



MATERIAL SAFETY DATA SHEET

DAEHEUNG CHEMICAL CO., LTD. www.dhcbond.com

PGM

Product Name

DHT-350(A)

1. Product and Company Identification

- A. Product Name DHT-350(A)
- B. Recommended use of the chemical and restrictions on use
- Recommended use of the chemical Parts of an electronic, parts of a motors, etc. (Metal, ABS, FRP, various soft and hard type plastics.)
The use of common industry. (Glass, rubber, ceramic, stone, wood, etc.)
 - Restrictions on use of the product Don't use except for the original purpose.
- C. Manufacturer/Supplier/Distributor Information
- Name DAEHEUNG CHEMICAL CO., LTD.
 - Address 68, Sandan-ro 64beon-gil, Pyeongtaek-si, Gyeonggi-do, Korea
 - Emergency phone number 82-31-668-1424

2. Hazards identification

- A. Hazard-Risk Classification
- Flammable Liquid : Category 2
Organic peroxides : Types F
Acute toxicity (inhalation: dust / mist): Category 4
Skin corrosion / skin irritation: Category 2
Serious eye damage / eye irritation: Category 2
Respiratory sensitization: Category 1
Skin sensitization: Category 1
Reproductive toxicity: Category 2
Specific target organ toxicity (single exposure): Category 3 (respiratory irritation)
Specific target organ toxicity (single exposure): Category 3 (Narcotic effects)
Specific target organ toxicity (repeated exposure): Category 1
Chronic hazards to the aquatic environment: Category 3

B. Label elements including precautionary statements

- Symbol



- Signal Word

Danger

- Hazard-Risk Statement

H225 Highly flammable liquid and vapour Causes severe skin burns and eye damage
H242 Heating may cause a fire
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation
H332 Harmful if inhaled
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 May cause respiratory irritation
H336 May cause drowsiness or dizziness
H361 Suspected of damaging fertility or the unborn child

– Hazard-Risk Statement	H372 Causes damage to organs through prolonged or repeated exposure
	H373 May cause damage to organs through prolonged or repeated exposure
– Precautionary Statement	
Prevention	<p>P201 Obtain special instructions before use</p> <p>P202 Do not handle until all safety precautions have been read and understood</p> <p>P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking</p> <p>P220 Keep/Store away from clothing/.../combustible materials</p> <p>P233 Keep container tightly closed</p> <p>P234 Keep only in original container</p> <p>P240 Ground/bond container and receiving equipment</p> <p>P241 Use explosion-proof electrical/ventilating/light/.../equipment</p> <p>P242 Use only non-sparking tool</p> <p>P243 Take precautionary measures against static discharge</p> <p>P260 Do not breathe dust/fume/gas/mist/vapours/spray</p> <p>P261 Avoid breathing dust/fume/gas/mist/vapours/spray</p> <p>P264 Wash ... thoroughly after handling</p> <p>P270 Do not eat, drink or smoke when using this product</p> <p>P271 Use only outdoors or in a well-ventilated area</p> <p>P272 Contaminated work clothing should not be allowed out of the workplace</p> <p>P273 Avoid release to the environment</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection</p> <p>P281 Use personal protective equipment as required</p> <p>P285 In case of inadequate ventilation wear respiratory protection</p>
Response	<p>P302+352 IF ON SKIN : Wash with soap and water</p> <p>P303+P361+P353 IF ON SKIN (or hair) : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower</p> <p>P304+340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing</p> <p>P304+341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing</p> <p>P305+351+338 IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing</p> <p>P308+P313 IF exposed or concerned : Get medical advice/attention</p> <p>P312 Call a POISON CENTER or doctor/physician if you feel unwell</p> <p>P314 Get Medical advice/attention if you feel unwell</p> <p>P332+313 If skin irritation occurs: Get medical advice/attention</p> <p>P333+313 If skin irritation or a rash occurs: Get medical advice/attention</p> <p>P337+313 If eye irritation persists get medical advice/attention</p> <p>P362 Take off contaminated clothing and wash before reuse</p> <p>P363 Wash contaminated clothing before reuse</p>
Storage	<p>P403+233 Store in a well ventilated place. Keep container tightly closed</p> <p>P403+P235 Store in a well ventilated place. Keep cool.</p> <p>P405 Store locked up</p> <p>P410 Protect from sunlight</p> <p>P411+235 Keep cool</p> <p>P420 Store away from other materials</p>
Disposal	P501 Dispose of contents/container to ...

C. Other Hazard-Risk which are not included in the classification criteria (e.g. dust explosion hazard)

CUMENE HYDROPEROXIDE

Health	1
Fire	2

Reactivity	4
METHYL METHYLACRYLATE	
Health	2
Fire	3
Reactivity	2
SILICA, AMORPHOUS, FUMED	
Health	0
Fire	1
Reactivity	0
HYDROXYETHYL METHACRYLATE	
Health	2
Fire	1
Reactivity	1
ACRYLONITRILE-BUTADIENE RUBBER	
Health	1
Fire	1
Reactivity	0

3. Composition/Information on ingredients

Chemical Name	Other name	CAS number	Content(%)
METHYL METHYLACRYLATE	METHYL METHYLACRYLATE	80-62-6	60~80
HYDROXYETHYL METHACRYLATE	HEMA;	868-77-9	
ACRYLONITRILE-BUTADIENE RUBBER	2-PROPENENITRILE, POLYMER WITH	9003-18-3	10~30
SILICA, AMORPHOUS, FUMED	SILICA, AMORPHOUS, FUMED, CRYSTALLINE FREE	112945-52-5	0~10
CUMENE HYDROPEROXIDE	ISOPROPYLBENZENE HYDROPEROXIDE	80-15-9	0~10

4. First aid measures

A. Eye contact	IF IN EYES: Wash carefully with water for several minutes. Remove contact lenses, if possible. Easy to do. If eye irritation persists, Consult a physician if irritation persists.
B. Skin contact	Skin (or hair): Take off immediately all contaminated clothing or remove the Keep. Rinse skin with water / shower. If skin irritation occurs, obtain medical advice Keep Wash skin with soap and water
C. Inhalation	Excessive dust, or fumes when exposed to clean air removed by coughing or other symptoms and Seek medical attention if you have.
D. Ingestion	Do not use mouth-to-mouth method if victim inhaled the substance. Seek immediate medical advice.
E. Indication of immediate medical attention and notes for physician	Medical personnel are aware of the material and to take precautions to protect.

5. Fire-Fighting measures

A. Suitable (and unsuitable) extinguishing media	For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. When to do Fire-Fighting, use dry sand or earth.
B. hazards arising from the chemical (e.g. nature of any hazardous combustion products)	Highly flammable liquid and vapor. Vapors may form explosive mixtures with air.

The steam explosion hazard at Indoor, outdoor, drain.

C. Special protective equipment and precautions for fire-fighters

In case of fire: Wear self-contained breathing apparatus.

Cool tanks/drums with water spray/remove them into safety.

6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures

Use water spray/stream to protect personnel and to cool endangered containers.

Remove product from area of fire.

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

Stop leak if safe to do so. Remove all sources of ignition.

In case of fire: Wear self-contained breathing apparatus.

Evacuate unnecessary personnel. Remove all sources of ignition. Stop leak if safe to do so. Eliminate leaks immediately.

B. Environmental precautions and protective procedures

Avoid release to the environment.

Waterways, sewers, basements, and Prevent entry into confined spaces.

C. Methods and materials for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Collect in closed containers for disposal.

Dispose of this material and its container to hazardous or special waste collection point.

7. Handling and storage

A. Precautions for safe handling

Do not handle until all safety precautions Read and understand all safety precautions.

Wear suitable chemical resistant gloves, safety goggles, dust mask and other protective clothing.

Use in the well-ventilated areas. Prevent build-up electrostatic charge (by grounding).

Shower and eye bath. Keep away from acidic material.

Be careful to high temperatures.

B. Conditions for safe storage (including any incompatibilities)

Store in its original container in a cool environment, keep away from heat, spark, and open flame. Ground containers during storage and transfer operations to avoid static spark.

Ideal storage temp. range for ease of handling is 10 ~ 27°C

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

8. Exposure controls & personal protection

A. Control parameters (e.g. occupational exposure limit values, biological limit values)

– Occupational exposure limit values

METHYL METHYLACRYLATE

TWA – 50ppm 205mg/m³ STEL – 100ppm 410mg/m³

– ACGIH limit values

METHYL METHYLACRYLATE

TWA 50 ppm

STEL 100 ppm

– Biological limit values

No data available

B. Appropriate engineering controls

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate ventilation.

C. Personal protective equipment

– Respiratory protection

The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product.

– Respiratory protection	If the concentration is exceeded, closed-circuit breathing apparatus must be used.
– Eye protection	In case of fire: Wear self contained breathing apparatus.
– Hands protection	Wear eye protection/face protection.
– Body protection	Wear proper chemical resistant gloves.
	Wear proper Protective clothing.

9. Physical and chemical properties

A. Appearance	
Physical state	Viscous liquid
Color	Light blue
B. Odour	Monomer odor
C. Odour threshold	No data available
D. pH	Not Applicable.
E. Melting point/freezing point	Not Applicable.
F. Initial boiling point and boiling range	67°C
G. Flashing point	10~100 °C
H. Evaporation rate	No data available
I. Flammability(solid, gas)	No data available
J. Upper/lower flammability or explosive limits	8.2% / 1.7%
K. Vapor pressure	0.01~40 (at 20°C)
L. Solubility	A little soluble in water
M. Vapor density	Above air
N. Relative density	1.0±0.1
O Partition coefficient:n-octanol/water	No data available
P. Auto-ignition temperature	421°C
Q. Decomposition temperature	No data available
R. Viscosity	7,000~9,000 cps
S. Formula mass	No data available

10. Stability and reactivity

A. Chemical stability and possibility of hazardous reactions	Stable under normal conditions Highly flammable liquid and vapor
B. Conditions to avoid	Avoid the fire, spark, flame, and other ignition sources The fume has an explosive characteristic. Avoid the overheating of container.
C. Incompatible materials	flammable material
D. Hazardous decomposition products	CO, CO ₂ , nitrogen compounds

11. Toxicological information

A. Information on the likely routes of exposure	Burn, may cause eye damage.
B. Health hazards information	
– Acute toxic	
Oral	
CUMENE HYDROPEROXIDE	LD50 382 mg/kg Rat
METHYL METHYLACRYLATE	LD50 7900 mg/kg Rat
SILICA, AMORPHOUS, FUMED	LD50 > 3100 mg/kg Rat
HYDROXYETHYL METHACRYLATE	LD50 > 4000 mg/kg Rat
ACRYLONITRILE-BUTADIENE RUBBER	LD50 5480 mg/kg Rabbit

Dermal		
METHYL METHYLACRYLATE	LD50 5000 mg/kg Rabbit	
HYDROXYETHYL METHACRYLATE	LD50 > 3000 mg/kg Rabbit	
Inhalation		
CUMENE HYDROPEROXIDE	LC50 220 ppm 4hr Rat	
METHYL METHYLACRYLATE	LC50 7093 ppm 4hr Rat	
– Skin corrosive/irritant		
CUMENE HYDROPEROXIDE	Causes skin irritation.	
METHYL METHYLACRYLATE	Reported moderate rabbit irritation.	
SILICA, AMORPHOUS, FUMED	Non-irritating	
HYDROXYETHYL METHACRYLATE	Reported moderate rabbit irritation.	
– Serious eye damage/eye irritation		
CUMENE HYDROPEROXIDE	Causes eye irritation.	
METHYL METHYLACRYLATE	Reported moderate rabbit irritation.	
SILICA, AMORPHOUS, FUMED	Non-irritating	
HYDROXYETHYL METHACRYLATE	Reported moderate rabbit irritation.	
– Respiratory sensitization		
METHYL METHYLACRYLATE		
– Skin sensitization		
METHYL METHYLACRYLATE	Reported moderate rabbit irritation.	
SILICA, AMORPHOUS, FUMED	Non-irritating	
HYDROXYETHYL METHACRYLATE	Reported moderate rabbit irritation.	
– Carcinogenicity		
KOSHA	No data available	
MOEL	No data available	
IARC		
METHYL METHYLACRYLATE	Group 3	
SILICA, AMORPHOUS, FUMED	Group 3 (Silica, amorphous)	
OSHA	No data available	
ACGIH		
METHYL METHYLACRYLATE	A4	
NTP	No data available	
EU CLP	No data available	

12. Ecological information

A. Aquatic and terrestrial ecotoxicity

– Fish

CUMENE HYDROPEROXIDE	LC50 3.9 mg/l 96 hr
METHYL METHYLACRYLATE	LC50 191 mg/l 96 hr
SILICA, AMORPHOUS, FUMED	No data available
HYDROXYETHYL METHACRYLATE	LC50 > 100 mg/l 96 hr <i>Oryzias latipes</i>

– Shellfish

CUMENE HYDROPEROXIDE	EC50 7 mg/l 24 hr
HYDROXYETHYL METHACRYLATE	EC50 380 mg/l 48 hr <i>Daphnia magna</i>

– Bird

HYDROXYETHYL METHACRYLATE	EC50 345 mg/l 72 hr <i>Selenastrum capricornutum</i>
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B. Persistence and degradability

– Persistence

HYDROXYETHYL METHACRYLATE	log Kow 0.42
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– Degradability	No data available
C. Bioaccumulative potential	No data available
– Potential	
CUMENE HYDROPEROXIDE	BCF 35.5
METHYL METHYLACRYLATE	BCF 4.295
HYDROXYETHYL METHACRYLATE	BCF 1.34~1.54
– Biodegradable	
CUMENE HYDROPEROXIDE	18 (%) 28 day
METHYL METHYLACRYLATE	94.3 (%)
HYDROXYETHYL METHACRYLATE	84 (%) 28 day
D. Mobility in soil	No data available
E. Other adverse effects	No data available

13. Disposal considerations

A. Disposal method	Destroy the product by incineration
B. Disposal precaution	Destroy the product by incineration

14. Transport information

A. UN number	1133
B. UN proper shipping name	ADHESIVES containing flammable liquid
C. Transport hazard class:	3
D. Packing group (if applicable)	II
E. Marine pollution (yes/no)	Yes

F. Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises:

F–E, S–D

15. Regulatory information

A. Industrial Safety and Health Act	Not Applicable.
B. Toxic Chemical Control Act	Not Applicable.
C. Dangerous Material Safety Control Act	
CUMENE HYDROPEROXIDE	The 5th type, organic peroxides 10kg
METHYL METHYLACRYLATE	The 4th type, the 1st petroleum type 200ℓ
HYDROXYETHYL METHACRYLATE	The 4th type, the 3st petroleum type 4000ℓ
D. Wastes Management Act	Designated Wastes
E. Other requirements in domestic and other countries	
– Domestic	Not Applicable.
– Other countries	
OSHA	
CUMENE HYDROPEROXIDE	2267.995 kg 5000 lb
CERCLA	
CUMENE HYDROPEROXIDE	4.53599 kg 10 lb
METHYL METHYLACRYLATE	453.599 kg 1000 lb
EPCRA 302	Not Applicable.
EPCRA 304	Not Applicable.
EPCRA 313	
CUMENE HYDROPEROXIDE	Applicable.
METHYL METHYLACRYLATE	Applicable.

EU regulations

CUMENE HYDROPEROXIDE	O; R7T; R23Xn; R21/22-48/20/22C; R34N; R51-53
METHYL METHYLACRYLATE	F; R11Xi; R37/38R43
HYDROXYETHYL METHACRYLATE	Xi; R36/38R43

EU regulations

CUMENE HYDROPEROXIDE	R7, R21/22, R23, R34, R48/20/22, R51/53
METHYL METHYLACRYLATE	R11, R37/38, R43
HYDROXYETHYL METHACRYLATE	R36/38, R43

EU regulations

CUMENE HYDROPEROXIDE	S1/2, S3/7, S14, S36/37/39, S45, S50, S61
METHYL METHYLACRYLATE	S2, S24, S37, S46
HYDROXYETHYL METHACRYLATE	S2, S26, S28

16. Other information

A. Information source and references

Source of data : Korea Occupational Safety and Health Agency (KOSHA)>

B. Issuing date December 24, 2014

C. Revision number and date 0

D. Others

○ Source of data : Korea Occupational Safety and Health Agency (KOSHA)>



MATERIAL SAFETY DATA SHEET

DAEHEUNG CHEMICAL CO., LTD. www.dhcbond.com

PGM

Product Name

DHT-350(B)

1. Product and Company Identification

- A. Product Name DHT-350(B)
- B. Recommended use of the chemical and restrictions on use
- Recommended use of the chemical Parts of an electronic, parts of a motors, etc. (Metal, ABS, FRP, various soft and hard type plastics.)
The use of common industry. (Glass, rubber, ceramic, stone, wood, etc.)
 - Restrictions on use of the product Don't use except for the original purpose.
- C. Manufacturer/Supplier/Distributor Information
- Name DAEHEUNG CHEMICAL CO., LTD.
 - Address 68, Sandan-ro 64beon-gil, Pyeongtaek-si, Gyeonggi-do, Korea
 - Emergency phone number 82-31-668-1424

2. Hazards identification

- A. Hazard-Risk Classification
- Flammable Liquid : Category 2
- Skin corrosion / skin irritation: Category 2
- Serious eye damage / eye irritation: Category 2
- Respiratory sensitization: Category 1
- Skin sensitization: Category 1
- Reproductive toxicity: Category 2
- Specific target organ toxicity (single exposure): Category 3 (Respiratory irritation)
- Specific target organ toxicity (single exposure): Category 3 (Narcotic effects)
- Specific target organ toxicity (repeated exposure): Category 1

B. Label elements including precautionary statements

- Symbol



- Signal Word Danger
- Hazard-Risk Statement
 - H225 Highly flammable liquid and vapour Causes severe skin burns and eye damage
 - H315 Causes skin irritation
 - H317 May cause an allergic skin reaction
 - H319 Causes serious eye irritation
 - H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
 - H335 May cause respiratory irritation
 - H336 May cause drowsiness or dizziness
 - H361 Suspected of damaging fertility or the unborn child
 - H372 Causes damage to organs through prolonged or repeated exposure
- Precautionary Statement
 - Prevention
 - 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

Prevention	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 tool
	P243 Take precautionary measures against static discharge
	P260 Do not breathe dust/fume/gas/mist/vapours/spray
	P261 Avoid breathing dust/fume/gas/mist/vapours/spray
	P264 Wash ... thoroughly after handling
	P270 Do not eat, drink or smoke when using this product
	P271 Use only outdoors or in a well-ventilated area
	P272 Contaminated work clothing should not be allowed out of the workplace
	P280 Wear protective gloves/protective clothing/eye protection/face protection
	P281 Use personal protective equipment as required
	P285 In case of inadequate ventilation wear respiratory protection
Response	P302+352 IF ON SKIN : Wash with soap and water
	P303+P361+P353 IF ON SKIN (or hair) : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
	P304+340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
	P304+341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
	P305+351+338 IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
	P308+P313 IF exposed or concerned : Get medical advice/attention
	P312 Call a POISON CENTER or doctor/physician if you feel unwell
	P314 Get Medical advice/attention if you feel unwell
	P332+313 If skin irritation occurs: Get medical advice/attention
	P333+313 If skin irritation or a rash occurs: Get medical advice/attention
	P337+313 If eye irritation persists get medical advice/attention
	P342+311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
	P362 Take off contaminated clothing and wash before reuse
	P363 Wash contaminated clothing before reuse
Storage	P403+233 Store in a well ventilated place. Keep container tightly closed
	P403+P235 Store in a well ventilated place. Keep cool.
	P405 Store locked up
Disposal	P501 Dispose of contents/container to ...

C. Other Hazard-Risk which are not included in the classification criteria (e.g. dust explosion hazard)

METHYL METHYLACRYLATE

Health	2
Fire	3
Reactivity	2

SILICA, AMORPHOUS, FUMED

Health	0
Fire	1
Reactivity	0

HYDROXYETHYL METHACRYLATE

Health	2
Fire	1
Reactivity	1

ACRYLONITRILE-BUTADIENE RUBBER

Health	1
Fire	1
Reactivity	0

3. Composition/Information on ingredients

Chemical Name	Other name	CAS number	Content(%)
METHYL METHYLACRYLATE	METHYL METHYLACRYLATE	80-62-6	60~80
HYDROXYETHYL METHACRYLATE	HEMA;	868-77-9	10~30
ACRYLONITRILE-BUTADIENE RUBBER	2-PROPENENITRILE, POLYMER WITH	9003-18-3	0~10
SILICA, AMORPHOUS, FUMED	SILICA, AMORPHOUS, FUMED, CRYSTALLINE FREE	112945-52-5	0~10
Additives	Trade secret	—	0~10

4. First aid measures

A. Eye contact	IF IN EYES: Wash carefully with water for several minutes. Remove contact lenses, if possible. Easy to do. If eye irritation persists, Consult a physician if irritation persists.
B. Skin contact	Skin (or hair): Take off immediately all contaminated clothing or remove the Keep. Rinse skin with water / shower. If skin irritation occurs, obtain medical advice Keep Wash skin with soap and water
C. Inhalation	Excessive dust, or fumes when exposed to clean air removed by coughing or other symptoms and Seek medical attention if you have.
D. Ingestion	Do not use mouth-to-mouth method if victim inhaled the substance. Seek immediate medical advice.
E. Indication of immediate medical attention and notes for physician	Medical personnel are aware of the material and to take precautions to protect.

5. Fire-Fighting measures

A. Suitable (and unsuitable) extinguishing media	For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. When to do Fire-Fighting, use dry sand or earth.
B. hazards arising from the chemical (e.g. nature of any hazardous combustion products)	Highly flammable liquid and vapor. Vapors may form explosive mixtures with air. The steam explosion hazard at Indoor, outdoor, drain.
C. Special protective equipment and precautions for fire-fighters	In case of fire: Wear self-contained breathing apparatus. Cool tanks/drums with water spray/remove them into safety.

6. Accidental release measures

A. Personal precautions, protective equipment and emergency procedures	Use water spray/stream to protect personnel and to cool endangered containers. Remove product from area of fire. Wear suitable protective clothing, gloves and eye/face protection. Stop leak if safe to do so. Remove all sources of ignition. In case of fire: Wear selfcontained breathing apparatus. Evacuate unnecessary personnel. Remove all sources of ignition. Stop leak if safe to do so. Eliminate leaks immediately.
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B. Environmental precautions and protective procedures

Avoid release to the environment.

Waterways, sewers, basements, and Prevent entry into confined spaces.

C. Methods and materials for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Collect in closed containers for disposal.

Dispose of this material and its container to hazardous or special waste collection point.

7. Handling and storage

A. Precautions for safe handling

Do not handle until all safety precautions Read and understand all safety precautions.

Wear suitable chemical resistant gloves, safety goggles, dust mask and other protective clothing.

Use in the well-ventilated areas. Prevent build-up electrostatic charge(by grounding).

Shower and eye bath. Keep away from acidic material.

Be careful to high temperatures.

B. Conditions for safe storage (including any incompatibilities)

Store in its original container in a cool environment, keep away from heat, spark, and open flame. Ground containers during storage and transfer operations to avoid static spark.

Ideal storage temp. range fore ease of handling is 10 ~ 27°C

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

8. Exposure controls & personal protection

A. Control parameters (e.g. occupational exposure limit values, biological limit values)

– Occupational exposure limit values

METHYL METHYLACRYLATE

TWA – 50ppm 205mg/m³ STEL – 100ppm 410mg/m³

– ACGIH limit values

METHYL METHYLACRYLATE

TWA 50 ppm

STEL 100 ppm

– Biological limit values

No data available

B. Appropriate engineering controls

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate ventilation.

C. Personal protective equipment

– Respiratory protection

The filter class must be suitable for the maximum contaminant concentration(gas/vapour/aerosol/particulates) that may arise when handling the product.

If the concentration is exceeded, closed-circuit breathing apparatus must be used.

In case of fire: Wear self contained breathing apparatus.

– Eye protection

Wear eye protection/face protection.

– Hands protection

Wear proper chemical resistant gloves.

– Body protection

Wear proper Protective clothing.

9. Physical and chemical properties

A. Appearance

Physical state

Viscous liquid

Color

Light red

B. Odour

Monomer odor

C. Odour threshold

No data available

D. pH

Not Applicable.

E. Melting point/freezing point	Not Applicable.
F. Initial boiling point and boiling range	67°C
G. Flashing point	10~100 °C
H. Evaporation rate	No data available
I. Flammability(solid, gas)	No data available
J. Upper/lower flammability or explosive limits	8.2% / 1.7%
K. Vapor pressure	0.01~40 (at 20°C)
L. Solubility	A little soluble in water
M. Vapor density	Above air
N. Relative density	1.0±0.1
O Partition coefficient:n-octanol/water	No data available
P. Auto-ignition temperature	421°C
Q. Decomposition temperature	No data available
R. Viscosity	7,000~9,000 cps
S. Formula mass	No data available

10. Stability and reactivity

A. Chemical stability and possibility of hazardous reactions	Stable under normal conditions Highly flammable liquid and vapor
B. Conditions to avoid	Avoid the fire, spark, flame, and other ignition sources The fume has an explosive characteristic. Avoid the overheating of container.
C. Incompatible materials	flammable material
D. Hazardous decomposition products	CO, CO ₂ , nitrogen compounds

11. Toxicological information

A. Information on the likely routes of exposure	Burn, may cause eye damage.
B. Health hazards information	
– Acute toxic	
Oral	
METHYL METHYLACRYLATE	LD50 7900 mg/kg Rat
SILICA, AMORPHOUS, FUMED	LD50 > 3100 mg/kg Rat
HYDROXYETHYL METHACRYLATE	LD50 > 4000 mg/kg Rat
ACRYLONITRILE-BUTADIENE RUBBER	LD50 5480 mg/kg Rabbit
Dermal	
METHYL METHYLACRYLATE	LD50 5000 mg/kg Rabbit
HYDROXYETHYL METHACRYLATE	LD50 > 3000 mg/kg Rabbit
Inhalation	
METHYL METHYLACRYLATE	LC50 7093 ppm 4hr Rat
– Skin corrosive/irritant	
METHYL METHYLACRYLATE	Reported moderate rabbit irritation.
SILICA, AMORPHOUS, FUMED	Non-irritating
HYDROXYETHYL METHACRYLATE	Reported moderate rabbit irritation.
– Serious eye damage/eye irritation	
METHYL METHYLACRYLATE	Reported moderate rabbit irritation.
SILICA, AMORPHOUS, FUMED	Non-irritating
HYDROXYETHYL METHACRYLATE	Reported moderate rabbit irritation.
– Respiratory sensitization	
METHYL METHYLACRYLATE	

- Skin sensitization
 - METHYL METHYLACRYLATE Reported moderate rabbit irritation.
 - SILICA, AMORPHOUS, FUMED Non-irritating
 - HYDROXYETHYL METHACRYLATE Reported moderate rabbit irritation.
- Carcinogenicity
 - KOSHA No data available
 - MOEL No data available
 - IARC
 - METHYL METHYLACRYLATE Group 3
 - SILICA, AMORPHOUS, FUMED Group 3 (Silica, amorphous)
 - OSHA No data available
 - ACGIH
 - METHYL METHYLACRYLATE A4
 - NTP No data available
 - EU CLP No data available

12. Ecological information

A. Aquatic and terrestrial ecotoxicity

- Fish
 - METHYL METHYLACRYLATE LC50 191 mg/ℓ 96 hr
 - SILICA, AMORPHOUS, FUMED No data available
 - HYDROXYETHYL METHACRYLATE LC50 > 100 mg/ℓ 96 hr Oryzias latipes
- Shellfish
 - HYDROXYETHYL METHACRYLATE EC50 380 mg/ℓ 48 hr Daphnia magna
- Bird
 - HYDROXYETHYL METHACRYLATE EC50 345 mg/ℓ 72 hr Selenastrum capricornutum

B. Persistence and degradability

- Persistence
 - HYDROXYETHYL METHACRYLATE log Kow 0.42
- Degradability No data available

C. Bioaccumulative potential

- Potential
 - METHYL METHYLACRYLATE BCF 4.295
 - HYDROXYETHYL METHACRYLATE BCF 1.34~1.54
- Biodegradable

- METHYL METHYLACRYLATE 94.3 (%)
- HYDROXYETHYL METHACRYLATE 84 (%) 28 day

D. Mobility in soil

No data available

E. Other adverse effects

No data available

13. Disposal considerations

- A. Disposal method Destroy the product by incineration
- B. Disposal precaution Destroy the product by incineration

14. Transport information

- A. UN number 1133
- B. UN proper shipping name ADHESIVES containing flammable liquid
- C. Transport hazard class: 3

D. Packing group (if applicable)	II
E. Marine pollution (yes/no)	Yes

F. Special precaution which a user to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises:

F-E, S-D

15. Regulatory information

A. Industrial Safety and Health Act	Not Applicable.
B. Toxic Chemical Control Act	Not Applicable.
C. Dangerous Material Safety Control Act	
METHYL METHYLACRYLATE	The 4th type, the 1st petroleum type 200ℓ
HYDROXYETHYL METHACRYLATE	The 4th type, the 3rd petroleum type 4000ℓ
D. Wastes Management Act	Designated Wastes
E. Other requirements in domestic and other countries	
- Domestic	Not Applicable.
- Other countries	
OSHA	Not Applicable.
CERCLA	
METHYL METHYLACRYLATE	453.599 kg 1000 lb
EPCRA 302	Not Applicable.
EPCRA 304	Not Applicable.
EPCRA 313	
METHYL METHYLACRYLATE	Applicable.
EU regulations	
METHYL METHYLACRYLATE	F; R11Xi; R37/38R43
HYDROXYETHYL METHACRYLATE	Xi; R36/38R43
EU regulations	
METHYL METHYLACRYLATE	R11, R37/38, R43
HYDROXYETHYL METHACRYLATE	R36/38, R43
EU regulations	
METHYL METHYLACRYLATE	S2, S24, S37, S46
HYDROXYETHYL METHACRYLATE	S2, S26, S28

16. Other information

A. Information source and references

Source of data : Korea Occupational Safety and Health Agency (KOSHA)>

B. Issuing date December 24, 2014

C. Revision number and date 0

D. Others

○ Source of data : Korea Occupational Safety and Health Agency (KOSHA)>