NOROO

SAFETY DATA SHEET

According to OSHA Hazcom Standard 29 CFR 1910.1200

DHDC-3600 (HARDENER) EPOXY TOPCOAT(HIGH BUILD)

Date of issue: 2026-01-05 Revision date: 2026-01-05 Version: 2.0

1. IDENTIFICATION

A. Product name

- DHDC-3600 (HARDENER) EPOXY TOPCOAT(HIGH BUILD)

B. Recommended use and restriction on use

- General use : Oil Paint
- Restriction on use : Do not use for any purpose other than recommended

C. Manufacturer / Supplier / Distributor information

- Company name : NOROO Paint & Coatings Co., Ltd.
- Address : 351, Bakdal-ro, Manan-gu, Anyang-si, Gyeonggi-do, Korea
- Emergency telephone number : +82-31-467-6114

2. HAZARD IDENTIFICATION

A. GHS Classification

- Flammable liquids : Category3
- Acute toxicity (inhalation: vapor) : Category4
- Skin corrosion/irritation : Category2
- Serious eye damage/irritation : Category1
- Skin sensitization : Category1A
- Carcinogenicity : Category2
- Reproductive toxicity : Category2
- Specific target organ toxicity(Single exposure) : Category3(Narcotic effects)
- Specific target organ toxicity(Single exposure) : Category3(Respiratory tract irritation)
- Specific target organ toxicity(Repeated exposure) : Category2
- Aspiration hazard : Category1
- Chronic aquatic toxicity : Category2

B. GHS label elements

○ Hazard symbols



○ Signal words

- Not applicable

○ Hazard statements

- H226 Flammable liquid and vapour
- H304 May be fatal if swallowed and enters airways

- H315 Causes skin irritation
- H317 May cause an allergic skin reaction
- H318 Causes serious eye damage
- H332 Harmful if inhaled
- H335 May cause respiratory irritation.
- H336 May cause drowsiness and dizziness.
- H351 Suspected of causing cancer
- H361 Suspected of damaging fertility or the unborn child
- H373 May cause damage to organs through prolonged or repeated exposure
- H411 Toxic to aquatic life with long lasting effects

○ Precautionary statements

1) 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, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P233 Keep container tightly closed.
- P240 Ground and bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use non-sparking tools.
- P243 Take action to prevent static discharges.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- 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/hearing protection.
- P281

2) Response

- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 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.
- P310 Immediately 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 (if in eyes, wash with plenty of running water; if in contact with skin, wash with plenty of running water; if inhaled, move to fresh air; if ingested, seek medical advice on whether to induce vomiting).
- P331 Do NOT induce vomiting.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P362 Take off contaminated clothing and wash before reuse.
- P362+P364 Take off contaminated clothing and wash before reuse.

- P370+P378 In case of fire: Use Suitable extinguishing media for extinction(Refer Section MSDS 5).
- P391 Collect spillage.

3) Storage

- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification

- Not available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
Xylene	Xylol ; Methyltoluene	1330-20-7	40~50
Fatty acids, (C=18)-unsatd., dimers polymers with tall oil fatty acids and triethylenetetramine	POLYAMIDOAMINE	68082-29-1	34~42
Ethylbenzene	Benzene, ethyl- ; Ethyl benzene ; Ethylbenzol ; Phenylethane ;	100-41-4	1~6
2,4,6-Tris[(dimethylamino)methyl]phenol	2,4,6-Tris[(N,N-dimethylamino)methyl] phenol ; Tris[(dimethylamino)methyl]phenol, 2,4,6- ; 2,4,6-Tridimethylaminomethylphenol ; 2,4,6-Tris[(dimethylaminomethyl]phenol ; Tris-2,4,6-(dimethylaminomethyl)phenol ; Tris(2,4,6-dimethylaminomonomethyl)phenol ; Mesitol, a2,a4,a6-tris(dimethylamino)- ; a,a',a''-	90-72-2	1~5

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Get medical attention immediately.
- Remove contact lenses if worn.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing thoroughly before re-using.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Wash thoroughly after handling.

C. Inhalation contact

- Take specific treatment if needed.
- When exposed to large amounts of steam and mist, move to fresh air.
- Get medical attention immediately.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

- Get medical attention immediately.
- If swallowed, large amounts of water to drink and do not induce vomiting.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
- If exposed or concerned, get medical attention/advice.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Avoid use of water jet for extinguishing
- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray

B. Specific hazards arising from the chemical

- Causes serious eye damage
- Causes skin irritation
- Flammable liquid and vapour
- Harmful if inhaled
- May be fatal if swallowed and enters airways

C. Special protective actions for firefighters

- Avoid inhalation of materials or combustion by-products.
- Cool containers with water until well after fire is out.
- Do not approach the tank surrounded by fire until it is extinguished.
- In case of conflagration, use automatic fire sprinkler. Major fire may require withdrawal, allowing the object itself to burn.
- Keep unauthorized personnel out.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Do not touch spilled material. Stop leak if you can do it without risk.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- Move container to safe area from the leak area.
- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.

B. Environmental precautions

- Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers. If large spills, advise emergency services.
- If large amounts have been spilled, inform the relevant authorities.
- Prevent runoff and contact with waterways, drains or sewers.

C. Methods and materials for containment and cleaning up

- Appropriate container for disposal of spilled material collected.
- Dike for later disposal.
- Disposal of waste shall be in compliance with the Wastes Control Act
- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notify the central and local government if the emission reach the standard threshold.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Avoid contact with incompatible materials.
- Avoid direct physical contact.
- Comply with all applicable laws and regulations for handling
- Dealing only with a well-ventilated place.

- Do not handle until all safety precautions have been read and understood.

B. Conditions for safe storage, including any incompatibilities

- Avoid direct sunlight.
- Check regularly for leaks.
- Do not apply any physical shock to container.
- Do not apply direct heat.
- Do not use damaged containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

○ ACGIH TLV

- [Xylene] : TWA 20 ppm
- [Ethylbenzene] : TWA, 20 ppm (87 mg/m3)

○ OSHA PEL

- [Xylene] : 100 ppm, 435 mg/m3
- [Ethylbenzene] : 100 ppm, 435 mg/m3

B. Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

C. Individual protection measures, such as personal protective equipment

○ Respiratory protection

- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Consider warning properties before use.
- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
- Respiratory protection is ranked in order from minimum to maximum.
- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.

○ Eye protection

- Provide an emergency eye wash station and quick drench shower in the immediate work area.
- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.

○ Hand protection

- Wear appropriate chemical resistant glove.

○ Skin protection

- Wear appropriate chemical resistant protective clothing.

○ Others

- Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	No Data
B. Odor	Solvent odor
C. Odor threshold	No Data
D. pH	Not available
E. Melting point/Freezing point	No Data

F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	25
H. Evaporation rate	No Data
I. Flammability(solid, gas)	No Data
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	No Data
L. Solubility	Insoluble
M. Vapour density	No Data
N. Specific gravity(Relative density)	0.90 ± 0.3
O. Partition coefficient of n-octanol/water	No Data
P. Autoignition temperature	No Data
Q. Decomposition temperature	No Data
R. Viscosity	No Data
S. Molecular weight	No Data

10. STABILITY AND REACTIVITY

A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

B. Possibility of hazardous reactions

- Cylinders exposed to fire may vent and release flammable gas.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid: Heating, Flames and hot surfaces
- Avoid contact with heat, sparks, flame or other ignition sources.

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

○ Respiratory tracts

- May be fatal if swallowed and enters airways
- May cause respiratory irritation.

○ Oral

- Not available

○ Eye·Skin

- Causes serious eye damage
- Causes skin irritation
- May cause an allergic skin reaction

B. Delayed and immediate effects and also chronic effects from short and long term exposure

○ Acute toxicity

* Oral

- Product (ATEmix) : 2000mg/kg < ATEmix <= 5000mg/kg
- [Xylene] : LD50 3523 mg/kg Rat (EU Method B.1) (ECHA)
- [Fatty acids, (C=18)-unsatd., dimers polymers with tall oil fatty acids and triethylenetetramine] : LD50 > 2000 mg/kg Rat (Read across CAS No. 90640-66-7) (OECD 423, GLP) (ECHA)

- [Ethylbenzene] : LD50 3500 mg/kg Rat (ECHA)
- [2,4,6-Tris[(dimethylamino)methyl]phenol] : LD50 1200 mg/kg Rat (NICS)

* Dermal
- Product (ATEmix) : 2000mg/kg < ATEmix <= 5000mg/kg
- [Xylene] : LD50 1700 mg/kg Rabbit (NITE)、EU Harmonized Cat. 4 (ECHA)
- [Fatty acids, (C=18)-unsatd., dimers polymers with tall oil fatty acids and triethylenetetramine] : LD50 > 2000 mg/kg Rat No death (OECD TG 402, GLP) (ECHA)
- [Ethylbenzene] : LD50 15432 mg/kg (17.8 mL/kg) Rabbit (ECHA)
- [2,4,6-Tris[(dimethylamino)methyl]phenol] : LD50 1280 mg/kg Rat (NICS)

* Inhalation
- Product (ATEmix) : 10.0mg/L 4hr < ATEmix <= 20.0mg/L 4hr
- [Xylene] : Vapor LC50 > 10 ~ 20 mg/L 4hr, EU Harmonized Cat. 4 (ECHA)
- [Ethylbenzene] : Vapor LC50 10~20 mg/L 4 hr (EU Harmonized Cat. 4) (ECHA)

○ Skin corrosion/irritation
- Causes skin irritation

○ Serious eye damage/irritation
- Causes serious eye damage

○ Respiratory sensitization
- Not available

○ Skin sensitization
- May cause an allergic skin reaction

○ Carcinogenicity

* IARC
- [Xylene] : Group 3
- [Ethylbenzene] : Group 2B

* OSHA
- Not available

* ACGIH
- [Xylene] : A4
- [Ethylbenzene] : A3

* NTP
- Not available

* EU CLP
- Not available

○ Germ cell mutagenicity
- Not available

○ Reproductive toxicity
- Suspected of damaging fertility or the unborn child

○ STOT-single exposure
- May cause drowsiness and dizziness.
- May cause respiratory irritation.

○ STOT-repeated exposure
- May cause damage to organs through prolonged or repeated exposure

○ Aspiration hazard
- May be fatal if swallowed and enters airways

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

○ Fish

- [Xylene] : LC50 7.6 mg/L 96 hr Oncorhynchus mykiss (Read-across 95-47-6) (OECD TG 203) (ECHA), NOEC 0.714 mg/L 35 d Danio rerio (Read-across 106-42-3) (OECD TG 210, GLP) (ECHA)

- [Fatty acids, (C=18)-unsatd., dimers polymers with tall oil fatty acids and triethylenetetramine] : LC50 7.07 mg/L 96 hr Danio rerio (OECD TG 203, GLP) (ECHA)

- [Ethylbenzene] : LC50 5.1 mg/L 96 hr Menidia menidia (ECHA)

- [2,4,6-Tris[(dimethylamino)methyl]phenol] : LC50 > 100 mg/L 96 hr Cyprinus carpio (OECD TG 203, GLP) (ECHA)

○ Crustaceans

- [Xylene] : EC50 4.7 mg/L 48 hr Daphnia magna (Read-across 108-38-3) (NIER), NOEC 1.17 mg/L 7 d Ceriodaphnia dubia (ECHA)

- [Fatty acids, (C=18)-unsatd., dimers polymers with tall oil fatty acids and triethylenetetramine] : EC50 7.07 mg/L 48 hr Daphnia magna (OECD 202, GLP) (ECHA)

- [Ethylbenzene] : EC50 1.8~2.4 mg/L 48 hr Daphnia magna, NOEC 0.96 mg/L 7 d Ceriodaphnia dubia (ECHA)

- [2,4,6-Tris[(dimethylamino)methyl]phenol] : EC50 > 100 mg/L 48 hr Daphnia magna (OECD TG 202, GLP) (ECHA)

○ Algae

- [Xylene] : EC50 4.7 mg/L 72 hr Raphidocelis subcapitata (Read-across 95-47-6) (OECD TG 201) (ECHA)

- [Fatty acids, (C=18)-unsatd., dimers polymers with tall oil fatty acids and triethylenetetramine] : EC50 4.34 mg/L 72 hr, NOEC 0.5 mg/L 72 hr Pseudokirchneriella subcapitata (OECD TG 201, GLP) (ECHA)

- [Ethylbenzene] : EC50 3.6 mg/L 96 hr, NOEC 3.4 mg/L 96 hr Raphidocelis subcapitata (ECHA)

- [2,4,6-Tris[(dimethylamino)methyl]phenol] : EC50 46.7 mg/L 72 hr, NOEC 6.44 mg/L 72 hr Raphidocelis subcapitata (OECD TG 201, GLP) (ECHA)

B. Persistence and degradability

○ Persistence

- [Xylene] : log Pow 3.12 (Read-across 95-47-6) (ECHA)

- [Fatty acids, (C=18)-unsatd., dimers polymers with tall oil fatty acids and triethylenetetramine] : Log Kow 10.34 (25 ℃) (ECHA)

- [Ethylbenzene] : log Pow 3.6 (20 °C) (ECHA)

- [2,4,6-Tris[(dimethylamino)methyl]phenol] : log 10 Pow -0.66 (21.5) (ECHA)

○ Degradability

- Not available

C. Bioaccumulative potential

○ Bioaccumulative potential

- [Xylene] : BCF 25.9 dimensionless (ECHA)

- [Ethylbenzene] : BCF 1 (ECHA)

○ Biodegradation

- [Xylene] : Readily biodegradable, 94 % 28 d (O2 consumption) (Read-across 95-47-6) (OECD TG 301 F, GLP) (ECHA)

- [Fatty acids, (C=18)-unsatd., dimers polymers with tall oil fatty acids and triethylenetetramine] : Readily biodegradable (OECD TG 301B, GLP) (ECHA)

- [Ethylbenzene] : Readily biodegradable, 70~ 80 % 28 d (inorg. C analysis) (ISO 14593-CO2-Headspace Test) (ECHA)

- [2,4,6-Tris[(dimethylamino)methyl]phenol] : Not readily biodegradable, 4% degradation (O2 consumption) 28day (OECD TG 301D,GLP)(ECHA)

D. Mobility in soil

- [Xylene] : log Koc ca. 2.73 dimensionless (Read-across 95-47-6) (OECD TG 121) (ECHA)

- [2,4,6-Tris[(dimethylamino)methyl]phenol] : Koc 20.98 (ECHA)

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- It shall be treated by incineration

- Oil water separation technology shall be applied as pre-waste treatment if it is applicable

- Stabilization and minimization treatment by incineration or similar method can be applied, if more than two kinds of designated wastes are in mixture state and it is impractical to separate them

B. Special precautions for disposal

- Anyone with business license number who generates industrial wastes shall treat the waste by him/herself or by entrusting to the legal entities who treat the wastes, recycle the wastes of others or install and operate the waste treatment facilities according to the Wastes Control Act

- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG CODE/IATA DGR)

- 1263

B. Proper shipping name

- PAINT

C. Hazard Class

- 3

D. IMDG CODE/IATA DGR Packing group

- III

E. Marine pollutant

- Applicable

F. Special precautions for user related to transport or transportation measures

- Air transport(IATA): Not subject to IATA regulations.

- Local transport follows in accordance with Dangerous goods Safety Management Law.

- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.

- EmS FIRE SCHEDULE : F-E (Non-water-reactive flammable liquids)

- EmS SPILLAGE SCHEDULE : S-E (Flammable liquids, floating on water)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

○ POPs Management Law

- [Xylene] : Not applicable

- [Fatty acids, (C=18)-unsatd., dimers polymers with tall oil fatty acids and triethylenetetramine] : Not applicable

- [Ethylbenzene] : Not applicable

- [2,4,6-Tris[(dimethylamino)methyl]phenol] : Not applicable

○ Information of EU Classification

* Classification

- [Xylene] : H226,H312,H315,H332

- [Ethylbenzene] : H225,H304,H332,H373

- [2,4,6-Tris[(dimethylamino)methyl]phenol] : H302,H315,H319

○ U.S. Federal regulations

* OSHA PROCESS SAFETY (29CFR1910.119)

- Not applicable

* CERCLA Section 103 (40CFR302.4)

- [Xylene] : 45.3599 kg 100 lb

- [Ethylbenzene] : 453.599 kg 1000 lb

* EPCRA Section 302 (40CFR355.30)

- Not applicable

* EPCRA Section 304 (40CFR355.40)

- Not applicable

* EPCRA Section 313 (40CFR372.65)

- [Xylene] : Applicable
- [Ethylbenzene] : Applicable

○ Rotterdam Convention listed ingredients

- Not applicable

○ Stockholm Convention listed ingredients

- Not applicable

○ Montreal Protocol listed ingredients

- Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2026-01-05

C. Revision number and Last date revised

- 3 times, 2026-01-05

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).