

Material Safety Data Sheet

1. Chemical Product and Company Identification

Trade Name	JP-228A(Hardner)
General Use	Epoxy sealing
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
	Acute. Tox. : Category 4
	Skin Irrit. : Category 2
	Eye Irrit. : Category 2
	Skin Sens. : Category 1
	Carcinogenicity : Category 1A
	STOT Rep. : Category 1
Aquatic Chronic : Category 2	

b. Hazards Description:

Pictogram



Signal word	DANGER
Hazards Classification and Statements	H302 Harmful if swallowed
	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
	H330 Fatal if inhaled
	H340 May cause genetic defects
H370 Causes damage to organs	
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/fumes/gas/mist/vapours/spray.
	P261 Avoid breathing dust/fumes/gas/mist/vapours/spray. [As modified by IV ATP]
	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
P280 Wear protective gloves/protective clothing/eye protection/face protection	
P281 [Deleted by IV ATP]	
P284 Wear respiratory protection	
Response precautionary statements	P301+312 IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell. [As modified by IV ATP]
	P301+P330+P331 IF SWALLOWED: Rinse mouth Do NOT induce vomiting
	P302+P352 IF ON SKIN: Wash with soap and water

P303+361+353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. [As modified by IV ATP]
 P304+340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. [As modified by IV ATP]
 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
 P320 Specific treatment is urgent (see ... on this label)
 P321 Specific treatment (see ... on this label)
 P322 Specific measures (see ... on this label)
 P330 Rinse mouth
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
 P363 Wash contaminated clothing before reuse.

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)

m- xylene -a, a'' - diamine

Health hazard	4
Fire	1
Reactivity Hazard	0

TREATED FUMED SILICA

Health hazard	1
Fire	1
Reactivity Hazard	0

2,4,6-tris (dimethylaminomethyl) phenol

Health hazard	3
Fire	1
Reactivity Hazard	0

(Fatty acids, (C=18)-unsatd., dimers, compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -)

보건	No data
화재	No data
반응성	No data

Extract Residues (Coal), Tar Oil Alk., Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]

보건	No data
화재	No data
반응성	No data

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS NO.	Amount(%)	
m- xylene -a, a'' - diamine	1,3-BENZENEDIMETHANAMINE	1477-55-0	7~10
TREATED FUMED SILICA	TREATED FUMED SILICA	67762-90+7	2~5
2,4,6-tris (dimethylaminomethyl) phenol	2,4,6-TRIS((DIMETHYLAMINO)METHYL)PHENOL	90-72-2	2~5
(Fatty acids, (C=18)-unsatd., dimers, compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -)		64754-99-0	25~35

Extract Residues (Coal), Tar Oil Alk., Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co₂ And Cao. Composed Primarily Of CaCO₃, Ca(OH)₂, Na₂CO₃ And Other Organic And Inorganic Impurities.]

90641-06-8

45~55

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-105. |

8. Exposure controls/personal protection

a. Exposure Limits

National regulations

m- xylene -a, a'' - diamine	TWA - C 0.1mg/m3
TREATED FUMED SILICA	TWA - 10mg/m3
2,4,6-tris (dimethylaminomethyl) phenol	No Data
(Fatty acids, (C=18)-unsatd., dimers, compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -)	No Data
Extract Residues (Coal), Tar Oil Alk., Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]	No Data
ACGIH regulations	

m- xylene -a, a'' - diamine	C 0.1 mg/m³
TREATED FUMED SILICA	No Data
2,4,6-tris (dimethylaminomethyl) phenol	No Data
(Fatty acids, (C=18)-unsatd., dimers, compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -)	No Data
Extract Residues (Coal), Tar Oil Alk., Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]	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	Slight 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)	THIXO
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

m- xylene -a, a'' - diamine LD50 980 mg/kg Rat

TREATED FUMED SILICA No Data

2,4,6-tris (dimethylaminomethyl) phenol LD50 1200 mg/kg Rat

(Fatty acids, (C=18)-unsatd., dimers, No Data

compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -) Extract Residues (Coal), Tar Oil Alk., No Data

Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]

Dermal

m- xylene -a, a'' - diamine LD50 2000 mg/kg Rabbit

TREATED FUMED SILICA No Data

2,4,6-tris (dimethylaminomethyl) phenol LD50 1280 mg/kg Rat

(Fatty acids, (C=18)-unsatd., dimers, No Data

compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -) Extract Residues (Coal), Tar Oil Alk., No Data

Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]

Inhalation

m- xylene -a, a'' - diamine LC50 2800 ppm 4 hr Rat

TREATED FUMED SILICA No Data

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

(Fatty acids, (C=18)-unsatd., dimers, No Data

compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -)

Extract Residues (Coal), Tar Oil Alk., Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]	No Data
Skin Corrosion/Irritation	No Data
Serious Eye Damage/Irritation	No Data
Respiratory sensitization	No Data
Skin sensitization	No Data
Carcinogenicity	No Data
IARC	No Data
OSHA	No Data
ACGIH	No Data
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)	
m- xylene -a, a'' - diamine	No Data
TREATED FUMED SILICA	No Data
2,4,6-tris (dimethylaminomethyl) phenol	LC50 447.821 mg/l 96 hr
(Fatty acids, (C=18)-unsatd., dimers, compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -)	No Data
Extract Residues (Coal), Tar Oil Alk., Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]	No Data

Water flea toxicity (Acute)	
m- xylene -a, a'' - diamine	No Data
TREATED FUMED SILICA	No Data
2,4,6-tris (dimethylaminomethyl) phenol	LC50 28.198 mg/l 48 hr
(Fatty acids, (C=18)-unsatd., dimers, compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -)	No Data
Extract Residues (Coal), Tar Oil Aik., Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]	No Data
Birds growth hinderance test (Acute)	
m- xylene -a, a'' - diamine	ErC50 14 mg/l 72 hr
TREATED FUMED SILICA	No Data
2,4,6-tris (dimethylaminomethyl) phenol	EC50 34.812 mg/l 96 hr
(Fatty acids, (C=18)-unsatd., dimers, compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -)	No Data
Extract Residues (Coal), Tar Oil Aik., Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]	No Data
b. Persistence and degradability	
Persistence	
m- xylene -a, a'' - diamine	No Data
TREATED FUMED SILICA	log Kow -8.92
2,4,6-tris (dimethylaminomethyl) phenol	log Kow 0.77
(Fatty acids, (C=18)-unsatd., dimers, compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -)	No Data
Extract Residues (Coal), Tar Oil Aik., Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]	No Data
Degradability	No Data
c. Bioaccumulative potential:	
condenasability	
m- xylene -a, a'' - diamine	No Data
TREATED FUMED SILICA	BCF 3.162
2,4,6-tris (dimethylaminomethyl) phenol	BCF 3.162
(Fatty acids, (C=18)-unsatd., dimers, compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -)	No Data
Extract Residues (Coal), Tar Oil Aik., Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]	No Data
biodegradability	
m- xylene -a, a'' - diamine	22 (%)
TREATED FUMED SILICA	No Data

2,4,6-tris (dimethylaminomethyl) phenol	No Data
(Fatty acids, (C=18)-unsatd., dimers, compds. with polyethylenepolyamine-tall-oil fatty acid reaction products -)	No Data
Extract Residues (Coal), Tar Oil Alk., Carbonated, Limed; Crude Phenols; [The Product Obtained By Treatment Of Coal Tar Oil Alkaline Extract With Co2 And Cao. Composed Primarily Of Caco3, Ca(OH)2, Na2Co3 And Other Organic And Inorganic Impurities.]	No Data
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.	2735
b. Proper Shipping Name	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
c. Transportation Class	8
d. Packing Group	I
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
National regulation	Not applicable
other countries regulation	
U.S.A(OSHA)	Not applicable
U.S.A(CERCLA)	Not applicable

U.S.A(EPCRA 302)	Not applicable
USA(EPCRA 304)	Not applicable
USA(EPCRA 313)	Not applicable
EU	Not applicable

16. Other requirements in domestic and other countries

a. Information source and references

m-Xylene-a,a''-diamine

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>)

POLY(OXYPROPYLENE)DIAMINE

National Library of Medicine(NLM)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>)

National Library of Medicine(NLM)(<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?CHEM>)

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

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c. Revision number and date	
Revision number	2
Date	2015-04-02
d. Others	