ (SiO <sub>2</sub> )	1330-20-7	50 ~ 55
BISPHENOL A-EPICHLOROHYDRIN RESIN	BISPHENOL A-EPICHLOROHYDRIN RESIN	25068-38-6	1 ~ 5
Ethylene glycol diethyl ether	DIETHYL CELLOSOLVE	629-14-1	10 ~ 15
POLYAMIDE RESIN	-	63428-84-2	20 ~ 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 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 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 JP-101S.

## 8. Exposure controls/personal protection

a. Exposure Limits	
National regulations	
Xylene	TWA – 100ppm 435mg/m <sup>3</sup> STEL – 150ppm 655mg/m <sup>3</sup>
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
Ethylene glycol diethyl ether	No Data
POLYAMIDE RESIN	No Data
ACGIH regulations	
Xylene	TWA 100 ppm
BISPHENOL A-EPICHLOROHYDRIN RESIN	No Data
Ethylene glycol diethyl ether	No Data
POLYAMIDE RESIN	No Data
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 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	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	0.90~1.00
15. n-Octanol/Water Partition coefficient	No Data
16. Autoignition Temperature	No Data
17. Decomposition Temperature	No Data
18. Viscosity(at 25°C)	15~25 Cps(at 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	
Xylene	LD50 3500 mg/kg Rat
BISPHENOL A-EPICHLOROHYDRIN RESIN	LD50 > 1000 mg/kg Rat

Ethylene glycol diethyl ether	No Data
POLYAMIDE RESIN	No Data
Dermal	
Xylene	LD50 ≥4350 mg/kg Rabbit
BISPHENOL A-EPICHLOROHYDRIN RESIN	LD50 > 20000 mg/kg Rabbit
Ethylene glycol diethyl ether	No Data
POLYAMIDE RESIN	No Data
Inhalation	
	Vapor LC50 6700 ppm 4 hr Rat
Skin Corrosion/Irritation	
	No Data
Serious Eye Damage/Irritation	
	No Data
Respiratory sensitization	
	No Data
Skin sensitization	
	No Data
Carcinogenicity	
	No Data
IARC	
	Group 3
OSHA	
	No Data
ACGIH	
	A4
NTP	
	No Data
EU CLP	
	No Data
Germ Cell Mutagenicity	
	No Data
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)

Xylene	LC50 3.3 mg/l 96 hr
BISPHENOL A-EPICHLOROHYDRIN RESIN	LC50 1.41 mg/l 96 hr Oryzias latipes
Ethylene glycol diethyl ether	LC50 1255.262 mg/l 96 hr
POLYAMIDE RESIN	No Data
Water flea toxicity (Acute)	
Xylene	LC50 190 mg/l 96 hr
BISPHENOL A-EPICHLOROHYDRIN RESIN	EC50 1.7 mg/l 48 hr

Ethylene glycol diethyl ether	LC50 1235.476 mg/l 48 hr
POLYAMIDE RESIN	No Data
Birds growth hinderance test (Acute)	
	EC50 719.589 mg/l 96 hr
b. Persistence and degradability	
Persistence	
Xylene	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	log Kow 2.821
Ethylene glycol diethyl ether	log Kow 0.66
POLYAMIDE RESIN	No Data
Degradability	
	No Data
c. Bioaccumulative potential:	
condenasability	
Xylene	No Data
BISPHENOL A-EPICHLOROHYDRIN RESIN	BCF 0.56 ~ 0.67
Ethylene glycol diethyl ether	BCF 3
POLYAMIDE RESIN	No Data
biodegradability	
Xylene	39 (%)
BISPHENOL A-EPICHLOROHYDRIN RESIN	0 (%) 28 day
Ethylene glycol diethyl ether	No Data
POLYAMIDE RESIN	No Data
d. Mobility in soil:	
	log Kow = 3.12
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.	1307
b. Proper Shipping Name	(ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.)
c. Transportation Class	3
d. Packing Group	2
e. Marine Pollutant	No Data
f. Special precautions for user	
fire emergency	F-A
spill Emergency	S-D

### 15. Regulation information

a. Industrial Safety and Health Act	No Data
b. Toxic Chemical Control Act	Toxic
c. Dangerous Material Safety Control Act	Chapter 4 second petroleum
d. Wastes Management Act	Designated Waste
e. Other requirements in domestic and other countries	
National regulation	Not applicable
other countries regulation	
U.S.A(OSHA )	Not applicable
U.S.A(CERCLA)	45.3599 kg 100 lb
U.S.A(EPCRA 302 )	Not applicable
USA(EPCRA 304 )	Not applicable
USA(EPCRA 313 )	applicable
EU	Xi; R36/38R43N; R51-53
EU	
Xylene	R10Xn; R20/21Xi; R38
BISPHENOL A-EPICHLOROHYDRIN RESIN	Xi; R36/38R43N; R51-53
Ethylene glycol diethyl ether	F ; R11, R19, Repr. Cat.2 ; R61, Repr. Cat.3 ; R62, Xi ; R36
POLYAMIDE RESIN	Not applicable
EU	
Xylene	R10, R20/21, R38
BISPHENOL A-EPICHLOROHYDRIN RESIN	R36/38, R43, R51/53
Ethylene glycol diethyl ether	R61, R11, R19, R36, R62
POLYAMIDE RESIN	Not applicable
EU	
Xylene	S2, S25
BISPHENOL A-EPICHLOROHYDRIN RESIN	S2, S28, S37/39, S61
Ethylene glycol diethyl ether	S53, S45
POLYAMIDE RESIN	Not applicable

## 16. Other requirements in domestic and other countries

### a. Information source and references

#### BISPHENOL A-EPICHLOROHYDRIN RESIN

- National Institute of Technology and Evaluation(NITE)([http://www.safe.nite.go.jp/ghs/h18\\_bunrui.html](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 I library of Medicine(NI M)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlaen?CHFM>)
- 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](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](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  
National Library of Medicine/genetic toxicology(NLM/GENETOX)(<http://toxnet.nlm.nih.gov/>)  
National Institute of Technology and Evaluation(NITE)([http://www.safe.nite.go.jp/ghs/h18\\_bunrui.html](http://www.safe.nite.go.jp/ghs/h18_bunrui.html))  
Corporate Solution From Thomson Micromedex(<http://csi.micromedex.com>)

- b. Issuing date 2014-09-12
- c. Revision number and date
  - Revision number -
  - Date -
- d. Others