SAFETY DATA SHEET

D.E.R.™ 671-PM75 Epoxy Resin

Version	Revision Date:	SDS Number:	Date of last issue: 03-16-2016
6.0	03-12-2021	101199398	Date of first issue: 03-12-2021

Blue Cube Germany Assets GmbH & Co. KG encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

SECTION 1. IDENTIFICATION

Product name	:	D.E.R.™ 671-PM75 Epoxy Resin
Product code	:	000000001000000962

Manufacturer or supplier's details

Company name of supplier	:	Blue Cube Germany Assets GmbH & Co. KG
Address	:	Bützflether Sand 2 Stade 21683
Telephone	:	+4941417693000
E-mail address	:	INFO@OLIN.COM
Emergency telephone	:	+32 3 575 55 55
Local Emergency Contact	:	800-424-9300/703-741-5970
Identified uses	:	Used in applications such as: Marine and protective coatings. Automotive coatings.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids	:	Category 3
Specific target organ toxicity - single exposure	:	Category 3 (Central nervous system)

GHS label elements

Hazard pictograms :

Signal Word	:	Warning
Hazard Statements	:	Flammable liquid and vapor. May cause drowsiness or dizziness.

Precautionary Statements :

Prevention:

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/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

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.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Static-accumulating flammable liquid.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based)	25036-25-3	70 - 80
Propylene glycol monomethyl ether	107-98-2	20 - 30

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

If inhaled : Move person to fresh air. If not breathing, give artificial respi-

ration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

In case of skin contact	:	Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands.
In case of eye contact	:	Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.
If swallowed	:	If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.
Most important symptoms and effects, both acute and delayed	:	Aside from the information found under Description of first aid measures(above)any additional important symptoms and effects are described in Section 11: Toxicology Information.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Notes to physician	:	Maintain adequate ventilation and oxygenation of the patient. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.
Unsuitable extinguishing media	:	Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire.
Specific hazards during fire fighting	:	Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Flammable mixtures may exist within the vapor space of con-

tainers at room temperature.
Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.
Dense smoke is emitted when burned without sufficient oxygen.

Hazardous combustion products : During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.
Combustion products may include and are not limited to:
Phenolics.
Carbon monoxide.
Carbon dioxide.

Further information : Keep people away. Isolate fire and deny unnecessary entry.
Stay upwind. Keep out of low areas where gases (fumes) can accumulate.
Water may not be effective in extinguishing fire.
Do not use direct water stream. May spread fire.
Eliminate ignition sources.
Move container from fire area if this is possible without hazard.
Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

Special protective equipment for fire-fighters : Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).
Avoid contact with this material during fire fighting operations.
If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location.
For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Isolate area.
Keep personnel out of low areas.
Keep unnecessary and unprotected personnel from entering the area.
Keep upwind of spill.
Ventilate area of leak or spill.
No smoking in area.
Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment.
Vapor explosion hazard. Keep out of sewers.
For large spills, warn public of downwind explosion hazard.
Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment.

Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to section 7, Handling, for additional precautionary measures.

Environmental precautions : Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up : Contain spilled material if possible.
Absorb with materials such as:
Sand.
Polypropylene fiber products.
Polyethylene fiber products.
Use non-sparking tools in cleanup operations.
Ground and bond all containers and handling equipment.
Pump with explosion-proof equipment. If available, use foam to smother or suppress.
Collect in suitable and properly labeled containers.
Remove residual with soap and hot water.
Residual can be removed with solvent. Solvents are not recommended for clean-up unless the recommended exposure guidelines and safe handling practices for the specific solvent are followed. Consult appropriate solvent Safety Data Sheet for handling information and exposure guidelines.
See Section 13, Disposal Considerations, for additional information.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : Keep away from heat, sparks and flame.
Keep container closed.
Use with adequate ventilation.
Never use air pressure for transferring product.
No smoking, open flames or sources of ignition in handling and storage area.
Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.
Electrically bond and ground all containers and equipment before transfer or use of material.
Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.
Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation.
Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.
This product is a poor conductor of electricity and can become electrostaically charged, even in bonded or grounded equipment. If sufficient charge is accumulated, ignition of flammable mixtures can occur.
Handling operations that can promote accumulation of static charges include but are not limited to mixing, filtering, pum-

ping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations.
See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage : Flammable mixtures may exist within the vapor space of containers at room temperature.
Minimize sources of ignition, such as static build-up, heat, spark or flame.
Keep container closed.

Recommended storage temperature : 36 - 109 °F / 2 - 43 °C

Storage period : 24 Months

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Propylene glycol monomethyl ether	107-98-2	TWA	50 ppm	ACGIH
		STEL	100 ppm	ACGIH
		TWA	100 ppm 360 mg/m3	OSHA P0
		STEL	150 ppm 540 mg/m3	OSHA P0

Engineering measures : Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.
Local exhaust ventilation may be necessary for some operations.

Personal protective equipment

Respiratory protection : Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

Filter type : The following should be effective types of air-purifying respirators: Organic vapor cartridge.

Hand protection

Remarks	:	Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Ethyl vinyl alcohol laminate ('EVAL'). Examples of acceptable glove barrier materials include: Natural rubber ('latex'). Neoprene. Nitrile/butadiene rubber ('nitrile' or 'NBR'). Polyvinyl chloride ('PVC' or 'vinyl'). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.
Eye protection	:	Use safety glasses (with side shields). If exposure causes eye discomfort, use a full-face respirator.
Skin and body protection	:	Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid.
Color	:	yellow, brown
Odor	:	Mild
Odor Threshold	:	No test data available
pH	:	No test data available
Melting point/range	:	Not applicable
Freezing point		No test data available
Boiling point/boiling range	:	248 °F / 120 °C Method: Literature Propylene glycol monomethyl ether
Flash point	:	88 °F / 31 °C Method: Pensky-Martens Closed Cup ASTM D 93, closed cup
Evaporation rate	:	No test data available
Flammability (liquids)	:	Static-accumulating flammable liquid.
Self-ignition	:	The substance or mixture is not classified as pyrophoric.

Upper explosion limit / Upper flammability limit	:	13.8 %(V) Method: Literature Propylene glycol monomethyl ether
Lower explosion limit / Lower flammability limit	:	1.6 %(V) Method: Literature Propylene glycol monomethyl ether
Vapor pressure	:	12.5 mmHg (77 °F / 25 °C) Method: Literature Propylene glycol monomethyl ether
Relative vapor density	:	3 Method: Literature
Relative density	:	1.11 Method: Literature
Solubility(ies)		
Water solubility	:	Slightly soluble
Partition coefficient: n-octanol/water	:	No data available.
Autoignition temperature	:	No test data available
Decomposition temperature	:	No test data available
Viscosity		
Viscosity, dynamic	:	9,500 - 15,000 mPa,s (77 °F / 25 °C) Method: ASTM D 445
Viscosity, kinematic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Molecular weight	:	Not determined

Note: These are the Reference Points for these Physical Properties listed above, unless otherwise noted in their respective Physical Property value information: Boiling Point at 760 mmHg; Evaporation Rate Butyl Acetate = 1; Relative Vapor Density Air = 1; and Relative Density Water = 1.
NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No data available
Chemical stability	:	Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions	:	Will not occur by itself. Masses of more than one pound (0.5 kg) of product plus an aliphatic amine will cause irreversible polymerization with considerable heat build-up.
Conditions to avoid	:	Exposure to elevated temperatures can cause product to decompose.
Incompatible materials	:	Avoid contact with oxidizing materials. Avoid contact with: Acids. Bases. Avoid unintended contact with amines.
Hazardous decomposition products	:	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Ketones. Organic acids. Uncontrolled exothermic reaction of epoxy resins release phenolics, carbon monoxide, and water.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	Remarks: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. LD50 (Rat): > 4,000 mg/kg Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	Remarks: The odor is objectionable at 100 ppm; higher levels produce eye, nose, and throat irritation and are intolerable at 1000 ppm. Anesthetic effects are seen at or above 1000 ppm. Remarks: As product: The LC50 has not been determined.
Acute dermal toxicity	:	Remarks: Prolonged skin contact is unlikely to result in absorption of harmful amounts. Prolonged skin contact with very large amounts may cause dizziness or drowsiness. LD50 (Rabbit): > 2,000 mg/kg Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute dermal toxicity

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based):

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	Remarks: The LC50 has not been determined.
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg Assessment: The substance or mixture has no acute dermal toxicity

Propylene glycol monomethyl ether:

Acute oral toxicity	:	LD50 (Rat): 4,016 mg/kg
Acute inhalation toxicity	:	Remarks: Brief exposure (minutes) is not likely to cause adverse effects. The odor is objectionable at 100 ppm; higher levels produce eye, nose, and throat irritation and are intolerable at 1000 ppm. Anesthetic effects are seen at or above 1000 ppm. LC50 (Rat): > 25.8 mg/l Exposure time: 6 h Test atmosphere: vapor Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Product:

Remarks	:	Prolonged contact is essentially nonirritating to skin. Repeated contact may cause skin irritation with local redness. Material may stick to skin causing irritation upon removal.

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based):

Result	:	No skin irritation
Remarks	:	Essentially nonirritating to skin.

Propylene glycol monomethyl ether:

Result	:	No skin irritation
Remarks	:	Prolonged contact may cause slight skin irritation with local redness.

Repeated contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation

Product:

Remarks : Essentially nonirritating to eyes.
Vapor may cause eye irritation experienced as mild discomfort and redness.

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based)**:**

Result : No eye irritation
Remarks : May cause slight temporary eye irritation.
Corneal injury is unlikely.
Solid or dust may cause irritation or corneal injury due to mechanical action.

Propylene glycol monomethyl ether:

Result : No eye irritation
Remarks : May cause slight temporary eye irritation.
Corneal injury is unlikely.

Respiratory or skin sensitization

Product:

Remarks : For skin sensitization:
No relevant data found.

Remarks : For respiratory sensitization:
No relevant information found.

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based)**:**

Remarks : For skin sensitization:
No relevant data found.

Remarks : For respiratory sensitization:
No relevant data found.

Propylene glycol monomethyl ether:

Remarks : Did not cause allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity

Product:

Genotoxicity in vitro : Remarks: Some similar resins have shown genetic toxicity in in vitro tests, while others have not.

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based)**:**

Genotoxicity in vitro : Remarks: Some similar resins have shown genetic toxicity in in vitro tests, while others have not.

Propylene glycol monomethyl ether:

Genotoxicity in vitro : Remarks: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Carcinogenicity

Product:

Remarks : Similar epoxy resin did not cause cancer in long-term animal studies.

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based)**:**

Remarks : Similar epoxy resin did not cause cancer in long-term animal studies.

Propylene glycol monomethyl ether:

Remarks : Did not cause cancer in laboratory animals.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Product:

Effects on fertility : Remarks: In animal studies on component(s), effects on reproduction were seen only at doses that produced significant toxicity to the parent animals.

Effects on fetal development : Remarks: Contains component(s) which, in laboratory animals, have been toxic to the fetus only at doses toxic to the

mother.
Contains component(s) which did not cause birth defects in laboratory animals.

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based)**:**

Effects on fertility : Remarks: No relevant data found.

Effects on fetal development : Remarks: No relevant data found.

Propylene glycol monomethyl ether:

Effects on fertility : Remarks: In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Effects on fetal development : Remarks: Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
Did not cause birth defects in laboratory animals.

Reproductive toxicity - Assessment : No toxicity to reproduction

STOT-single exposure

Product:

Assessment : Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based)**:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Propylene glycol monomethyl ether:

Routes of exposure : Inhalation
Target Organs : Central nervous system
Assessment : May cause drowsiness or dizziness.

Repeated dose toxicity

Product:

Remarks : Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.
Contains component(s) which have been reported to cause effects on the following organs in animals:
Liver.
Kidney.

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based):

Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Propylene glycol monomethyl ether:

Remarks : Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. In animals, effects have been reported on the following organs:
Kidney.
Liver.

Aspiration toxicity

Product:

Based on physical properties, not likely to be an aspiration hazard.

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based):

Based on physical properties, not likely to be an aspiration hazard.

Propylene glycol monomethyl ether:

Based on physical properties, not likely to be an aspiration hazard.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based):

Toxicity to fish : Remarks: Not expected to be acutely toxic, but may cause adverse effects by physical/mechanical means.

Propylene glycol monomethyl ether:

Toxicity to fish : Remarks: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50 (Leuciscus idus (Golden orfe)): 6,812 mg/l
Exposure time: 96 h
Test Type: static test
Method: DIN 38412

LC50 (Oncorhynchus mykiss (rainbow trout)): >= 1,000 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203 or Equivalent

LC50 (Pimephales promelas (fathead minnow)): 20,800 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 21,100 - 25,900 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l
End point: Growth rate inhibition
Exposure time: 7 d
Test Type: static test
Method: OECD Test Guideline 201 or Equivalent

Toxicity to microorganisms : IC50 (activated sludge): > 1,000 mg/l
Test Type: static test

Persistence and degradability

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based)**:**

Biodegradability : Remarks: Surface photodegradation is expected with exposure to sunlight.
No appreciable biodegradation is expected.

Propylene glycol monomethyl ether:

Biodegradability : Result: Readily biodegradable.
Remarks: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Biodegradation: 96 %
Exposure time: 28 d
Method: OECD Test Guideline 301E or Equivalent
Remarks: 10-day Window: Pass

Chemical Oxygen Demand (COD) : 1.84 mg/g

ThOD : 1.95 mg/mg

Photodegradation : Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Concentration: 1,500,000 1/cm3

Rate constant: 1.65E-11 cm3/s
Method: Estimated.

Bioaccumulative potential

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based)**:**

Partition coefficient: n-octanol/water : Remarks: In the terrestrial environment, material is expected to remain in the soil.

Propylene glycol monomethyl ether:

Bioaccumulation : Bioconcentration factor (BCF): < 2

Mobility in soil

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based)**:**

Distribution among environmental compartments : Remarks: In the aquatic environment, material will sink and remain in the sediment.

Propylene glycol monomethyl ether:

Distribution among environmental compartments : Koc: 0.2 - 1.0
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

Other adverse effects

Components:

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (DGEBPA-based)**:**

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Propylene glycol monomethyl ether:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS

MATERIAL.
THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information.
All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations.
Regulations may vary in different locations.
Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.
DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER.
FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 1866
Proper shipping name	:	RESIN SOLUTION
Class	:	3
Packing group	:	III
Labels	:	3

IATA-DGR

UN/ID No.	:	UN 1866
Proper shipping name	:	Resin solution
Class	:	3
Packing group	:	III
Labels	:	Flammable Liquids
Packing instruction (cargo aircraft)	:	366
Packing instruction (passenger aircraft)	:	355

IMDG-Code

UN number	:	UN 1866
Proper shipping name	:	RESIN SOLUTION
Class	:	3
Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-E
Marine pollutant	:	no
Remarks	:	Stowage category A

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	:	UN 1866

Proper shipping name	:	Resin solution
Class	:	3
Packing group	:	III
Labels	:	FLAMMABLE LIQUID
ERG Code	:	127
Marine pollutant	:	no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards	:	Flammable (gases, aerosols, liquids, or solids) Hazard not otherwise classified (physical hazards) Specific target organ toxicity (single or repeated exposure)
SARA 313	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Pennsylvania Right To Know

Propylene glycol monomethyl ether	107-98-2

California Prop. 65

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

International Regulations

Montreal Protocol (Ozone Depleting Substances)	:	Not applicable
Rotterdam Convention (Prior Informed Consent)	:	Not applicable
Stockholm Convention (Persistent Organic Pollutants)	:	Not applicable

The ingredients of this product are reported in the following inventories:

CH INV	:	All intentional components are listed on the inventory, are exempt, or are supplier certified.
DSL	:	All substances contained in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.
AICS	:	All intentional components are listed on the inventory, are

exempt, or are supplier certified.

NZIoC	:	All intentional components are listed on the inventory, are exempt, or are supplier certified.
ENCS	:	All intentional components are listed on the inventory, are exempt, or are supplier certified.
ISHL	:	All intentional components are listed on the inventory, are exempt, or are supplier certified.
KECI	:	All intentional components are listed on the inventory, are exempt, or are supplier certified.
PICCS	:	All intentional components are listed on the inventory, are exempt, or are supplier certified.
IECSC	:	All intentional components are listed on the inventory, are exempt, or are supplier certified.
TCSI	:	All intentional components are listed on the inventory, are exempt, or are supplier certified.
TSCA	:	All substances listed as active on the TSCA Inventory or are not required to be listed.

TSCA list

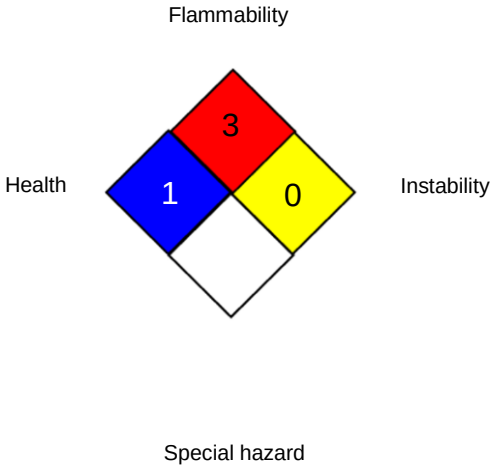
No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
OSHA P0	:	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
OSHA P0 / TWA	:	8-hour time weighted average
OSHA P0 / STEL	:	Short-term exposure limit

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concern-

ing the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 03-12-2021

Blue Cube Germany Assets GmbH & Co. KG urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given.Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

US / Z8