

	VITAL TECHNICAL SDN. BHD.	 	Issued date : 31/03/08
	Safety Data Sheet		Rev. No. : 9
	VT-142 Vital Steel Epoxy		Revised date : 26/5/15
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1. Identification of the substance/preparation and of the company/undertaking

Product name : VT-142 Vital Steel Epoxy (Part A)
Company : Vital Technical Sdn. Bhd.
 No. 93, Jalan Industri 3/3,
 Rawang Integrated Industrial Park,
 48000 Rawang, Selangor,
 Malaysia.

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2. Hazard(s) identification

GHS Classification

Health	Environmental	Physical
Eye Irrit. 2 Skin Irrit. 2 Skin Sens. 1	Aquatic Chronic 2	



Signal word: Warning

Hazard Statement(s):

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statement(s):

P261 Avoid breathing vapours.
P264 Wash hands thoroughly after handling.
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.
P362 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.

3. Composition/Information on ingredients

Chemical name	CAS No.	EINECS	% (w/w)	Toxicology Data
Epoxy resin (number average molecular weight ≤ 700) Reaction product of Bisphenol-A-(epichlorohydrin)	25068-38-6	500-033-5	> 30	LD₅₀ oral (rat): > 5,000 mg/kg LD₅₀ dermal (rabbit): 20,000 mg/kg LC₅₀ inhalation: no data
Phenol, polymer with formaldehyde, glycidyl ether	28064-14-4	-	< 10	LD₅₀ oral (rat): > 2,000 mg/kg LD₅₀ dermal (rabbit): > 2,000 mg/kg LC₅₀ inhalation: no data
Oxirane, mono[(C ₁₂ -C ₁₄ -alkyloxy)methyl] derivatives	68609-97-2	271-846-8	< 1	LD₅₀ oral (rat): 19,200 mg/kg LD₅₀ dermal (rabbit): > 4,500 mg/kg LC₅₀ inhalation: no data

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4. First-aid measures

Inhalation

Remove to fresh air, keep warm and at rest. Contact physician if discomfort persists.

Skin contact

Remove contaminated clothing. Rinse with copious amount of water. Get medical advice if skin irritation or a rash occurs.

Eye contact

Contact lenses should be removed. Rinse with copious amount of water immediately. Seek medical advice if eye irritation persists.

Ingestion

DO NOT induce vomiting. Drink plenty of water followed by milk if available. Never give anything by mouth to an unconscious person.

5. Fire-fighting measures

Suitable extinguishing media

Use dry chemical powder, foam, carbon dioxide, water fog.

Special fire fighting procedures

Keep up-wind to avoid fumes. Use self-contained breathing apparatus in confined areas.

Unusual fire/explosion hazards

None known.

Thermal decomposition products

Not limited to carbon monoxide, carbon dioxide, phenolic compounds, oxides of sulphur and barium fume.

Protective measures in fire

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental release measures

Person-related safety precautions

Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation.

Measure for cleaning/collecting

Absorb with liquid binding material (sand, diatomite, acid binders, universal binders, sawdust, etc). Dispose of contaminated material as waste according to item 13.

Additional information:

Prevent spillage from entering drainage/sewer systems. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

7. Handling and storage

Handling

Ensure good ventilation during processing. Do not eat, drink or smoke while handling.

Protection against fire/explosion

General rules of fire prevention should be observed.

Storage

Keep containers and syringes tightly closed and dry. Store in a well-ventilated area, protected from direct sunlight and heat, with temperature below 30 °C.

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8. Exposure controls/personal protection

Industrial hygiene

Remove immediately all contaminated clothing. Do not inhale vapor. Wash hands and contaminated areas with water and soap before leaving the work site. Do not eat, drink or smoke while using the product. Change clothing before leaving workplace and wash before reuse.

Hand protection

Suitable protective gloves like nitrile or viton are recommended. The breakthrough time of the selected glove must be greater than the intended use period.

Respiratory protection

An organic respirator NIOSH-approved for organic vapors is recommended where local ventilation is not adequate.

Eye protection

Protective goggles/safety glasses.

9. Physical and chemical properties

- **Form** : Thixotropic paste
- **Color** : Black
- **Odor** : Mild
- **Boiling temperature** : Not determined
- **Flash point** : Not determined
- **Solubility in water** : Insoluble
- **Specific gravity** : 1.90
- **Vapor density** : Not determined

10. Stability and reactivity

Stability and reactivity

Stable when stored under recommended conditions and no reactive hazards known.

Conditions to avoid

Avoid temperatures above 300 °C. At 350 °C violent decomposition might occur and cause rapid pressure build-up.

Hazardous decomposition products

During normal storage, hazardous decomposition will not occur. At higher temperatures, decomposition products depends on the temperature, air supply and presence of other materials. Irritant gas and vapors will be produced.

Hazardous polymerization

Will not occur by itself. Will not occur by itself. Amines, amides and mercaptans will cause irreversible polymerization.

Incompatible materials

Avoid unintended contact with amines, amides, mercaptans, oxidizing materials, acids and bases.

11. Toxicology information

No specific oral, inhalation or dermal toxicology data is known for this product. Any toxicological data included in this section is based on the data associated with the components.

Test	Results
Oral Toxicity	Not classified
Dermal Toxicity	Not classified
Inhalation Toxicity	Not classified
Eye Irritation	Eye irritant, category 2
Dermal Irritation	Skin irritant, category 2
Skin Sensitization	Skin sensitizer, category 1
Carcinogenicity	Not classified
Reproductive Toxicity	Not classified

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Additional notes on carcinogenicity

This product contains trace residual quantities of epichlorohydrin (CAS no. 106-89-8; EC no. 203-439-8). It is very unlikely that normal work practices with it in this workplace atmosphere. Nevertheless, you should be aware that epichlorohydrin has been reported to produce cancer in laboratory animals and to produce mutagenic changes in bacteria and cultured human cells.

12. Ecological information

Ecology toxicity	:	Harmful to aquatic life with long lasting effects.
Persistence/Degradability	:	Not readily biodegradable.
Bioaccumulative potential	:	Moderate.
Mobility	:	Low in soil.

Individual components of this mixture have been independently tested by the raw material suppliers and any known results have been presented above. The results for the individual components may not be representative of the ecological toxicity of this finished product. This finished product has not been tested to determine individual toxicological/ecological limits. Great caution should be taken to prevent release to the environment. See Section 13 for further information.

13. Disposal information

Waste treatment methods - unused products

Should not be released into the environment. Classified as hazardous waste according to (national equivalent of EC-Dir. 91/689; disposal of toxic and hazardous waste). It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations. Use a registered waste disposal company and supply accurate information about the nature of the hazard.

Waste disposal number: 08 04 09*

Waste treatment methods - contaminated packaging

Contaminated packaging is classified as hazardous waste. Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal. Fully drained containers which are drop- and scrape-free can be treated as industrial waste, and can possibly be recycled.

Waste disposal number: 15 01 10*

Preferred method of disposal includes incineration under controlled conditions in accordance with all local and national laws and regulations. The generation of waste should be avoided or minimized wherever possible. Untreated material is not suitable for disposal. Waste, even in small quantities, should never be poured down into drains, sewers or watercourses. Waste must be disposed of in accordance with federal, state and local environmental control regulations. This material, when properly mixed and cured at the proper mix ratio, may be safely landfilled.

14. Transport information

Road transport (ADR)

• Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
• Technical name	:	Epoxy resin
• UN number	:	UN3082
• Hazard class	:	9
• Classification code	:	M6
• Packing group	:	PG III

Marine transport (IMDG)

• Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
• Technical name	:	Epoxy resin

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- **UN number** : UN3082
- **Hazard class** : 9
- **EmS** : F-A, S-F
- **Packing group** : PG III
- **Marine pollutant** : No

Air transport (IATA)

- **Proper shipping name** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
- **Technical name** : Epoxy resin
- **UN number** : UN3082
- **Hazard class** : 9
- **Packing group** : PG III

15. Regulatory information

EU Classification:



Xi Irritant



N Dangerous to the Environment

EU Risk® Phrases:

R36/38 Irritating to eyes and skin.

R43 May cause sensitization by skin contact.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

EU Safety(S) Phrases:

S2 Keep out of reach of children.

S28 After contact with skin, wash immediately with plenty of water.

S37/39 Wear suitable gloves and eye/face protection.

S61 Avoid release to the environment. Refer to special instructions/safety data sheet.

Inventory Status:

All the components are listed in the Europe EINECS (as NLP), United States TSCA, Canada DSL, China IECSC, and Japan ENCS inventories.

16. Other information

Definitions:

- **EINECS** : European Inventory of Existing Commercial Chemical Substances.
- **TSCA** : Toxic Substances Control Act.
- **DSL** : Domestic Substance List.
- **IECSC** : Inventory of Existing Chemical Substances in China.
- **ENCS** : Existing & New Chemical Substances.
- **NLP** : No-Longer Polymers.
- **TLV** : Threshold Limit Value.
- **LD₅₀** : The minimum dose required for lethal effects in 50% of a given population of test specimens.
- **NIOSH** : National Institute for Occupational Safety and Health.

All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The details contained herein are based on our present state of knowledge and experience in characterizing our product with regard to any possible safety requirement. We do, however, pass them on without any warranty or property assurances.

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1. Identification of the substance/preparation and of the company/undertaking

Product name : VT-142 Vital Steel Epoxy (Part B)
Company : Vital Technical Sdn. Bhd.
 No. 93, Jalan Industri 3/3,
 Rawang Integrated Industrial Park,
 48000 Rawang, Selangor,
 Malaysia.

Telephone : +603 - 6092 0000
Fax : +603 - 6092 0099
Email : sales@vitaltechnical.com
Website : <http://www.vitaltechnical.com>

2. Hazard(s) identification

GHS Classification

Health	Environmental	Physical
Skin Corr. 1B Eye Irrit. 2 Skin Sens. 1	Aquatic Chronic 3	



Signal word: Warning

Hazard Statement(s):

H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary Statement(s):

P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
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.
P363 Wash contaminated clothing before reuse.

3. Composition/Information on ingredients

Chemical name	CAS No.	EINECS	% (w/w)	Toxicology Data
1,3-phenylenedimethanamine	1477-55-0	216-032-5	< 10	LD ₅₀ oral (rat): 930 mg/kg LD ₅₀ dermal (rabbit): 2,000 mg/kg LC ₅₀ inhalation: 2.4 mg/L
Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	68410-23-1	-	< 10	LD ₅₀ oral (rat): > 8,000 mg/kg LD ₅₀ dermal (rabbit): no data LC ₅₀ inhalation: no data
Methylphenol	1319-77-3	215-293-2	< 5	LD ₅₀ oral (rat): 861 mg/kg LD ₅₀ dermal (rabbit): 2,000 mg/kg LC ₅₀ inhalation: no data
Benzyl alcohol	100-51-6	202-859-9	< 5	LD ₅₀ oral (rat): 1,610-3,100 mg/kg LD ₅₀ dermal (rat): no data LC ₅₀ inhalation (rat, 4 hrs): 4.2 mg/l

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Silicon dioxide	14808-60-7	238-878-4	< 5	LD₅₀ oral (rat): no data LD₅₀ dermal (rat): no data LC₅₀ inhalation (rat, 4 hrs): no data
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4. First-aid measures

Inhalation

Remove to fresh air, keep warm and at rest. Contact physician if discomfort persists.

Skin contact

Remove contaminated clothing. Rinse with copious amount of water and soap. Seek medical attention if skin irritation or a rash occurs.

Eye contact

Contact lenses should be removed. Rinse with copious amount of water immediately. Seek medical advice if eye irritation occurs.

Ingestion

DO NOT induce vomiting. Rinse with plenty of water followed by milk if available. Never give anything by mouth to an unconscious person. Call a POISON CENTER or doctor/physician if you feel unwell.

5. Fire-fighting measures

Suitable extinguishing media

Use dry chemical powder, foam, carbon dioxide, water fog.

Special fire fighting procedures

Keep up-wind to avoid fumes. Use self-contained breathing apparatus in confined areas.

Unusual fire/explosion hazards

None known.

Thermal decomposition products

Not limited to oxides of carbon and nitrogen, methane, aldehydes, carboxylic acids and hydrogen cyanide.

Protective measures in fire

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental release measures

Person-related safety precautions

Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation.

Measure for cleaning/collecting

Absorb with liquid binding material (sand, diatomite, acid binders, universal binders, sawdust, etc). Dispose of contaminated material as waste according to item 13.

Additional information:

Prevent spillage from entering drainage/sewer systems. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

7. Handling and storage

Handling

Ensure good ventilation during processing. Do not eat, drink or smoke while handling.

Protection against fire/explosion

General rules of fire prevention should be observed.

Storage

Keep containers and syringes tightly closed and dry. Store in a well-ventilated area, protected from direct sunlight and heat, with temperature below 30 °C.

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8. Exposure controls/personal protection

Industrial hygiene

Remove immediately all contaminated clothing. Do not inhale vapor. Wash hands and contaminated areas with water and soap before leaving the work site. Do not eat, drink or smoke while using the product. Change clothing before leaving workplace and wash before reuse.

Hand protection

Suitable protective gloves like nitrile or viton are recommended. The breakthrough time of the selected glove must be greater than the intended use period.

Respiratory protection

An organic respirator NIOSH-approved for organic vapors is recommended where local ventilation is not adequate.

Eye protection

Protective goggles/safety glasses.

9. Physical and chemical properties

- **Form** : Thixotropic paste
- **Color** : Slightly yellow
- **Odor** : Amine-like
- **Boiling temperature** : Not determined
- **Flash point** : Not determined
- **Solubility in water** : Insoluble
- **Specific gravity** : 1.85
- **Vapor density** : Not determined

10. Stability and reactivity

Stability and reactivity

Stable when stored under recommended conditions and no reactive hazards known.

Conditions to avoid

None known.

Hazardous decomposition products

During normal storage, hazardous decomposition will not occur.

Hazardous polymerization

Will not occur by itself.

Incompatible materials

Avoid contact with oxidizing materials, acids and bases.

11. Toxicology information

No specific oral, inhalation or dermal toxicology data is known for this product. Any toxicological data included in this section is based on the data associated with the components.

Test	Results
Oral Toxicity	Not classified
Dermal Toxicity	Not classified
Inhalation Toxicity	Not classified
Eye Irritation	Eye irritant, category 2
Dermal Irritation	Skin corrosive, category 1B
Skin Sensitization	Skin sensitizer, category 1
Carcinogenicity	No data available
Reproductive Toxicity	No data available

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12. Ecological information

Ecology toxicity	:	No data available.
Persistence/Degradability	:	Not readily biodegradable.
Bioaccumulative potential	:	No data available.
Mobility	:	No data available.

Individual components of this mixture have been independently tested by the raw material suppliers and any known results have been presented above. The results for the individual components may not be representative of the ecological toxicity of this finished product. This finished product has not been tested to determine individual toxicological/ecological limits. Great caution should be taken to prevent release to the environment. See Section 13 for further information.

13. Disposal information

Preferred method of disposal includes incineration under controlled conditions in accordance with all local and national laws and regulations. The generation of waste should be avoided or minimized wherever possible. Untreated material is not suitable for disposal. Waste, even in small quantities, should never be poured down into drains, sewers or watercourses. Waste must be disposed of in accordance with federal, state and local environmental control regulations. This material, when properly mixed and cured at the proper mix ratio, may be safely landfilled.

14. Transport information

Road transport (ADR)

• Proper shipping name	:	POLYAMINES, LIQUID, CORROSIVE, N.O.S.
• Technical name	:	Modified aliphatic polyamine
• UN number	:	UN2735
• Hazard class	:	8
• Classification No.	:	C7
• Packing group	:	PG III

Marine transport (IMDG)

• Proper shipping name	:	POLYAMINES, LIQUID, CORROSIVE, N.O.S.
• Technical name	:	Modified aliphatic polyamine
• UN number	:	UN2735
• Hazard class	:	8
• EmS	:	F-A, S-B
• Packing group	:	PG III
• Marine pollutant	:	No

Air transport (IATA)

• Proper shipping name	:	POLYAMINES, LIQUID, CORROSIVE, N.O.S.
• Technical name	:	Modified aliphatic polyamine
• UN number	:	UN2735
• Hazard class	:	8
• Packing group	:	PG III

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15. Regulatory information

EU Classification:



C Corrosive



N Dangerous to the Environment

EU Risk(R) Phrases:

R34 Causes burns.

R36/38 Irritating to eyes and skin.

R43 May cause sensitization by skin contact.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

EU Safety(S) Phrases:

S1 Keep locked up.

S23 Do not breathe vapors.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S27/28 After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of soap with water.

S61 Avoid release to the environment. Refer to special instructions/safety data sheet.

S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label where possible.

S63 In case of accident by inhalation: remove casualty to fresh air and keep at rest.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

Inventory Status:

All the components are listed in the United States TSCA, Canada DSL, China IECSC, and Japan ENCS inventories.

16. Other information

Definitions:

- EINECS** : European Inventory of Existing Commercial Chemical Substances.
- TSCA** : Toxic Substances Control Act.
- DSL** : Domestic Substance List.
- IECSC** : Inventory of Existing Chemical Substances in China.
- ENCS** : Existing & New Chemical Substances.
- REACH** : Registration, Evaluation, Authorisation and Restriction of Chemicals.
- TLV** : Threshold Limit Value.
- LD₅₀** : The minimum dose required for lethal effects in 50% of a given population of test specimens.
- NIOSH** : National Institute for Occupational Safety and Health.

All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The details contained herein are based on our present state of knowledge and experience in characterizing our product with regard to any possible safety requirement. We do, however, pass them on without any warranty or property assurances.