



# SAFETY DATA SHEET

## BLUE CUBE OPERATIONS LLC

**Product name:** D.E.R.™ 661-A80 Epoxy Resin

**Issue Date:** 10-22-2019

**Print Date:** 04-05-2021

BLUE CUBE OPERATIONS LLC encourages and expects you to read and understand the entire 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.

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## 1. IDENTIFICATION

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**Product name:** D.E.R.™ 661-A80 Epoxy Resin

**Recommended use of the chemical and restrictions on use**

**Identified uses:** Used in applications such as: Automotive coatings.

**COMPANY IDENTIFICATION**

BLUE CUBE OPERATIONS LLC  
190 CARONDELET PLAZA, SUITE 1530  
CLAYTON  
MO  
US  
63105-3467

**Customer Information Number:**

+18442383445  
INFO@OLIN.COM

**EMERGENCY TELEPHONE**

**24-Hour Emergency Contact:** +1 800 424 9300

**Local Emergency Contact:** 703-741-5970/800-424-9300

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## 2. HAZARDS IDENTIFICATION

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**Hazard classification**

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids - Category 2

Eye irritation - Category 2A

Specific target organ toxicity - single exposure - Category 3

**Label elements**

**Hazard pictograms**



Signal word: **DANGER!**

### Hazards

Highly flammable liquid and vapour.  
Causes serious eye irritation.  
May cause drowsiness or dizziness.

### Precautionary statements

#### Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ ventilating/ lighting equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
Wash skin thoroughly after handling.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves/ eye protection/ face protection.

#### Response

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/ attention.  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

#### Storage

Store in a well-ventilated place. Keep container tightly closed.  
Store in a well-ventilated place. Keep cool.  
Store locked up.

#### Disposal

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

### Other hazards

Static-accumulating flammable liquid.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

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This product is a mixture.

Component	CASRN	Concentration
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	25036-25-3	> 80.0 %

Acetone 67-64-1 < 20.0 %

*Note*

Actual concentration is withheld as a trade secret

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## 4. FIRST AID MEASURES

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### Description of first aid measures

#### General advice:

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.

**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration; 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.

**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. Suitable emergency safety shower facility should be available in work area.

**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. Suitable emergency eye wash facility should be available in work area.

**Ingestion:** 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) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

#### Indication of any immediate medical attention and special treatment needed

**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. Skin contact may aggravate preexisting dermatitis.

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## 5. FIREFIGHTING MEASURES

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### Extinguishing media

**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..

### Special hazards arising from the substance or mixture

**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:.. Phenolic compounds.. Carbon monoxide.. Carbon dioxide..

**Unusual Fire and Explosion Hazards:** Electrically ground and bond all equipment.. Flammable mixtures of this product are readily ignited even by static discharge.. 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 containers 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..

### Advice for firefighters

**Fire Fighting Procedures:** 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 firefighters:** 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..

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Isolate area. Keep upwind of spill. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Ventilate area of leak or spill. No smoking in area. 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. Vapor explosion hazard. Keep out of sewers. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. 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. Collect in suitable and properly labeled containers. Pump with explosion-proof

equipment. If available, use foam to smother or suppress. 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.

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Keep away from heat, sparks and flame. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor. Do not swallow. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. 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. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. Handling operations that can promote accumulation of static charges include but are not limited to mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations.

**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.

**Storage stability**

**Storage temperature:** 2 - 43 °C (36 - 109 °F)      **Shelf life: Use within** 24 Month

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value
Acetone	Dow IHG	TWA	200 ppm
	Dow IHG	STEL	350 ppm
	ACGIH	TWA	250 ppm
	Further information: CNS impair: Central Nervous System impairment; URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section); A4: Not classifiable as a human carcinogen		
	ACGIH	STEL	500 ppm
	Further information: CNS impair: Central Nervous System impairment; URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section); A4: Not classifiable as a human carcinogen		
	OSHA Z-1	TWA	2,400 mg/m3 1,000 ppm
	Further information: (b): The value in mg/m3 is approximate.		
	OSHA P0	TWA	1,800 mg/m3 750 ppm

	OSHA P0	STEL	2,400 mg/m3 1,000 ppm
Further information: h: The acetone STEL does not apply to the cellulose acetate fiber industry. It is in effect for all other sectors.			

**Biological occupational exposure limits**

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Acetone	67-64-1	Acetone	Urine	End of shift (As soon as possible after exposure ceases)	25 mg/l	ACGIH BEI

**Exposure controls**

**Engineering controls:** 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.

**Individual protection measures**

**Eye/face protection:** Use safety glasses (with side shields). If exposure causes eye discomfort, use a full-face respirator.

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Chlorinated polyethylene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl alcohol ("PVA"). 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.

**Other protection:** Wear clean, body-covering clothing.

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

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

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**Appearance**

<b>Physical state</b>	Liquid.
<b>Color</b>	Yellow
<b>Odor</b>	Acetone.
<b>Odor Threshold</b>	No data available
<b>pH</b>	No test data available

<b>Melting point/range</b>	Not applicable
<b>Freezing point</b>	No test data available
<b>Boiling point (760 mmHg)</b>	57 °C ( 135 °F) <i>Literature Acetone</i>
<b>Flash point</b>	<b>closed cup</b> 12.2 °C ( 54.0 °F) <i>Pensky-Martens Closed Cup ASTM D 93</i>
<b>Evaporation Rate (Butyl Acetate = 1)</b>	No data available
<b>Flammability (solid, gas)</b>	Not Applicable
<b>Lower explosion limit</b>	2.5 % vol <i>Literature Acetone</i>
<b>Upper explosion limit</b>	13.0 % vol <i>Literature Acetone</i>
<b>Vapor Pressure</b>	181.7 mmHg at 20 °C (68 °F) <i>Literature Acetone</i>
<b>Relative Vapor Density (air = 1)</b>	2.00 <i>Literature Acetone</i>
<b>Relative Density (water = 1)</b>	1.065 <i>Literature</i>
<b>Water solubility</b>	Slightly soluble
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Auto-ignition temperature</b>	No test data available
<b>Decomposition temperature</b>	No test data available
<b>Dynamic Viscosity</b>	3,500 - 8,500 cP at 25 °C (77 °F) <i>ASTM D 445</i>
<b>Kinematic Viscosity</b>	No data available
<b>Explosive properties</b>	No data available
<b>Oxidizing properties</b>	No data available
<b>Liquid Density</b>	9.1 lb/gal at 25 °C (77 °F) <i>ASTM D4052</i>
<b>Molecular weight</b>	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**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. Avoid static discharge.

**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.. Uncontrolled exothermic reaction of epoxy resins release phenolics, carbon monoxide, and water..

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information appears in this section when such data is available.*

### **Acute toxicity**

#### **Acute oral toxicity**

Low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined. Based on information for component(s):

Based on information for component(s):  
LD50, Rat, > 2,000 mg/kg Estimated.

#### **Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):  
LD50, Rabbit, > 2,000 mg/kg Estimated.

#### **Acute inhalation toxicity**

Excessive exposure to solvent(s) may cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.

As product: The LC50 has not been determined.

### **Skin corrosion/irritation**

Prolonged contact may cause skin irritation with local redness.  
Repeated contact may cause skin irritation with local redness.  
May cause drying and flaking of the skin.

### **Serious eye damage/eye irritation**

May cause eye irritation.  
Vapor may cause eye irritation experienced as mild discomfort and redness.

### **Sensitization**

For skin sensitization:  
No relevant data found.

For respiratory sensitization:  
No relevant information found.

### **Specific Target Organ Systemic Toxicity (Single Exposure)**

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



**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

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:

Kidney.

Liver.

Blood.

Development of cataracts has been reported in laboratory animals after prolonged repeated skin exposure to acetone.

**Carcinogenicity**

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

**Teratogenicity**

The data presented are for the following material: Acetone. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

**Reproductive toxicity**

The data presented are for the following material: Acetone. In animal studies, did not interfere with reproduction.

**Mutagenicity**

For the solvent(s): In vitro genetic toxicity studies were predominantly negative. Some similar resins have shown genetic toxicity in in vitro tests, while others have not.

**Aspiration Hazard**

No aspiration toxicity classification

**COMPONENTS INFLUENCING TOXICOLOGY:**

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

**Acute inhalation toxicity**

The LC50 has not been determined.

**Acetone**

**Acute inhalation toxicity**

LC50, Rat, 4 Hour, vapour, 76 mg/l

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**12. ECOLOGICAL INFORMATION**

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*Ecotoxicological information appears in this section when such data is available.*

**Toxicity**

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

**Acute toxicity to fish**

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

**Acetone**

**Acute toxicity to fish**

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, Oncorhynchus mykiss (rainbow trout), 96 Hour, 5,500 - 6,100 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 48 Hour, 6,084 mg/l, Method Not Specified.  
LC50, Ceriodaphnia dubia (water flea), 48 Hour, 8,098 mg/l

**Acute toxicity to algae/aquatic plants**

EC50, Skeletonema costatum (marine diatom), 5 d, Biomass, 11,800 - 14,400 mg/l

**Toxicity to bacteria**

IC50, activated sludge, 3 Hour, > 1,000 mg/l, OECD 209 Test

**Toxicity to Above Ground Organisms**

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).  
dietary LC50, Coturnix japonica (Japanese quail), > 20,000 ppm

**Persistence and degradability****Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]**

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

**Acetone**

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

10-day Window: Pass

**Biodegradation:** 91 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301B or Equivalent

**Theoretical Oxygen Demand:** 2.20 mg/mg Estimated.

**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	69.1 %
10 d	72.7 %
20 d	73.6 %

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitization:** OH radicals

**Atmospheric half-life:** 52 d

**Method:** Estimated.

**Bioaccumulative potential**

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

**Bioaccumulation:** In the terrestrial environment, material is expected to remain in the soil.

**Acetone**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** -0.24 Measured

**Bioconcentration factor (BCF):** 0.69 Fish Measured

**Mobility in soil****Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]**

In the aquatic environment, material will sink and remain in the sediment.

**Acetone**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** 0.37 - 2.0 Estimated.

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## 13. DISPOSAL CONSIDERATIONS

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**Disposal methods:** 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.

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## 14. TRANSPORT INFORMATION

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**DOT**

<b>Proper shipping name</b>	Resin solution
<b>UN number</b>	UN 1866
<b>Class</b>	3
<b>Packing group</b>	II
<b>Reportable Quantity</b>	Acetone

**Classification for SEA transport (IMO-IMDG):**

<b>Proper shipping name</b>	RESIN SOLUTION
<b>UN number</b>	UN 1866
<b>Class</b>	3
<b>Packing group</b>	II
<b>Marine pollutant</b>	No
<b>Transport in bulk according to Annex I or II</b>	Consult IMO regulations before transporting ocean bulk

**of MARPOL 73/78 and the  
IBC or IGC Code****Classification for AIR transport (IATA/ICAO):**

<b>Proper shipping name</b>	Resin solution
<b>UN number</b>	UN 1866
<b>Class</b>	3
<b>Packing group</b>	II

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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**15. REGULATORY INFORMATION**

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**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**

Flammable (gases, aerosols, liquids, or solids)  
Hazard not otherwise classified (physical hazards)  
Specific target organ toxicity (single or repeated exposure)  
Serious eye damage or eye irritation

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 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.

**Pennsylvania Worker and Community Right-To-Know Act:**

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**California Prop. 65**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**United States TSCA Inventory (TSCA)**

All substances listed as active on the TSCA Inventory or are not required to be listed.

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**16. OTHER INFORMATION**

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**Hazard Rating System****NFPA**

Health	Flammability	Instability
1	3	0

**Revision**

Identification Number: / 000101198727 / 1015 / Issue Date: 10-22-2019 / Version: 5.2

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
Dow IHG	Dow Industrial Hygiene Guideline
OSHA P0	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
STEL	Short-term exposure limit
TWA	8-hour time weighted average

**Full text of other abbreviations**

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 concerning 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

**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

BLUE CUBE OPERATIONS LLC 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