



# SAFETY DATA SHEET

Version No: 003

Revision Date/Version No.: 04-04-2017 /3/1.1.1

## 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Name: **HI-PON 80-12 VINYL ESTER LINING BASE**  
Intended Use: Solvent-Free Protective Paint  
Manufacturer: Nippon Paint (S) Co. Pte Ltd  
No. 1 First Lok Yang Road  
Jurong Singapore 629728  
Emergency Phone Number: (65) 6 265 5355  
Fax Numbers: (65) 6 264 1603

## 2. HAZARDS IDENTIFICATION

### GHS Classification:

#### Physical Hazard

Flammable Hazard Category 3

#### Health Hazard

Skin corrosion/Irritation Category 2

Serious eye damage/irritation Category 2

Carcinogenicity Category 2

#### Environment Hazard

Acute (Short-term) hazard Category 3

### GHS Pictogram



### Signal Word

Warning

### Hazard statements

H226 Flammable Liquid and vapour

H315 Causes skin irritation

H319 Causes serious eye irritation

H351 Suspected of causing cancer

### 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

## HI-PON 80-12 VINYL ESTER LINING BASE

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P243: Take precautionary measures against static discharge  
P264: Wash hands thoroughly after handling  
P280: Wear protective gloves/protective clothing/eye protection/face protection  
P281: Use personal protective equipment as required

### Response

P321: Specific treatment (see Section 4 of SDS)  
P362: Take off contaminated clothing and wash before reuse  
P302+352: IF ON SKIN: Wash with soap and water  
P308+313: IF exposed or concerned: Get medical advice/attention  
P332+313: If skin irritation occurs: Get medical advice/attention  
P337+313: If eye irritation persists: Get medical advice/attention  
P370+378: In case of fire: Use appropriate media for extinction  
P303+361+353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing

### Storage

P405: Store locked up  
P403+235: Store in a well ventilated place. Keep cool

### Disposal

P501 Dispose of content/container to appropriate waste site or reclaimer in accordance with local or national regulations

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## 3. COMPOSITION / INFORMATION ON INGREDIENTS

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<u>Ingredient</u>	<u>CAS No.</u>	<u>%</u>
Bisphenol A Vinyl ester resin	-	50-60
Styrene monomer	100-42-5	40-50
Substances determined to be non-hazardous	-	<u>Balance</u>
		100

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## 4. FIRST-AID MEASURES

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### **INHALATION**

- Move person to fresh air and call for medical assistance immediately.
- If not breathing, give artificial respiration, if breathing is difficult, give oxygen. Keep at rest.

### **SKIN CONTACT**

- In case of contact, immediately flush skin with large amounts of water and soap while removing contaminated clothing and shoes.
- If irritation persists, get medical attention.

### **EYE CONTACT**

- Immediately flush eyes with large amounts of water until irritation subsides.
- Remove contact lens
- Obtain medical attention, preferably by an ophthalmologist, immediately.

### **INGESTION**

- DO NOT induce vomiting unless directed to do so by a medical personnel. Never give anything by mouth to an unconscious person. Keep at rest. Get medical attention immediately.

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## 5. FIRE FIGHTING MEASURES

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### **SUITABLE FIRE EXTINGUISHING MEDIA**

- Alcohol-resistant foam, Carbon dioxide, or dry chemical type

### **SPECIFIC HAZARDS ARISING FROM THE CHEMICAL**

- Combustion products may include and are not limited to: Carbon monoxide and Carbon dioxide.

### **SPECIAL PROTECTIVE ACTIONS FOR FIRE FIGHTERS**

- Wear full protective clothing and NIOSH-approved self-contained breathing apparatus.
- Use water spray to cool fire-exposed surfaces and to protect personnel. If a leak or spill has not ignited, use water spray to disperse the vapours.
- If possible, isolate product from heat, electrical equipments, sparks and open flames.
- Avoid spraying water directly into storage containers.
- Closed containers may explode when exposed to extreme heat.
- Avoid spreading burning liquid with water, isolate liquid.
- Do not allow run-off from fire fighting to enter drains or watercourses.

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## **6. ACCIDENTAL RELEASE MEASURES**

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### **PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURE**

- Wear appropriate protective equipment, e.g. respirators, eye protection, gloves and safety shoes.
- Avoid substance contact with eyes. Do not inhale vapours.
- Ensure supply of fresh air in enclosed rooms.

### **ENVIRONMENTAL PRECAUTIONS**

- Eliminate sources of ignition.
- Keep public away.
- Contain spilled liquid with sand or other non-combustible absorbent materials
- Wash area and prevent runoff into drains and sewerage system.
- Advise authorities if substance has entered a watercourse or sewer or has contaminated soil or vegetation.

### **METHODS AND MATERIALS FOR CONTAINMENTS AND CLEANING UP**

- Clean up all spills immediately.
- Absorb spill with absorbent and inert material, then place in container.
- Disposal in accordance to local/national regulations.

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## **7. HANDLING AND STORAGE**

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### **PRECAUTIONS FOR SAFE HANDLING**

- Use appropriate personal protective equipment
- Keep out of reach of children.
- Handle containers with care. Open slowly in order to control possible pressure release.
- Do not pressurize containers.
- Do not ingest. Do not breathe in gas/fumes/vapour. Avoid contact with skin and eyes.
- For personal protection, see section 8.
- Use only in areas from which all naked lights and other sources of ignition have been excluded.
- Take precautionary measures against static discharge
- Protect from frost and extremes of temperature.

### **CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES**

- Keep containers tightly closed.
- Containers that are opened should be properly resealed and kept upright to prevent leakage.
- Store in cool, dry and well-ventilated place at temperature between 20°C to 40°C away from heat and sources of ignition.

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## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

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# HI-PON 80-12 VINYL ESTER LINING BASE

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## CONTROL PARAMETERS/OCCUPATIONAL LIMITS

<u>Substances</u>	<u>ACGIH TLV-TWA</u>		<u>OSHA PEL-TWA</u>	
	<u>ppm</u>	<u>mg/m3</u>	<u>ppm</u>	<u>mg/m3</u>
Styrene	20	-	40	-

## APPROPRIATE ENGINEERING CONTROL MEASURES

- Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective occupational exposure limits.
- Ensure eyewash stations and safety showers are close to the workstation location.

## PERSONAL PROTECTION

Respiratory Protection:	Use of NIOSH-approved respirators with organic vapour cartridges is recommended.
Hand Protection:	Use of solvent resistance type or chemical resistant type of protective gloves is recommended.
Eye Protection:	Use of safety glasses or goggles with side shields is recommended.
Skin / Body Protection:	Wear chemical resistant clothes and safety shoes when handling product.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance	: Viscous yellowish brown liquid
Odour	: Aromatic odour
Odour threshold	: Not available
pH	: Not available
Melting point/freezing point	: Not available
Initial boiling point and boiling range	: 145 °C
Flash point	: 33 °C
Evaporation rate	: Not available
Flammability (solid, gas)	: Not applicable
Lower flammability or explosive limit	: 1.1 vol% (Styrene)
Upper flammability or explosive limit	: 6.1 vol% (Styrene)
Vapour pressure	: 600Pa (at 20°C) (Styrene)
Vapour density	: 3.6 (Styrene) (Vapour is heavier than air)
Relative density	: 1.0 – 1.1 (at 25°C)
Solubility	: Not Miscible in water
Partition coefficient	: Not available
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
Viscosity	: Not available

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## 10. STABILITY AND REACTIVITY

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### REACTIVITY

- No dangerous reaction known under condition of normal use.

### CHEMICAL STABILITY

- The product is stable under recommended storage and handling conditions. (see section 7)

### POSSIBILITY OF HAZARDOUS REACTION

- Under normal conditions of storage and use, hazardous reaction will not occur.

### CONDITIONS TO AVOID

- Keep away from oxidising agents, strongly alkaline and strongly acidic materials in order to avoid exothermic reactions. Avoid all possible sources of ignition (spark or flame). Do

not pressurize, cut, weld, braze, drill, grind or expose containers to heat or sources of ignition.

### HAZARDOUS DECOMPOSITION PRODUCTS

- When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

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## 11. TOXICOLOGICAL INFORMATION

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There is no data available on the product itself.  
Toxicological information of ingredients:

### Acute Oral toxicity

Harmful if swallowed.

<u>Substances</u>	<u>Oral LD50(Rat), mg/kg</u>
Styrene	5000

### Acute dermal/skin toxicity

<u>Substances</u>	<u>Dermal LD50 (Rabbit), mg/kg</u>
Styrene	Data not available

### Acute inhalation toxicity

Vapour concentrations above the recommended exposure levels may be irritating to the eyes and the respiratory tract, may cause headaches and dizziness, could be anesthetic and may have other central nervous system effects.

<u>Substances</u>	<u>Inhalation Vapor LC50 (Rat), mg/L/4hr</u>
Styrene	12

### Skin corrosion or irritation

Causes skin irritation. Frequent or prolonged contact may dry the skin, leading to discomfort and dermatitis.

### Serious eye damage or irritation

May be an eye irritant.

### Respiratory or skin sensitisation

Vapour concentrations above the recommended exposure levels may be irritating to the eyes and the respiratory tract,

### Germ cell mutagenicity

No information available on the product.

### Carcinogenicity

Styrene

The International Agency for Research on Cancer (IARC) has classified Styrene as possibly carcinogenic to humans (Group 2B) based on inadequate evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals

### Reproductive toxicity

No information available on the product.

### Specific Target Organ Toxicity (STOT)- single exposure

No information available on the product.

### Specific Target Organ Toxicity (STOT)- repeated exposure

No information available on the product.

Aspiration hazard

May be harmful if swallowed and enters airways

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**12. ECOLOGICAL INFORMATION**

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Toxicity

Aquatic toxicity -No data available

Persistence and degradability

Biodegradation -No data available

Bioaccumulative potential

-No data available

Mobility in soil

-No data available

Result of PBT and vPvB assessment

-No data available

Other adverse effects

There is no ecotoxicological test data available on the product itself.

The product should not be allowed to enter drains or water courses

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**13. DISPOSAL CONSIDERATIONS**

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The product should not be allowed to enter drains and watercourses.

Preferred methods of waste disposal are incineration or biological treatment in federal/state approved facility. Empty containers should be recycled or disposed through an approved waste management facility or licensed contractor.

All federal, state and local environmental regulations shall be observed.

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**14. TRANSPORT INFORMATION**

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Transport to be in accordance with ADR/RID for road/rail, and IMDG for sea and IATA for Air.

**LAND TRANSPORT**

Classified as Dangerous Goods by the criteria of the European Agreement concerning the international carriage of Dangerous Goods (ADR) by Road & Regulations concerning the international carriage of Dangerous goods (RID) by Rail.

UN Number: 1866  
Proper shipping name: Resin Solution  
Class: Class 3  
Packaging Group: III

**SEA TRANSPORT**

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport of Sea.

UN Number: 1866  
Proper shipping name: Resin Solution  
Class: Class 3

Packaging Group: III  
Marine Pollutant: No

### **SEA (Annex II of MARPOL 73/78 and the IBC code)**

Not applicable

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## **15. REGULATORY INFORMATION**

Applicable national regulations:

- Standards on Hazard communication for hazardous chemicals and dangerous goods
  - SS 586 : Part 1: 2014- Transport and storage of dangerous goods
  - SS 586 : Part 2: 2014- GHS of classification and labelling of chemicals- Singapore's adaptations
  - SS 586 : Part 3: 2008- Preparation of safety data sheets (SDS)
- MOM: Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations
  - This product is subject to SDS, labelling, PEL and other requirements in the Acts/Regulations
- NEA: Environmental Protection and Management Act & Environmental Protection and Management (Hazardous Substances) Regulations.
  - This product is not subject to control under this Acts/Regulations
- SCDF: Fire Safety Act & Fire Safety (Petroleum and Flammable Materials) Regulations
  - This product is subject to the requirement of this Acts/Regulations
- SPF: The Arms and Explosive Act, the Arms and Explosives (Explosives) Rules, and the Arms and Explosives (Explosive Precursors) Rules
  - This product is not subject to the requirement of this Acts/Regulations

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## **16. OTHER INFORMATION**

Revision date/Version No.: 04-04-2017 /3/1.1.1

History

Previous Revision Date/Version No.: not applicable //

Abbreviation

ACGIH American Conference of Governmental Industrial Hygienists

TLV Threshold limit value

TWA Time-Weighted Average

OSHA Occupational Safety and Health Administration

PEL Permissible Exposure Limit

LD50 Lethal Dose

LC50 Median lethal concentration

IARC International Agency for Research in Cancer

Disclaimer

To the best of our knowledge, the information contained herein is accurate. However, the information is provided without any representation or warranty, expressed or implied, regarding its accuracy or completeness. Since the conditions of handling, storage, use and disposal are beyond our control and may be beyond our knowledge, for this and other reasons, we make no guarantee of results and assume no liability for damages incurred by the use of this product. Please be reminded that all chemicals may present unknown health hazards and should be used with caution.



# SAFETY DATA SHEET

Version No: 003

Revision Date/Version No.: 04-04-2017 /3/1.1.1

## 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Name: **HI-PON 80-12 VINYL ESTER LINING ACCELERATOR**  
Intended Use: Solvent-Free Protective Paint  
Manufacturer: Nippon Paint (S) Co. Pte Ltd  
No. 1 First Lok Yang Road  
Jurong Singapore 629728  
Emergency Phone Number: (65) 6 265 5355  
Fax Numbers: (65) 6 264 1603

## 2. HAZARDS IDENTIFICATION

### GHS Classification:

#### Physical Hazard

Flammable Hazard Category 3

#### Health Hazard

Acute Toxicity Category 4  
Carcinogenicity Category 2

#### Environment Hazard

Acute (Short-term) hazard Category 2

#### GHS Pictogram



#### Signal Word

Warning

#### Hazard statements

H226 Flammable Liquid and vapour  
H302 Harmful if swallowed  
H351 Suspected of causing cancer  
H411 Toxic to aquatic life with long lasting effects

#### 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



# HI-PON 80-12 VINYL ESTER LINING ACCELERATOR

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P264: Wash hands thoroughly after handling  
P280: Wear protective gloves/protective clothing/eye protection/face protection  
P281: Use personal protective equipment as required

## Response

P321: Specific treatment (see Section 4 of SDS)  
P362: Take off contaminated clothing and wash before reuse  
P302+352: IF ON SKIN: Wash with soap and water  
P308+313: IF exposed or concerned: Get medical advice/attention  
P332+313: If skin irritation occurs: Get medical advice/attention  
P337+313: If eye irritation persists: Get medical advice/attention  
P370+378: In case of fire: Use appropriate media for extinction  
P303+361+353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing

## Storage

P405: Store locked up  
P403+235: Store in a well ventilated place. Keep cool

## Disposal

P501 Dispose of content/container to appropriate waste site or reclaimer in accordance with local or national regulations

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## **3. COMPOSITION / INFORMATION ON INGREDIENTS**

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<u>Ingredient</u>	<u>CAS No.</u>	<u>%</u>
N,N-Dimethylaniline	121-69-7	40
Stoddard solvent	8052-41-3	33
Cobalt naphthenate	61789-51-3	27
Substances determined to be non-hazardous	-	<u>Balance</u>
		100

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## **4. FIRST-AID MEASURES**

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### **INHALATION**

- Move person to fresh air and call for medical assistance immediately.
- If not breathing, give artificial respiration, if breathing is difficult, give oxygen. Keep at rest.

### **SKIN CONTACT**

- In case of contact, immediately flush skin with large amounts of water and soap while removing contaminated clothing and shoes.
- If irritation persists, get medical attention.

### **EYE CONTACT**

- Immediately flush eyes with large amounts of water until irritation subsides.
- Remove contact lens
- Obtain medical attention, preferably by an ophthalmologist, immediately.

### **INGESTION**

- DO NOT induce vomiting unless directed to do so by a medical personnel. Never give anything by mouth to an unconscious person. Keep at rest. Get medical attention immediately.

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## **5. FIRE FIGHTING MEASURES**

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### **SUITABLE FIRE EXTINGUISHING MEDIA**

# HI-PON 80-12 VINYL ESTER LINING ACCELERATOR

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- Alcohol-resistant foam, Carbon dioxide, or dry chemical type

## **SPECIFIC HAZARDS ARISING FROM THE CHEMICAL**

- Combustion products may include and are not limited to: Carbon monoxide and Carbon dioxide.

## **SPECIAL PROTECTIVE ACTIONS FOR FIRE FIGHTERS**

- Wear full protective clothing and NIOSH-approved self-contained breathing apparatus.
- Use water spray to cool fire-exposed surfaces and to protect personnel. If a leak or spill has not ignited, use water spray to disperse the vapours.
- If possible, isolate product from heat, electrical equipments, sparks and open flames.
- Avoid spraying water directly into storage containers.
- Closed containers may explode when exposed to extreme heat.
- Avoid spreading burning liquid with water, isolate liquid.
- Do not allow run-off from fire fighting to enter drains or watercourses.

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## **6. ACCIDENTAL RELEASE MEASURES**

---

### **PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURE**

- Wear appropriate protective equipment, e.g. respirators, eye protection, gloves and safety shoes.
- Avoid substance contact with eyes. Do not inhale vapours.
- Ensure supply of fresh air in enclosed rooms.

### **ENVIRONMENTAL PRECAUTIONS**

- Eliminate sources of ignition.
- Keep public away.
- Contain spilled liquid with sand or other non-combustible absorbent materials
- Wash area and prevent runoff into drains and sewerage system.
- Advise authorities if substance has entered a watercourse or sewer or has contaminated soil or vegetation.

### **METHODS AND MATERIALS FOR CONTAINMENTS AND CLEANING UP**

- Clean up all spills immediately.
- Absorb spill with absorbent and inert material, then place in container.
- Disposal in accordance to local/national regulations.

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## **7. HANDLING AND STORAGE**

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### **PRECAUTIONS FOR SAFE HANDLING**

- Use appropriate personal protective equipment
- Keep out of reach of children.
- Handle containers with care. Open slowly in order to control possible pressure release.
- Do not pressurize containers.
- Do not ingest. Do not breathe in gas/fumes/vapour. Avoid contact with skin and eyes.
- For personal protection, see section 8.
- Use only in areas from which all naked lights and other sources of ignition have been excluded.
- Take precautionary measures against static discharge
- Protect from frost and extremes of temperature.

### **CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES**

- Keep containers tightly closed.
- Containers that are opened should be properly resealed and kept upright to prevent leakage.
- Store in cool, dry and well-ventilated place at temperature between 20°C to 40°C away from heat and sources of ignition.

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## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

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# HI-PON 80-12 VINYL ESTER LINING ACCELERATOR

## CONTROL PARAMETERS/OCCUPATIONAL LIMITS

<u>Substances</u>	<u>ACGIH TLV-TWA</u>		<u>OSHA PEL-TWA</u>	
	<u>ppm</u>	<u>mg/m3</u>	<u>ppm</u>	<u>mg/m3</u>
N,N-Dimethylaniline	5	25	-	-

## APPROPRIATE ENGINEERING CONTROL MEASURES

- Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective occupational exposure limits.
- Ensure eyewash stations and safety showers are close to the workstation location.

## PERSONAL PROTECTION

Respiratory Protection:	Use of NIOSH-approved respirators with organic vapour cartridges is recommended.
Hand Protection:	Use of solvent resistance type or chemical resistant type of protective gloves is recommended.
Eye Protection:	Use of safety glasses or goggles with side shields is recommended.
Skin / Body Protection:	Wear chemical resistant clothes and safety shoes when handling product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Deep-purple liquid
Odour	: Weak pungent odor
Odour threshold	: Not available
pH	: Not available
Melting point/freezing point	: Not available
Initial boiling point and boiling range	: 193 °C (N,N-Dimethylaniline) 130-230 °C (Stoddard solvent)
Flash point	: 46 °C
Evaporation rate	: Not available
Flammability (solid, gas)	: Not applicable
Lower flammability or explosive limit	: 1 vol% (N,N-Dimethylaniline); 0.6 vol% (Stoddard solvent)
Upper flammability or explosive limit	: 7 vol% (N,N-Dimethylaniline) 8 vol% (Stoddard solvent)
Vapour pressure	: 67Pa (at 20°C) (N,N-Dimethylaniline) 0.1-1.4kPa (at 20°C) (Stoddard solvent)
Vapour density	: 4.17 (N,N-Dimethylaniline) (Vapour is heavier than air)
Relative density	: 0.90 – 0.98 (at 25°C)
Solubility	: Not Miscible in water
Partition coefficient	: Not available
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
Viscosity	: Not available

## 10. STABILITY AND REACTIVITY

### REACTIVITY

- No dangerous reaction known under condition of normal use.

### CHEMICAL STABILITY

- The product is stable under recommended storage and handling conditions. (see section 7)

### POSSIBILITY OF HAZARDOUS REACTION

# HI-PON 80-12 VINYL ESTER LINING ACCELERATOR

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- Under normal conditions of storage and use, hazardous reaction will not occur.

## CONDITIONS TO AVOID

- Keep away from oxidising agents, strongly alkaline and strongly acidic materials in order to avoid exothermic reactions. Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, drill, grind or expose containers to heat or sources of ignition.

## HAZARDOUS DECOMPOSITION PRODUCTS

- When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

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## 11. TOXICOLOGICAL INFORMATION

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There is no data available on the product itself.

Toxicological information of ingredients:

### Acute Oral toxicity

Harmful if swallowed.

### Substances

N,N-Dimethylaniline

### Oral LD50(Rat), mg/kg

Data not available

### Acute dermal/skin toxicity

### Substances

N,N-Dimethylaniline

### Dermal LD50 (Rabbit), mg/kg

Data not available

### Acute inhalation toxicity

Vapour concentrations above the recommended exposure levels may be irritating to the eyes and the respiratory tract, may cause headaches and dizziness, could be anesthetic and may have other central nervous system effects.

### Substances

N,N-Dimethylaniline

### Inhalation Vapor LC50 (Rat), mg/L/4hr

Data not available

### Skin corrosion or irritation

Causes skin irritation. Frequent or prolonged contact may dry the skin, leading to discomfort and dermatitis.

### Serious eye damage or irritation

May be an eye irritant.

### Respiratory or skin sensitisation

Vapour concentrations above the recommended exposure levels may be irritating to the eyes and the respiratory tract,

### Germ cell mutagenicity

No information available on the product.

### Carcinogenicity

No information available on the product.

### Reproductive toxicity

No information available on the product.

### Specific Target Organ Toxicity (STOT)- single exposure

No information available on the product.

# HI-PON 80-12 VINYL ESTER LINING ACCELERATOR

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Specific Target Organ Toxicity (STOT)- repeated exposure  
No information available on the product.

Aspiration hazard  
May be harmful if swallowed and enters airways

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## 12. ECOLOGICAL INFORMATION

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Toxicity  
Aquatic toxicity -No data available

Persistence and degradability  
Biodegradation -No data available

Bioaccumulative potential  
-No data available

Mobility in soil  
-No data available

Result of PBT and vPvB assessment  
-No data available

Other adverse effects  
There is no ecotoxicological test data available on the product itself.  
The product should not be allowed to enter drains or water courses

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## 13. DISPOSAL CONSIDERATIONS

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The product should not be allowed to enter drains and watercourses.

Preferred methods of waste disposal are incineration or biological treatment in federal/state approved facility. Empty containers should be recycled or disposed through an approved waste management facility or licensed contractor.

All federal, state and local environmental regulations shall be observed.

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## 14. TRANSPORT INFORMATION

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Transport to be in accordance with ADR/RID for road/rail, and IMDG for sea and IATA for Air.

### LAND TRANSPORT

Classified as Dangerous Goods by the criteria of the European Agreement concerning the international carriage of Dangerous Goods (ADR) by Road & Regulations concerning the international carriage of Dangerous goods (RID) by Rail.

UN Number: 1993  
Proper shipping name: Resin Solution  
Class: Class 3  
Packaging Group: III

### SEA TRANSPORT

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport of Sea.

UN Number: 1993  
Proper shipping name: Resin Solution

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# HI-PON 80-12 VINYL ESTER LINING ACCELERATOR

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Class: Class 3  
Packaging Group: III  
Marine Pollutant: No

## SEA (Annex II of MARPOL 73/78 and the IBC code)

Not applicable

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## 15. REGULATORY INFORMATION

Applicable national regulations:

- Standards on Hazard communication for hazardous chemicals and dangerous goods
  - SS 586 : Part 1: 2014- Transport and storage of dangerous goods
  - SS 586 : Part 2: 2014- GHS of classification and labelling of chemicals- Singapore's adaptations
  - SS 586 : Part 3: 2008- Preparation of safety data sheets (SDS)
- MOM: Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations
  - This product is subject to SDS, labelling, PEL and other requirements in the Acts/Regulations
- NEA: Environmental Protection and Management Act & Environmental Protection and Management (Hazardous Substances) Regulations.
  - This product is not subject to control under this Acts/Regulations
- SCDF: Fire Safety Act & Fire Safety (Petroleum and Flammable Materials) Regulations
  - This product is subject to the requirement of this Acts/Regulations
- SPF: The Arms and Explosive Act, the Arms and Explosives (Explosives) Rules, and the Arms and Explosives (Explosive Precursors) Rules
  - This product is not subject to the requirement of this Acts/Regulations

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## 16. OTHER INFORMATION

Revision date/Version No.: 04-04-2017 /3/1.1.1

History

Previous Revision Date/Version No.: not applicable //

Abbreviation

ACGIH American Conference of Governmental Industrial Hygienists

TLV Threshold limit value

TWA Time-Weighted Average

OSHA Occupational Safety and Health Administration

PEL Permissible Exposure Limit

LD50 Lethal Dose

LC50 Median lethal concentration

IARC International Agency for Research in Cancer

Disclaimer

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# SAFETY DATA SHEET

Version No: 003

Revision Date/Version No.: 04-04-2017 /3/1.1.1

## 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Name: **HI-PON 80-12 VINYL ESTER LINING HARDENER**  
Intended Use: Solvent-Free Protective Paint  
Manufacturer: Nippon Paint (S) Co. Pte Ltd  
No. 1 First Lok Yang Road  
Jurong Singapore 629728  
Emergency Phone Number: (65) 6 265 5355  
Fax Numbers: (65) 6 264 1603

## 2. HAZARDS IDENTIFICATION

### GHS Classification:

Physical Hazard  
Organic peroxides

Type D

### Health Hazard

Acute Toxicity:

- Oral Category 4  
- Inhalation Category 4  
Skin corrosion/Irritation Category 1  
Serious eye damage/irritation Category 1

### Environment Hazard

Not classified as an environmental hazard under GHS criteria

### GHS Pictogram



### Signal Word

Danger

### Hazard statements

H242 Heating may cause a fire  
H302 Harmful if swallowed  
H312 Harmful in contact with skin  
H314 Causes severe skin burns and eye damage  
H332 Harmful if inhaled

### Precautionary statements

P220 Keep/store away from clothing combustible materials  
P234 Keep only in original container  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray  
P280 Wear protective gloves/eye protection/face protection

# HI-PON 80-12 VINYL ESTER LINING HARDENER

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## Response

P310: Immediately call a POISON CENTER or doctor/physician

P311: Call a POISON CENTER or doctor/physician

P312: Call a POISON CENTER or doctor/physician if you feel unwell

P314: Get medical advice/attention if you feel unwell

P321: Specific treatment (see Section 4 of SDS)

P322: Specific measures (see Section 4 of SDS)

P330: Rinse mouth

P363: Wash contaminated clothing before reuse

P391: Collect spillage

P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P302+352: IF ON SKIN: Wash with soap and water

P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

P303+361+353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing.

Rinse skin with water/shower

P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing

## Storage

P405: Store locked up

P403+233: Store in a well ventilated place. Keep container tightly closed

## Disposal

P501 Dispose of content/container to appropriate waste site or reclaimer in accordance with local or national regulations

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## 3. COMPOSITION / INFORMATION ON INGREDIENTS

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<u>Ingredient</u>	<u>CAS No.</u>	<u>%</u>
Dimethyl phthalate	131-11-3	60-100
Methyl ethyl ketone peroxide;Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane	1338-23-4	30 - 37
Methyl ethyl ketone	78-93-3	1 - 3
Substances determined to be non-hazardous	-	<u>Balance</u>
		100

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## 4. FIRST-AID MEASURES

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### **INHALATION**

- Move person to fresh air and call for medical assistance immediately.
- If not breathing, give artificial respiration, if breathing is difficult, give oxygen. Keep at rest.

### **SKIN CONTACT**

- In case of contact, immediately flush skin with large amounts of water and soap while removing contaminated clothing and shoes.
- If irritation persists, get medical attention.

### **EYE CONTACT**

- Immediately flush eyes with large amounts of water until irritation subsides.
- Remove contact lens
- Obtain medical attention, preferably by an ophthalmologist, immediately.

### **INGESTION**



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- DO NOT induce vomiting unless directed to do so by a medical personnel. Never give anything by mouth to an unconscious person. Keep at rest. Get medical attention immediately.

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## 5. FIRE FIGHTING MEASURES

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### SUITABLE FIRE EXTINGUISHING MEDIA

- Alcohol-resistant foam, Carbon dioxide, or dry chemical type

### SPECIFIC HAZARDS ARISING FROM THE CHEMICAL

- Combustion products may include and are not limited to: Carbon monoxide and Carbon dioxide.

### SPECIAL PROTECTIVE ACTIONS FOR FIRE FIGHTERS

- Wear full protective clothing and NIOSH-approved self-contained breathing apparatus.
- Use water spray to cool fire-exposed surfaces and to protect personnel. If a leak or spill has not ignited, use water spray to disperse the vapours.
- If possible, isolate product from heat, electrical equipments, sparks and open flames.
- Avoid spraying water directly into storage containers.
- Closed containers may explode when exposed to extreme heat.
- Avoid spreading burning liquid with water, isolate liquid.
- Do not allow run-off from fire fighting to enter drains or watercourses.

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## 6. ACCIDENTAL RELEASE MEASURES

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### PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURE

- Wear appropriate protective equipment, e.g. respirators, eye protection, gloves and safety shoes.
- Avoid substance contact with eyes. Do not inhale vapours.
- Ensure supply of fresh air in enclosed rooms.

### ENVIRONMENTAL PRECAUTIONS

- Eliminate sources of ignition.
- Keep public away.
- Contain spilled liquid with sand or other non-combustible absorbent materials
- Wash area and prevent runoff into drains and sewerage system.
- Advise authorities if substance has entered a watercourse or sewer or has contaminated soil or vegetation.

### METHODS AND MATERIALS FOR CONTAINMENTS AND CLEANING UP

- Clean up all spills immediately.
- Absorb spill with absorbent and inert material, then place in container.
- Disposal in accordance to local/national regulations.

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## 7. HANDLING AND STORAGE

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### PRECAUTIONS FOR SAFE HANDLING

- Use appropriate personal protective equipment
- Keep out of reach of children.
- Handle containers with care. Open slowly in order to control possible pressure release.
- Do not pressurize containers.
- Do not ingest. Do not breathe in gas/fumes/vapour. Avoid contact with skin and eyes.
- For personal protection, see section 8.
- Use only in areas from which all naked lights and other sources of ignition have been excluded.
- Take precautionary measures against static discharge
- Protect from frost and extremes of temperature.

### CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

## HI-PON 80-12 VINYL ESTER LINING HARDENER

- Keep containers tightly closed.
- Containers that are opened should be properly resealed and kept upright to prevent leakage.
- Store in cool, dry and well-ventilated place at temperature between 20°C to 40°C away from heat and sources of ignition.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### CONTROL PARAMETERS/OCCUPATIONAL LIMITS

<b>Ingredient</b>	<b>ACGIH TLV-TWA</b>		<b>OSHA PEL-TWA</b>	
	<b>ppm</b>	<b>mg/m3</b>	<b>ppm</b>	<b>mg/m3</b>
Dimethyl phthalate	-	-	-	5
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec- butylhexaoxidane	-	-	0.2	1.5
Methyl ethyl ketone	-	-	200	590

#### APPROPRIATE ENGINEERING CONTROL MEASURES

- Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective occupational exposure limits.
- Ensure eyewash stations and safety showers are close to the workstation location.

#### PERSONAL PROTECTION

Respiratory Protection:	Use of NIOSH-approved respirators with organic vapour cartridges is recommended.
Hand Protection:	Use of solvent resistance type or chemical resistant type of protective gloves is recommended.
Eye Protection:	Use of safety glasses or goggles with side shields is recommended.
Skin / Body Protection:	Wear chemical resistant clothes and safety shoes when handling product.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Clear colorless liquid
Odour	:	Faint
Odour threshold	:	Not available
pH	:	Not available
Melting point/freezing point	:	Not available
Initial boiling point and boiling range	:	Not available
Flash point	:	Above the SADT value
Evaporation rate	:	Not available
Flammability (solid, gas)	:	Not applicable
Lower flammability or explosive limit	:	Not available
Upper flammability or explosive limit	:	Not available
Vapour pressure	:	1 hPa at 84 °C
Vapour density	:	> 1.00 (Vapour is heavier than air)
Relative density	:	1.18 at 20 °C
Solubility	:	Partly miscible in water
Partition coefficient	:	Not available
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
Viscosity	:	24 mPa.s at 20 °C
SADT	:	60 °C
Active Oxygen Content	:	8.8 - 9.0 %

# HI-PON 80-12 VINYL ESTER LINING HARDENER

Organic peroxides : 30 - 37 %

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## 10. STABILITY AND REACTIVITY

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### REACTIVITY

- No dangerous reaction known under condition of normal use.

### CHEMICAL STABILITY

- SADT – (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the following temperature: 60°C. Contact with incompatible substances can cause decomposition at or below the SADT 60°C.

### POSSIBILITY OF HAZARDOUS REACTION

- Under normal conditions of storage and use, hazardous reaction will not occur.

### CONDITIONS TO AVOID

- Keep away from oxidising agents, strongly alkaline and strongly acidic materials in order to avoid exothermic reactions. Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, drill, grind or expose containers to heat or sources of ignition.

### HAZARDOUS DECOMPOSITION PRODUCTS

- When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

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## 11. TOXICOLOGICAL INFORMATION

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There is no data available on the product itself.  
Toxicological information of ingredients:

### Acute Oral toxicity

Harmful if swallowed.

<u>Ingredient</u>	<u>Oral LD50(Rat), mg/kg</u>
Dimethyl phthalate	> 5000
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butyl hexaoxidane	1017
Methyl ethyl ketone	2737

### Acute dermal/skin toxicity

<u>Ingredient</u>	<u>Dermal LD50 (Rabbit), mg/kg</u>
Dimethyl phthalate	> 10 000
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butyl hexaoxidane	4000

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Methyl ethyl ketone 6480

### Acute inhalation toxicity

Vapour concentrations above the recommended exposure levels may be irritating to the eyes and the respiratory tract, may cause headaches and dizziness, could be anesthetic and may have other central nervous system effects.

<u>Ingredient</u>	<u>Inhalation Vapor LC50 (Rat), mg/L/4hr</u>
Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butyl hexaoxidane	1.5

### Skin corrosion or irritation

Causes skin irritation. Frequent or prolonged contact may dry the skin, leading to discomfort and dermatitis.

### Serious eye damage or irritation

May be an eye irritant.

### Respiratory or skin sensitisation

Vapour concentrations above the recommended exposure levels may be irritating to the eyes and the respiratory tract,

### Germ cell mutagenicity

No information available on the product.

### Carcinogenicity

No information available on the product.

### Reproductive toxicity

No information available on the product.

### Specific Target Organ Toxicity (STOT)- single exposure

No information available on the product.

### Specific Target Organ Toxicity (STOT)- repeated exposure

No information available on the product.

### Aspiration hazard

May be harmful if swallowed and enters airways

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## 12. ECOLOGICAL INFORMATION

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### **Ecotoxicology Assessment**

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Toxic to aquatic life

### **Test result**

#### **Ecotoxicity effects**

Toxicity to fish : LC50: 44.2 mg/l  
Exposure time: 96 h  
Species: Poecilia reticulata (guppy)  
Test Type: semi-static test

Toxicity to daphnia and other aquatic invertebrates : 39 mg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
Test Type: Immobilization

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Toxicity to algae : ErC50: 5.6 mg/l  
Exposure time: 72 h  
Species: Pseudokirchneriella subcapitata (algae)  
Test Type: Growth inhibition

Toxicity to bacteria : EC10: 12 mg/l  
Exposure time: 0.5 h  
Species: activated sludge  
Test Type: Respiration inhibition  
Method: Domestic OECD Guideline 209

### Ecotoxicology Assessment

#### Component: Dimethyl phthalate

Acute aquatic toxicity : Harmful to aquatic life

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Harmful to aquatic life.

### Test result

#### Ecotoxicity effects

Toxicity to fish : LC50: 420 mg/l  
Exposure time: 96 h  
Species: Lepomis macrochirus (Bluegill sunfish)

Toxicity to algae : EC10: 193.09 mg/l  
Exposure time: 72 h  
Species: Desmodesmus subspicatus (green algae)  
Test Type: Growth inhibition  
Method: OECD Test Guideline 201

ErC50: 259.76 mg/l  
Exposure time: 72 h  
Species: Desmodesmus subspicatus (green algae)  
Test Type: Growth inhibition  
Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOEC: 11 mg/l  
Exposure time: 102 d  
Species: Oncorhynchus mykiss (rainbow trout)  
Test Type: flow-through test  
Method: Other guidelines

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 9.6 mg/l  
Exposure time: 21 d  
reproduction rate  
Species: Daphnia magna (Water flea)  
Method: Other guidelines

#### Elimination information (persistence and degradability)

Bioaccumulation : Species: Fish  
Exposure time: 1 d  
Bioconcentration factor (BCF): 5.4

Biodegradability : Result: Readily biodegradable

#### Component: Methyl ethyl ketone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane

#### Ecotoxicity effects

Toxicity to fish : LC50: 44.2 mg/l  
Exposure time: 96 h

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		Species: Poecilia reticulata (guppy) Test Type: semi-static test
Toxicity to daphnia and other aquatic invertebrates	:	39 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Test Type: Immobilization
Toxicity to algae	:	ErC50: 5.6 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (algae) Test Type: Growth inhibition
Toxicity to bacteria	:	EC10: 12 mg/l Exposure time: 0.5 h Species: activated sludge Test Type: Respiration inhibition Method: Domestic OECD Guideline 209

### **Elimination information (persistence and degradability)**

Bioaccumulation	:	Bioconcentration factor (BCF): 10.3 Not expected considering the low log Pow value.
Biodegradability	:	Result: Readily biodegradable Method: Closed Bottle test

### **Component: Methyl ethyl ketone**

#### **Ecotoxicity effects**

Toxicity to fish	:	LC50: 3,220 mg/l Exposure time: 96 h Species: Lepomis macrochirus (Bluegill sunfish)
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### **Elimination information (persistence and degradability)**

Biodegradability	:	Result: Readily biodegradable
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## **13. DISPOSAL CONSIDERATIONS**

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The product should not be allowed to enter drains and watercourses.

Preferred methods of waste disposal are incineration or biological treatment in federal/state approved facility. Empty containers should be recycled or disposed through an approved waste management facility or licensed contractor.

All federal, state and local environmental regulations shall be observed.

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## **14. TRANSPORT INFORMATION**

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Transport to be in accordance with ADR/RID for road/rail, and IMDG for sea and IATA for Air.

### **LAND TRANSPORT**

Classified as Dangerous Goods by the criteria of the European Agreement concerning the international carriage of Dangerous Goods (ADR) by Road & Regulations concerning the international carriage of Dangerous goods (RID) by Rail.

UN Number:	UN3105
Proper shipping name:	Organic Peroxide Type 'D' Liquid – Methyl ethyl ketone peroxide
Class:	Class 5.2

## HI-PON 80-12 VINYL ESTER LINING HARDENER

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Packaging Group: Not Assigned

### **SEA TRANSPORT**

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport of Sea.

UN Number: UN3105  
Proper shipping name: Organic Peroxide Type 'D' Liquid – Methyl ethyl ketone peroxide  
Class: Class 5.2  
Packaging Group: Not Assigned  
Marine Pollutant: No

### **SEA (Annex II of MARPOL 73/78 and the IBC code)**

Not applicable

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## **15. REGULATORY INFORMATION**

Applicable national regulations:

- Standards on Hazard communication for hazardous chemicals and dangerous goods
  - SS 586 : Part 1: 2014- Transport and storage of dangerous goods
  - SS 586 : Part 2: 2014- GHS of classification and labelling of chemicals- Singapore's adaptations
  - SS 586 : Part 3: 2008- Preparation of safety data sheets (SDS)
- MOM: Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations
  - This product is subject to SDS, labelling, PEL and other requirements in the Acts/Regulations
- NEA: Environmental Protection and Management Act & Environmental Protection and Management (Hazardous Substances) Regulations.
  - This product is not subject to control under this Acts/Regulations
- SCDF: Fire Safety Act & Fire Safety (Petroleum and Flammable Materials) Regulations
  - This product is subject to the requirement of this Acts/Regulations
- SPF: The Arms and Explosive Act, the Arms and Explosives (Explosives) Rules, and the Arms and Explosives (Explosive Precursors) Rules
  - This product is not subject to the requirement of this Acts/Regulations

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## **16. OTHER INFORMATION**

Revision date/Version No.: 04-04-2017 /3/1.1.1

History

Previous Revision Date/Version No.: not applicable //

Abbreviation

ACGIH American Conference of Governmental Industrial Hygienists  
TLV Threshold limit value  
TWA Time-Weighted Average  
OSHA Occupational Safety and Health Administration  
PEL Permissible Exposure Limit  
LD50 Lethal Dose  
LC50 Median lethal concentration  
IARC International Agency for Research in Cancer

## HI-PON 80-12 VINYL ESTER LINING HARDENER

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### Disclaimer

To the best of our knowledge, the information contained herein is accurate. However, the information is provided without any representation or warranty, expressed or implied, regarding its accuracy or completeness. Since the conditions of handling, storage, use and disposal are beyond our control and may be beyond our knowledge, for this and other reasons, we make no guarantee of results and assume no liability for damages incurred by the use of this product. Please be reminded that all chemicals may present unknown health hazards and should be used with caution.