First Issue : June 9, 1997
Revised : September 14, 2001
Ajicure PN-23, MSDS No.: E-1

AJINOMOTO FINE-TECHNO **MATERIAL SAFETY DATA SHEET**

1. Chemical Product and Company Identification

1.1 Product Name : Ajicure PN-23
General Use : Plastic additives
Product Description : latent curing agents and accelerators for epoxy resin
MSDS No. : E-1

1.2 Manufacturer Identification
Company Name : Ajinomoto Fine-Techno Co., Inc.
Company Address : Sales Dept., Functional Chemicals Division
1-2, Suzuki-Cho, Kawasaki-Ku, Kawasaki-Shi, Kanagawa-Pref., 210-0801 Japan
Telephone Number for Information :
Outside Japan +81-44-221-2372 Japan Time 9:00am-5:30pm M-F
Fax Number for Information :
Outside Japan +81-44-221-2387 Japan Time 9:00am-5:30pm M-F

1.3 Emergency Telephone Number :
Ajinomoto Fine-Techno Co., Inc. (Functional Chemicals Division)
Tel. No. : Outside Japan +81-44-221-2372 Japan Time 9:00am-5:30pm M-F

2. Composition/Information on Ingredients

2.1 Chemical Name : Amine adduct with epoxy resin
2.2 CAS Registry No. : 134091-76-2
2.3 Structural Formula : Proprietary

3. Hazards Identification

3.1 Emergency Overview
Not classified as hazardous chemicals
However, exposure to any chemical should be kept to a minimum. Skin and eye contact may result in irritation. May be harmful if inhaled or ingested.
Combustible;
Always follow safe industrial hygiene practices and wear proper protective equipment when handling this compound.

3.2 Potential Health Effects
Primary Route of Exposure : Inhalation, skin and eye contact are the most likely routes of exposure.

4. First-aid Measures

If Contacted with Eye : Irrigate thoroughly with clean water for at least 15 minutes, and seek medical attention urgently.
If Contacted with Skin : Take off all contaminated clothing and shoes, and wash affected area with plenty of soap and water. Seek medical attention if swelling or redness occurs.
If Inhaled : Remove from exposure immediately to fresh air. Wash out mouth (gargle throat if possible) with water sufficiently. Give oxygen or apply artificial respiration if necessary. Keep warm, and seek medical attention if effects persist.

If Swallowed : Induce vomiting by making drink plenty of water, and seek medical attention. In unconscious persons, never give anything by mouth, and seek medical attention urgently.

5. Fire-fighting Measures

5.1 Flammable Properties :

Flash point(COC) : Not applicable(non-flammable)

Auto-ignition temperature : Not applicable(non-ignitable)

Fire and explosion hazards : Dusts can form an explosive mixture with air.

Dust explosion lower limit in air : 25 mg/L [1)]

Dust explosion higher limit in air : Not available

Under fire condition, toxic and irritating fumes may be emitted.

5.2 Fire-extinguishing Media : Water spray, dry chemical and carbon dioxide

In large fires foam is an effective agent.

5.3 Fire-fighting Instructions : Wear appropriate hand, eye, skin, and respiratory protective equipment, such as protective clothing and self-contained breathing apparatus in fighting fire.

1) Refer to Section 16.1 for data sources

6. Accidental Release Measures

Secure well-ventilated and explosion-proof surroundings, and wear appropriate personal protective equipment in clean-up/salvage operations.

Vacuum or sweep up the spills or leaks and transfer to suitable empty containers for disposal or recover.

7. Handling and Storage

7.1 Handling :Handle in well-ventilated places to prevent dust inhalation. Wear appropriate personal protective equipment wherever necessary, such as protective clothing, protective gloves, safety spectacles or safety goggles. Dust respiratory protection is necessary. Wash hands and face well after handling.

7.2 Storage : Keep container firmly closed, avoiding humidity. Store in a cool, dark place. All the electrical equipment must be explosive-proof type and be grounded.

7.3 Packaging Materials :

Cardboard box with polyethylene/PET/vacuum evaporated silica inner bag (NET weight : 10kg)

HDPE bottle in Cardboard box (NET weight : 1kg)

7.4 Work/Hygiene Practices :

No eating, drinking, or smoking in the workplace.

Handle in well-ventilated areas. Dust respirator is requisite.

8. Exposure Controls / Personal Protection

8.1 Engineering Controls :

Proper installation of local ventilation equipment is necessary. All the electrical equipment must be explosive-proof type and be grounded.

8.2 First-aid Equipment : Provide readily accessible eye and hand wash stations and safety showers near places the product is handled, and their locations be indicated.

8.3 Personal Protective Equipment :

Eye/face Protection : Safety goggles, safety spectacles with side shields, or face shield

Hand protection : Rubber or polyethylene(throwaway)gloves

Respiratory protection : Dust respirator

Skin protection : Work clothes or other suitable long sleeved protective clothing and safety shoes.

Contaminated clothing must be thoroughly washed with copious water and soap before re-use.

8.4 Exposure Guidelines : Not established

9. Physical and Chemical Properties

Appearance and color : Powder, light yellow to yellow

Odor : Slightly characteristic

Boiling Point : Not applicable (Non-volatile and decomposed over 300℃)

Softening Temperature : 90-110℃

Vapor Pressure : Not applicable (Non-volatile)

Vapor Density : Not applicable

True Specific Gravity : 1.21

Solubility in Water at 25℃ : Trace

Solubility in dimethylsulfoxide : Soluble(10 wt%/sol)

pH : Alkaline

10. Stability and Reactivity

10.1Chemical Stability : Stable under normal conditions of handling and storage.

Conditions to Avoid : Avoid high humidity, build-up of electrostatic charges, storage under high temperature

10.2 Self-reactivity : None

10.3 Reactivity with water : None

10.4 Incompatibility/Hazardous reaction : Avoid bringing into contact with strong oxidizing materials under uncontrolled condition.

10.5 Hazardous Decomposition Products : Thermal decomposition products may include and not limited to CO, CO_2, and Nitrogen oxides gases.

10.6 Hazardous Polymerization : Promote and accelerate polymerization of epoxides at elevated temperature (over 80 degree centigrade) with exothermic reaction.

11. Toxicological Information

Eye irritation (Draize's test)-rabbit : mildly irritating [2)]
Skin irritation (Draize's test)-rabbit : mildly irritating [3)]
Skin sensitization-guinea pig : None [4)]
LD_{50} Acute Oral Toxicity-mouse : greater than 2.0 g/kg [5), 6)]
Mutagenicity (Ames test) : Negative [7), 8)]
Carcinogenicity : Not listed in NTP, IARC, OSHA

2) - 8) Refer to Section 16.1 for data sources

12. Ecological Information

12.1 Biodegradability : Non-biodegradable [9)]
12.2 Bioaccumulation-carp : None [10)]

9) - 10) Refer to Section 16.1 for data sources

13. Disposal Considerations

Waste material should be incinerated where permitted.
In incinerating and disposing of, comply with all applicable national and local waste disposal regulations and Section 8 of this MSDS.

14. Transport Information

UN Number : Not classified
ADR/RID : Not classified
IATA/ICAO : Not classified
Packing group : Not classified
IMDG : Not classified
Inspect containers for leaks prior to transport.
Protect against physical damage.
Avoid transportation under high humidity.

15. Regulatory Information

Inventory status:

on EINECS (Europe) : Polymer
on TSCA inventory (USA) : Accession #78730
on ENCS (Japan) : 7-2236
on NDSL (Canada) , on ECL (Korea),
on Chinese inventory of existing chemical substances
on PICCS (Philippine)

16. Other Information

16.1 Sources of Data :

1) January, 1984 Report of Central Research Laboratories, Ajinomoto Co., Inc.
2) August 19, 1999 Report of Pharmaceutical Research Laboratories, Ajinomoto Co., Inc.
3) 1988 Report of Central Research Laboratories, Ajinomoto Co., Inc.
4) March 1992 Report of Central Research Laboratories, Ajinomoto Co., Inc.

5) March 29, 1999 Report of Pharmaceutical Research Laboratories, Ajinomoto Co., Inc.
6) March 2, 2001 Report of Pharmaceutical Research Laboratories, Ajinomoto Co., Inc.
7) September 22, 1999 Report of Pharmaceutical Research Laboratories, Ajinomoto Co., Inc.
8) July 26, 2000 Report of Pharmaceutical Research Laboratories, Ajinomoto Co., Inc.
9) September, 1983 Report of Central Research Laboratories, Ajinomoto Co., Inc.
10) January 1985 Report of Chemicals Inspection & Testing Institute.

(ANZI Z400.1-1993-referred form/US.)