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Version 5

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Product name ThreeBond 2089B Hardener

Recommended use of the chemical and restrictions on use

Recommended use Adhesive, Sealant

Details of the supplier of the safety data sheet

Manufacturer

ThreeBond Fine Chemical Co., Ltd.

Department in charge & Address

Production Engineering Division
1-1 Oyama-cho, Midori-ku
Sagamihara-shi, Kanagawa, Japan

Emergency telephone number

+81-42-774-1333

Section 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Carcinogenicity	Category 1B
Specific target organ toxicity (repeated exposure)	Category 1
Category 1 lung lung [by inhalation].	

Label elements



Signal word

Danger

Hazard statements

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H350 - May cause cancer

H372 - Causes damage to organs through prolonged or repeated exposure

Causes damage to the following organs through prolonged or repeated exposure: lung.

Causes damage to the following organs through prolonged or repeated exposure if inhaled: lung [by inhalation].

Precautionary Statements - Prevention

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required
- Wash face, hands and any exposed skin thoroughly after handling
- Do not breathe dust/fume/gas/mist/vapors/spray
- Do not eat, drink or smoke when using this product

Precautionary Statements - Response

- IF exposed or concerned: Get medical advice/attention
- For first aid procedure, refer to this SDS.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

- If eye irritation persists: Get medical advice/attention
- IF ON SKIN: Wash with plenty of soap and water
- If skin irritation occurs: Get medical advice/attention
- Take off contaminated clothing and wash before reuse

Precautionary Statements - Storage

- Store locked up

Precautionary Statements - Disposal

- Dispose of contents/container to an approved waste disposal plant

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Single substance or mixture Mixture

Chemical name	Weight-%	ENCS	ISHL No.	CAS No.
Inorganic filler	55-65	-	-	-
Polythiol, Other curing agents	10-20	-	-	-
Aluminum oxide	5-15	(1)-23	-	1344-28-1
N,N-Dimethylformamide	0.1-1	(2)-680	-	68-12-2
Aluminum	5-15	-	-	7429-90-5

Industrial Safety and Health Law

Law Name	Chemical Name in Regulation	Ordinance Number
Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18 Item 1, Item 2, Attached Table No.9)	Aluminum oxide	189
Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Item 1, Item 2, Attached Table No.9)	Aluminum oxide	189
Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Item 1, Item 2, Attached Table No.9)	N,N-Dimethylformamide	299
Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18 Item 1, Item 2, Attached Table No.9)	N,N-Dimethylformamide	299
Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Item 1, Item 2, Attached Table No.9)	Aluminium and its water-soluble salts	37
Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18 Item 1, Item 2, Attached Table No.9)	Aluminium and its water-soluble salts	37

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc

Law Name	Chemical Name in Regulation	Ordinance Number
Priority Assessment Chemical Substances (Law Article 2, Para.5)	N,N-Dimethylformamide	27

Section 4: FIRST AID MEASURES

Inhalation	Remove to fresh air. Seek immediate medical attention/advice.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. In the case of skin irritation or allergic reactions see a physician.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing Seek immediate medical attention/advice.

Ingestion Rinse mouth. Get medical attention.

Section 5: FIRE FIGHTING MEASURES

Explosive properties No information available.

Suitable extinguishing media Water spray (fog) Carbon dioxide (CO₂) Extinguishing powder Alcohol resistant foam Sand

Specific hazards arising from the chemical May generate irritate, harmful gas.

Special extinguishing media Wear protection gear and extinguish from windward.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions Wear appropriate protection gear (Refer to Section 8) and avoid eye and skin contact.

Environmental precautions Keep out of waterways. Avoid release to the environment.

Methods for containment In case of small spill, absorb the spill in dry sand, soil or cloth and keep in closed container. In case of large spill, surround the spill by bank to prevent from leakage, and collect the spill after it is moved to safety place.

Prevention of secondary hazards Keep ignition source away from spill.

Section 7: HANDLING AND STORAGE

Handling

Precautions for safe handling

Advice on safe handling Take equipment measures listed in Section 8. Wear protection gear.

Local and general ventilation Take equipment measures listed in Section 8. Wear protection gear.

Storage

Storage conditions Close lid. Avoid direct sun light and ignition source. Keep appropriate temperature.

Material of vessels and packaging Keep this product in original container. Do not put it back in the container.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure guidelines

Chemical name	Japan	ISHL Working Environmental Evaluation Standards - Administrative Control Levels	ACGIH TLV
Aluminum oxide	TWA: 2 mg/m ³ TWA: 0.5 mg/m ³	-	TWA: 1 mg/m ³ respirable fraction
N,N-Dimethylformamide	TWA: 10 ppm TWA: 30 mg/m ³ Skin ISHL/ACL: 10 ppm	ISHL/ACL: 10 ppm	TWA: 10 ppm Skin
Aluminum	TWA: 2 mg/m ³ TWA: 0.5 mg/m ³	-	TWA: 1 mg/m ³ respirable fraction

Engineering controls Install local ventilation or seal source of substances. Install safety shower, hand wash, and eye wash station. Clearly indicate the location.

Personal protective equipment

- Respiratory protection** In case of inadequate ventilation wear respiratory protection
- Hand protection** Wear appropriate protection glove (Made from non-permeable material such as polyethylene, rubber)
- Eye/face protection** Wear safety glasses with side shields (or goggles)
- Skin and body protection** Wear protection apron, protection boots. Wear long sleeve cloth.

Other information Wash hands thoroughly after handling. When using do not eat, drink or smoke.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state Paste
Odor Distinct odor
Color Black

<u>Property</u>	<u>Values</u>	<u>Remarks</u>
pH	No data available	
Melting point/freezing point	No data available	
Boiling point / boiling range	No data available	
Flash point	161 °C or above	
Evaporation rate	No data available	
Flammability (solid, gas)		
Flammability limit in air		
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Specific gravity	2.15	
Water solubility	Slightly soluble	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	No data available	
Explosive properties	No information available	

Section 10: STABILITY AND REACTIVITY

Stability Stable under normal conditions.

Possibility of hazardous reactions Mixing with epoxy resin or isocyanate compound could result in exothermic reaction. Generate vigorous heat by mixing with strong acid.

Conditions to avoid Heat

Incompatible materials Epoxy resin, isocyanate, strong acid.

Hazardous decomposition products May generate harmful gas by incineration

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document
Inhalation LC50 No data available as this product.

Numerical measures of toxicity - Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Aluminum oxide	> 5000 mg/kg (Rat)	-	-
N,N-Dimethylformamide	= 2000 mg/kg (Rat) = 2800 mg/kg (Rat)	= 1100 mg/kg (Rat) > 3.2 g/kg (Rat)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No data available as this product.

Serious eye damage/eye irritation No data available as this product.

Sensitization No data available as this product.

Germ cell mutagenicity No data available as this product.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical name	Japan	IARC
N,N-Dimethylformamide	1B	Group 2A

Reproductive toxicity No data available as this product.

STOT - single exposure No data available as this product.

STOT - repeated exposure No data available as this product.

Aspiration hazard No data available as this product.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Acute aquatic hazard No data available as this product.

Chronic aquatic hazard No data available as this product.

Chemical name	Algae/aquatic plants	Fish	Crustacea
N,N-Dimethylformamide	500: 96 h <i>Desmodesmus subspicatus</i> mg/L EC50	6300: 96 h <i>Lepomis macrochirus</i> mg/L LC50 9800: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 flow-through 10410: 96 h <i>Pimephales promelas</i> mg/L LC50 flow-through	7500: 48 h <i>Daphnia magna</i> mg/L EC50 8485: 48 h <i>Daphnia magna</i> mg/L EC50 semi-static 6800 - 13900: 48 h <i>Daphnia magna</i> mg/L EC50 Static

Persistence and degradability No data available as this product.

Bioaccumulation

No data available as this product.

Component Information

Chemical name	Partition coefficient
N,N-Dimethylformamide	-1.028

Endocrine disruptor information

Chemical name	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Endocrine disrupting potential
N,N-Dimethylformamide	Group III Chemical	-	-

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues / unused products Dispose of in accordance with national, state and local regulations. Consult industrial waste management companies for waste. Do not release this product to natural environment nor reclaim.

Contaminated packaging Dispose containers as same as residual of this product.

Section 14: TRANSPORT INFORMATION

IMDG Not regulated

ICAO/IATA (air) Not regulated

ADR Not regulated

Japanese regulations

Marine Transportation Safety Act Not applicable

Civil Aeronautics Act Not applicable

Section 15: REGULATORY INFORMATION

Fire protection law criteria Non-hazardous material

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc Priority Assessment Chemical Substances (Law Article 2, Para.5)

Industrial Safety and Health Law Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18 Item 1, Item 2, Attached Table No.9)
Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Item 1, Item 2, Attached Table No.9)
Working Environment Evaluation Standards, Administrative Control Levels (Law Art.65-2, Para.1)
Dangerous Substances - Ignitable Substance (Enforcement Order Attached Table 1 Item 2)
Dangerous Substances - Flammable Substance (Enforcement Order Attached Table 1 Item 4)

Section 16: OTHER INFORMATION

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Other information Please contact to local sales offices for further information.

Disclaimer

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