



Version	Revision Date:	SDS Number:	Date of last issue: 08-01-2016
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BLUE CUBE OPERATIONS LLC 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.™ 530-A80 Epoxy Resin
Product code	:	0000000100001097
Manufacturer or supplier's d Company name of supplier	eta :	ils BLUE CUBE OPERATIONS LLC
Address	:	190 CARONDELET PLAZA, SUITE 1530 CLAYTON MO 63105-3467
Telephone	:	(844) 238-3445
E-mail address	:	INFO@OLIN.COM
Emergency telephone	:	+1 800 424 9300
Local Emergency Contact	:	1-800-424-9300
Identified uses	:	Used in applications such as: Electrical laminate for printed wire board manufacturing.

### **SECTION 2. HAZARDS IDENTIFICATION**

### GHS classification in accordance with 29 CFR 1910.1200 Flammable liquids Category 2 : Specific target organ toxicity : Category 3 (Central nervous system) - single exposure **GHS** label elements Hazard pictograms Signal Word Danger 2 Hazard Statements Highly flammable liquid and vapor. 1 May cause drowsiness or dizziness. **Precautionary Statements** ; **Prevention:** 1/22



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		P210 Keep aw No smoking. P233 Keep co P240 Ground/I P241 Use expl ment. P242 Use only P243 Take pre P261 Avoid br P271 Use only P280 Wear pre	ray from ntainer tip cond con losion-pro- r non-spa ecautiona eathing c r outdoor otective g	heat/ sparks/ open flames/ hot surfaces. ghtly closed. tainer and receiving equipment. oof electrical/ ventilating/ lighting/ equip- arking tools. Iry measures against static discharge. lust/ fume/ gas/ mist/ vapors/ spray. s or in a well-ventilated area. gloves/ eye protection/ face protection.
		Response: P303 + P361 + all contaminate P304 + P340 + and keep com doctor if you fe P370 + P378 I hol-resistant fo	+ P353 IF ed clothir + P312 IF fortable f eel unwel n case o pam to ex	F ON SKIN (or hair): Take off immediately ng. Rinse skin with water/ shower. F INHALED: Remove person to fresh air or breathing. Call a POISON CENTER/ I. f fire: Use dry sand, dry chemical or alco- ctinguish.
		<b>Storage:</b> P403 + P233 S tightly closed. P403 + P235 S P405 Store loc	Store in a Store in a sked up.	well-ventilated place. Keep container well-ventilated place. Keep cool.
		<b>Disposal:</b> P501 Dispose posal plant.	of conte	nts/ container to an approved waste dis-
Othe Statio	r hazards c-accumulating flammab	le liquid.		
SECTION	tance / Mixture	: Mixture	GREDIEN	115
Com	ponents			
Cher	nical name	CAS-No.		Concentration (% w/w)
Bispl	nenol A, epichlorohydrin	and 26265-08-	7	>= 75 - <= 85

Actual concentration is withheld as a trade secret

### SECTION 4. FIRST AID MEASURES

tetrabromobisphenol A polymer

If inhaled

Acetone

: 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.

>= 15 - <= 25

67-64-1

### SAFETY DATA SHEET



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In case of skin contact		:	Remove material from skin immediately by washing with soa and plenty of water. Remove contaminated clothing and sho es 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. Re- move contact lenses after the initial 1-2 minutes and continu flushing for several additional minutes. If effects occur, con- sult a physician, preferably an ophthalmologist.			
li	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 a measures (above) any additional important symptoms and effects are described in Section 11: Toxicology Information.				
F	Protect	ion of first-aiders	:	First Aid responde and use the recor sistant gloves, sp If potential for exp personal protectiv	ers should pay attention to self-protection nmended protective clothing (chemical re- lash protection). posure exists refer to Section 8 for specific re equipment.		
Ν	Notes t	o physician	:	Maintain adequate No specific antido Treatment of expo symptoms and the	e ventilation and oxygenation of the patient. te. osure should be directed at the control of e 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 ex- tinguish fire.
Specific hazards during fire fighting	:	Container may rupture from gas generation in a fire situation. 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 con- tainers at room temperature. Flammable concentrations of vapor can accumulate at tempe-



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			ratures above fla Dense smoke is gen.	ash point; see Section 9. emitted when burned without sufficient oxy-
Ha uct	zardous combustion prod- s	:	During a fire, sm tion to combusti be toxic and/or i Combustion pro Phenolic compo Hydrogen bromi Carbon monoxic Carbon dioxide.	noke may contain the original material in addi- on products of varying composition which may rritating. ducts may include and are not limited to: unds. de. de.
Fu	ther information	:	Keep people aw Stay upwind. Ke accumulate. Water may not k Use water spray fected zone unti sed. Fight fire from p the use of unma Immediately with rising sound from container. Do not use direct Eliminate ignitio Move container zard. Burning liquids r tect personnel a	ay. Isolate fire and deny unnecessary entry. tep out of low areas where gases (fumes) can be effective in extinguishing fire. to cool fire exposed containers and fire af- l fire is out and danger of reignition has pas- rotected location or safe distance. Consider inned hose holders or monitor nozzles. Indraw all personnel from the area in case of in venting safety device or discoloration of the ext water stream. May spread fire. In sources. from fire area if this is possible without ha- may be moved by flushing with water to pro- nd minimize property damage.
Spo for	ecial protective equipment fire-fighters	:	Wear positive-pa (SCBA) and pro ting helmet, coa Avoid contact w If contact is likel clothing with sel available, wear contained breat location. For protective en tuations, refer to	ressure self-contained breathing apparatus tective fire fighting clothing (includes fire figh- t, trousers, boots, and gloves). ith this material during fire fighting operations. y, change to full chemical resistant fire fighting f-contained breathing apparatus. If this is not full chemical resistant clothing with self- ning apparatus and fight fire from a remote quipment in post-fire or non-fire clean-up si- to the relevant sections.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec-	:	Evacuate area.
tive equipment and emer-		Only trained and properly protected personnel must be invol-
gency procedures		ved in clean-up operations.
		Keep personnel out of low areas.
		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



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				vapor to avoid fire Vapor explosion h For large spills, w Check area with o area. Ground and equipment. Use appropriate s refer to Section 8 Refer to section 7 asures.	e or explosion. hazard. Keep out of sewers. arn public of downwind explosion hazard. combustible gas detector before reentering l bond all containers and handling safety equipment. For additional information, , Exposure Controls and Personal Protection. 7, Handling, for additional precautionary me-
E	Inviron	mental precautions	:	Prevent from enter and/or groundwat	ering into soil, ditches, sewers, waterways er. See Section 12, Ecological Information.
M	1ethod	s and materials for ment and cleaning up	:	Pump with explosite to smother or sup Contain spilled m Absorb with mate Sand. Polypropylene fibe Collect in suitable Remove residual Residual can be r commended for c guidelines and sa are followed. Con for handling inforr See Section 13, D mation.	tion-proof equipment. If available, use foam press. aterial if possible. rials such as: er products. r products. and properly labeled containers. with soap and hot water. emoved with solvent. Solvents are not re- lean-up unless the recommended exposure fe handling practices for the specific solvent sult appropriate solvent Safety Data Sheet nation and exposure guidelines. Disposal Considerations, for additional infor-

### SECTION 7. HANDLING AND STORAGE

A	dvice on safe handling	<ul> <li>Keep away from heat, sparks and flame.</li> <li>Keep container closed.</li> <li>Avoid prolonged or repeated contact with skin.</li> <li>Avoid breathing vapor.</li> <li>Use with adequate ventilation.</li> <li>Do not swallow.</li> <li>Wash thoroughly after handling.</li> <li>Never use air pressure for transferring product.</li> <li>No smoking, open flames or sources of ignition in handling and storage area.</li> <li>Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.</li> <li>Electrically bond and ground all containers and equipment before transfer or use of material.</li> <li>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.</li> <li>Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation.</li> </ul>
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				electrostaically ch equipment. If suff flammable mixtur Handling operatic charges include b ping at high flow r tank and containe switch loading, va See Section 8, EX PROTECTION.	harged, even in bonded or grounded icient charge is accumulated, ignition of es can occur. ons that can promote accumulation of static but are not limited to mixing, filtering, pum- rates, splash filling, creating mists or sprays, er filling, tank cleaning, sampling, gauging, acuum truck operations. XPOSURE CONTROLS AND PERSONAL			
	Conditi	ons for safe storage	:	Flammable mixtu tainers at room te Minimize sources spark or flame. Keep container cl	res may exist within the vapor space of con- emperature. of ignition, such as static build-up, heat, osed.			
	Recom peratur	mended storage tem- e	:	36 - 109 °F / 2 - 4	3 °C			
	Storage	e period	:	24 Months				

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

#### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	alue type Control parame- form of ters / Permissible (posure) concentration	
Acetone	67-64-1	TWA	200 ppm	OLIN OEL
		STEL	350 ppm	OLIN OEL
		TWA	250 ppm	ACGIH
		STEL	500 ppm	ACGIH
		TWA	750 ppm 1,800 mg/m3	OSHA P0
		STEL	1,000 ppm 2,400 mg/m3	OSHA P0
		TWA	1,000 ppm 2,400 mg/m3	OSHA Z-1

### **Biological occupational exposure limits**

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

Engineering measures

: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or



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			guidelines. If the ments or guidelin for most operation Local exhaust ven tions.	re are no applicable exposure limit require- es, general ventilation should be sufficient ns. ntilation may be necessary for some opera-
Pers	onal protective equipm	nent		
Resp	iratory protection	:	Respiratory prote tial to exceed the If there are no ap guidelines, wear is such as respirato enced, or where in For emergency co pressure self-con	ction should be worn when there is a poten- exposure limit requirements or guidelines. plicable exposure limit requirements or respiratory protection when adverse effects, ry irritation or discomfort have been experi- ndicated by your risk assessment process. onditions, use an approved positive- tained breathing apparatus.
Fi	lter type	:	The following sho rators: Organic va	uld be effective types of air-purifying respi- apor cartridge.
Hand	I protection			
R	emarks	:	Chemical protecti handling this mate tice for any mater	ve gloves should not be needed when erial. Consistent with general hygienic prac- ial, skin contact should be minimized.
Eye p	protection	:	Use safety glasse If exposure cause	es (with side shields). es eye discomfort, use a full-face respirator.
Skin	and body protection	:	No precautions of should be needed	her than clean body-covering clothing I.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid.
Color	:	yellow
Odor	:	Acetone.
Odor Threshold	:	No test data available
рН	:	Not determined
Melting point/range	:	Not applicable
Freezing point		Not determined
Boiling point/boiling range	:	133 °F / 56 °C Method: Literature Acetone

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	Flash po	pint	:	-4 °F / -20 °C	
				Method: Tag Clos Acetone	sed Cup ASTM D56, closed cup
	Evapora	ation rate	:	No test data avai	lable
	Flamma	ability (liquids)	:	Static-accumulat	ing flammable liquid.
	Upper e flammal	explosion limit / Upper bility limit	:	13.0 %(V) Method: Literatur Acetone	e
	Lower e flammal	explosion limit / Lower bility limit	:	2.5 %(V) Method: Literatur Acetone	e
	Vapor pressure		:	181.7 mmHg (68 Method: Literatur Acetone	°F / 20 °C) e
	Relative	e vapor density	:	2.00 Method: Literatur Acetone	e
	Relative	e density	:	1.18 - 1.22 (77 °F Method: Literatur	<sup>F</sup> / 25 °C) e
	Density		:	9.90 - 10.10 g/cm Method: ASTM D	n3 (77 °F / 25 °C) 1963
	Solubilit Wate	y(ies) er solubility	:	Mild	
	Partitior octanol/	n coefficient: n- /water	:	No data available	
	Autoign	ition temperature	:	Not determined	
	Decomp	position temperature	:	No test data avai	lable
	Viscosit Visco	y osity, dynamic	:	1,500 - 2,500 mF Method: ASTM D	Pa,s (77 °F / 25 °C) 9 445
	Visco	osity, kinematic	:	No test data avai	lable
	Explosiv	ve properties	:	No data available	)
	Oxidizin	g properties	:	No data available	9
	Molecul	ar weight	:	Not determined	





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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 reac- tions	:	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	:	Avoid temperatures above 200 °C		
		Potentially violent decomposition can occur above 250 °C		
		Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid static discharge.		
Incompatible materials	:	Avoid contact with oxidizing materials. Avoid contact with: Acids. Bases. Avoid unintended contact with amines.		
Hazardous decomposition products	:	Toxic gases are released during decomposition. Uncontrolled exothermic reaction of brominated epoxy resins release phenolics, carbon monoxide, hydrogen bromide, and water		

#### SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity		
Product:		
Acute oral toxicity	:	Remarks: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.
		LD50 (Rat): > 4,000 mg/kg Assessment: The substance or mixture has no acute oral tox- icity
Acute inhalation toxicity	:	Remarks: Excessive exposure to solvent(s) may cause respir- atory irritation and central nervous system depression.



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		Symptoms r progressing	may include headache, dizziness and drowsiness, to incoordination and unconsciousness.
		Remarks: A The LC50 h	s product: as not been determined.
Acute	e dermal toxicity	: Remarks: P sorption of h	rolonged skin contact is unlikely to result in ab- narmful amounts.
		LD50 (Rabb Assessmen toxicity	oit): > 2,000 mg/kg t: The substance or mixture has no acute dermal
<u>Com</u>	ponents:		
Bisp	henol A, epichlorohy	drin and tetrabron	nobisphenol A polymer:
Acute	e oral toxicity	: LD50 (Rat, Symptoms: Assessmen icity	female): > 2,000 mg/kg No deaths occurred at this concentration. t: The substance or mixture has no acute oral tox-
Acute	e inhalation toxicity	: Remarks: V For respirate No relevant	apors are unlikely due to physical properties. ory irritation and narcotic effects: data found.
		Remarks: T	he LC50 has not been determined.
Acute	e dermal toxicity	: LD50 (Rabb Symptoms: Assessmen toxicity	it): > 2,000 mg/kg No deaths occurred at this concentration. t: The substance or mixture has no acute dermal
Acet	one:		
Acute	e oral toxicity	: LD50 (Rat):	5,800 mg/kg
Acute	inhalation toxicity	: LC50 (Rat): Exposure tir Test atmosp	76 mg/l me: 4 h ohere: vapor
Acute	e dermal toxicity	: LD50 (Rabb	oit): > 20,000 mg/kg
Skin	corrosion/irritation		
Prod	uct:		
Resu Rema	lt arks	: No skin irrita : Prolonged e	ation exposure not likely to cause significant skin irrita-
Com	nonente:		
Bien	henol A enichloroby	drin and tetrabron	nobisnhenol A polymer:
Resu	lt	: Skin irritatio	
Rem	arks	: Brief contac	t may cause moderate skin irritation with local



<b>Aceto</b> Resul <sup>:</sup> Rema	n <b>e:</b> t rks	:	redness.		
<b>Aceto</b> Resul Rema	n <b>e:</b> t rks	:	No skin irritatio		
Resul Rema	t rks	:	No skin irritatio		
			Essentially nor May cause dry	n nirritating to skin. ing and flaking of the skin.	
Serio	us eye damage/eye	irritati	on		
Produ	ıct:				
Resul Rema	Result Remarks		No eye irritatio Essentially nor Vapor may cau and redness.	n hirritating to eyes. Ise eye irritation experienced as mild discomfort	
<u>Comp</u>	oonents:				
Bisph	enol A, epichlorohy	/drin a	nd tetrabromol	bisphenol A polymer:	
Rema	rks	:	May cause slig Corneal injury	ht temporary eye irritation. is unlikely.	
Aceto	one:				
Result Remarks		:	Eye irritation May cause severe eye irritation. May cause slight corneal injury. Effects may be slow to heal. Vapor may cause eye irritation experienced as mild discomf and redness.		
Respi	ratory or skin sensi	tizatio	n		
<u>Produ</u>	<u>ict:</u>				
Rema	rks	:	Contains comp potential for co	oonent(s) which have not demonstrated the ntact allergy in mice.	
Rema	rks	:	For respiratory No relevant inf	sensitization: ormation found.	
<u>Comp</u>	oonents:				
Bisph	enol A, epichlorohy	/drin a	nd tetrabromol	bisphenol A polymer:	
Rema	rks	:	Did not demon	strate the potential for contact allergy in mice.	
Rema	rks	:	For respiratory No relevant da	sensitization: ta found.	
Aceto	one:				
Asses Rema	sment rks	:	Does not cause Did not cause a pigs.	e skin sensitization. allergic skin reactions when tested in guinea	



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	Remarks		:	For respirator No relevant d	y sensitization: ata found.
	Germ o	cell mutagenicity			
	Produc	ct:			
	Genoto	xicity in vitro	:	Remarks: The Acetone. In vitro geneti	e data presented are for the following material: c toxicity studies were predominantly negative.
	Compo	onents:			
	Bisphe	enol A, epichloroh	vdrin a	nd tetrabromo	bisphenol A polymer:
	Genoto	oxicity in vitro	:	Remarks: In v Animal geneti	itro genetic toxicity studies were negative. c toxicity studies were negative.
	Acetor	ne:			
	Genoto	xicity in vitro	:	Remarks: In v negative.	itro genetic toxicity studies were predominantly
	Carcin	ogenicity			
	<u>Produc</u>	<u>st:</u>			
	Remar	ks	:	No relevant d	ata found.
	Compo	onents:			
	Bisphe	enol A. epichloroh	vdrin a	nd tetrabromo	bisphenol A polymer:
	Remar	ks	:	No relevant d	ata found.
	Acetor	ne:			
	Remar	ks	:	No relevant d	ata found.
	IARC	No ingred identified	ient of t as prob	his product pre able, possible (	sent at levels greater than or equal to 0.1% is or confirmed human carcinogen by IARC.
	OSHA	No compo on OSHA	onent of 's list of	this product pr regulated carc	esent at levels greater than or equal to 0.1% is nogens.
	NTP	No ingred identified	ient of t as a kno	his product pre own or anticipa	sent at levels greater than or equal to 0.1% is ted carcinogen by NTP.
	Reproc	ductive toxicity			
	Produc	<u>::</u>			
	Effects	on fertility	:	Remarks: The Acetone. In animal stud	e data presented are for the following material: ies, did not interfere with reproduction.
	Effects	on fetal developme	ent :	Remarks: The Acetone.	e data presented are for the following material:



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			Has been toxic t toxic toxic toxic to the mother	to the fetus in laboratory animals at doses ner.
Comp	oonents:			
Bisph	nenol A, epichlorohydr	in a	nd tetrabromobi	isphenol A polymer:
Effect	s on fertility	:	Remarks: No re	levant data found.
Effect	s on fetal development	:	Remarks: No re	levant data found.
Aceto	one:			
Effect	s on fertility	:	Remarks: In ani tion.	mal studies, did not interfere with reproduc-
Effect	s on fetal development	:	Remarks: Has b doses toxic to the	been toxic to the fetus in laboratory animals an mother.
STOT	-single exposure			
<u>Produ</u>	uct:			
Asses	ssment	:	Contains compo organ toxicant, s	onent(s) which are classified as specific targ single exposure, category 3.
<u>Comp</u>	oonents:			
Bisph	nenol A, epichlorohydr	in a	nd tetrabromobi	isphenol A polymer:
Asses	ssment	:	Evaluation of av an STOT-SE to	railable data suggests that this material is no kicant.
Aceto	one:			
Route	es of exposure	:	Inhalation	
Targe	t Organs	:	Nervous system	l veinges or dizzinges
73363	Soment	•	May cause drow	
Repe	ated dose toxicity			
<u>Produ</u>	<u>uct:</u>			
Rema	ırks	:	Contains compo effects on the for Kidney. Liver. Blood. Development of animals after pro Symptoms of ex narcotic effects;	onent(s) which have been reported to cause illowing organs in animals: cataracts has been reported in laboratory olonged repeated skin exposure to acetone. cessive exposure may be anesthetic or dizziness and drowsiness may be observed
<u>Comp</u>	<u>oonents:</u>			
Bisnh	enol A. epichlorohydr	in a	nd tetrabromobi	isphenol A polymer:
Rema	irks		Based on availa	ble data, repeated exposures are not



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			anticipated to ca	use significant adverse effects.
Acet	one:			
Rema	Remarks		Symptoms of ex narcotic effects; In animals, effect organs: Blood. Kidney. Liver. Development of animals after pro	cessive exposure may be anesthetic or dizziness and drowsiness may be observed. ets have been reported on the following cataracts has been reported in laboratory blonged repeated skin exposure to acetone.
Aspi	ration toxicity			
Prod	uct:			
No as	spiration toxicity classific	catio	n	
Com	ponents:			
<b>Bisp</b> l Base	h <b>enol A, epichlorohyd</b> d on physical properties	rin a s, not	nd tetrabromobi t likely to be an as	sphenol A polymer: piration hazard.
Acet May I	one: be harmful if swallowed	and	enters airways.	
SECTION	12. ECOLOGICAL INF	OR	MATION	
Ecot	oxicity			
<u>Com</u>	ponents:			
Bispl	henol A, epichlorohyd	rin a	nd tetrabromobi	sphenol A polymer:
Toxic	ity to fish	:	Remarks: The E	C50 value is above the water solubility.
Toxic plants	ity to algae/aquatic	:	EC50 (Pseudoki 0.030 mg/l End point: Grow Exposure time: 9 Test Type: Statio Method: OECD	irchneriella subcapitata (green algae)): > th rate inhibition 96 h c Test Guideline 201 or Equivalent
			NOEC (Pseudol mg/I End point: Grow Exposure time: 9 Test Type: Statio Method: OECD	kirchneriella subcapitata (green algae)): 0.030 th rate inhibition 96 h c Test Guideline 201 or Equivalent
Toxic aqua	ity to daphnia and other tic invertebrates (Chron-	: :	NOEC (Daphnia Exposure time: 2	magna (Water flea)): 0.023 mg/l 21 d



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	ic toxicity)			Test Type: flow-through test Method: OECD Test Guideline 211 or Equivalent			
				LOEC (Daphnia n Exposure time: 21 Test Type: flow-th Method: OECD Te	nagna (Water flea)): > 0.023 mg/l d rough test est Guideline 211 or Equivalent		
	Toxicity ganism	/ to soil dwelling or- s	:	LC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg Exposure time: 14 d End point: mortality Method: Other guidelines			
				NOEC (Eisenia fe Exposure time: 14 End point: mortali Method: Other gu	tida (earthworms)): 1,000 mg/kg ł d ty idelines		
	Ecotox	cicology Assessment					
	Acute a	aquatic toxicity	:	This product has	no known ecotoxicological effects.		
	Chronic aquatic toxicity		:	This product has no known ecotoxicological effects.			
	Acetor	ne:					
	Toxicity	/ to fish	:	Remarks: Materia isms on an acute the most sensitive	I is practically non-toxic to aquatic organ- basis (LC50/EC50/EL50/LL50 >100 mg/L in species tested).		
				LC50 (Oncorhync mg/l Exposure time: 96	hus mykiss (rainbow trout)): 5,500 - 6,100 Sh		
	Toxicity to daphnia and other aquatic invertebrates		:	EC50 (Daphnia magna (Water flea)): 6,084 mg/l Exposure time: 48 h Method: Method Not Specified.			
				LC50 (Ceriodaphi Exposure time: 48	nia dubia (water flea)): 8,098 mg/l 3 h		
	Toxicity to algae/aquatic plants		:	EC50 (Skeletonema costatum (marine diatom)): 11,800 - 14,400 mg/l End point: Biomass Exposure time: 5 d			
	Toxicity to microorganisms		:	IC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Method: OECD 209 Test			
	Toxicity to terrestrial organ- isms		:	dietary LC50 (Cot ppm Remarks: Materia basis (LC50 > 500	urnix japonica (Japanese quail)): > 20,000 I is practically non-toxic to birds on a dietary 00 ppm).		



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Persi	Persistence and degradabili			
Com	ponents:			
Bispł	henol A, epichlorohy	drin and te	etrabromo	bisphenol A polymer:
Biode	egradability	: Res Ren OE0	ult: Not rea narks: Mate CD/EEC gu	adily biodegradable. erial is not readily biodegradable according to udelines.
		Biod Exp Met Ren	degradatior osure time hod: OECI narks: 10-c	n: 0% : 28 d D Test Guideline 301B lay Window: Fail
Aceto	one:			
Biode	egradability	: Res Ren test	ult: Readily narks: Mate (s) for read	y biodegradable. erial is readily biodegradable. Passes OECD ly biodegradability.
		Bioo Exp Met Ren	degradatior osure time hod: OECI narks: 10-c	n: 91 % : 28 d D Test Guideline 301B or Equivalent lay Window: Pass
Bioch mand	emical Oxygen De- I (BOD)	: 69.1 Incu	l % Ibation time	e: 5 d
		72.7 Incu	7 % Ibation time	e: 10 d
		73.6 Incu	3 % Ibation time	e: 20 d
ThOE	)	: 2.20 Met	) mg/mg hod: Estim	ated.
Photo	odegradation	: Tes Sen Rate Met	t Type: Hal sitizer: OH e constant: hod: Estim	f-life (indirect photolysis) radicals 2.04E-13 cm3/s ated.
Bioad	ccumulative potentia	I		
<u>Com</u>	ponents:			
Bispl	henol A, epichlorohy	drin and te	etrabromo	bisphenol A polymer:
Partiti octan	ion coefficient: n- ol/water	: log Met Ren 100	Pow: 7.4 hod: Estim narks: Bioc or log Pow	ated. concentration potential is low (BCF less than v greater than 7).
Aceto	one:			
Bioac	cumulation	: Spe	cies: Fish	
			16/2	2



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				Bioconcentration Method: Measure	factor (BCF): 0.69 d
	Partitio octanol	n coefficient: n- /water	:	log Pow: -0.24 Method: Measure Remarks: Biocone Pow < 3).	d centration potential is low (BCF < 100 or Log
	Mobilit	y in soil			
	Compo	onents:			
	Bisphe	enol A, epichlorohydr	in a	nd tetrabromobis	phenol A polymer:
	Distribu mental	ution among environ- compartments	:	Koc: > 5000 Method: OECD 12 Remarks: Expecte 5000).	21: HPLC Method ed to be relatively immobile in soil (Koc >
	Acetor	ne:			
	Distribu mental	ution among environ- compartments	:	Koc: 0.37 - 2.0 Method: Estimate Remarks: Potentia ween 0 and 50).	d. al for mobility in soil is very high (Koc bet-
	Other a	adverse effects			
	Compo	onents:			
	Bisphe	enol A, epichlorohydr	in a	nd tetrabromobis	phenol A polymer:
	Results assess	s of PBT and vPvB ment	:	This substance had cumulation and to	as not been assessed for persistence, bioac- oxicity (PBT).
	Acetor	ne:			
	Results assess	of PBT and vPvB ment	:	This substance had cumulation and to	as not been assessed for persistence, bioac- pxicity (PBT).
SEC	TION 1	3. DISPOSAL CONSI	DER	ATIONS	
	Dispos	al methods			
	Waste	from residues	:	AS YOUR SUPPL MANAGEMENT F PROCESSES OF MATERIAL. THE INFORMATI TO THE PRODUC	LIER, WE HAVE NO CONTROL OVER THE PRACTICES OR MANUFACTURING PARTIES HANDLING OR USING THIS ON PRESENTED HERE PERTAINS ONLY CT AS SHIPPED IN ITS INTENDED

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



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		are the respondent DO NOT DUN OR INTO AN FOR UNUSED ferred options Incinerator or	nsibility solely of the waste generator. IP INTO ANY SEWERS, ON THE GROUND, Y BODY OF WATER. D & UNCONTAMINATED PRODUCT, the pre- include sending to a licensed, permitted: other thermal destruction device.
SECTION	14. TRANSPORT INFO	RMATION	
Interi	national Regulations		
<b>UNR</b> UN n Prope Class	<b>TDG</b> umber er shipping name	: UN 1866 : RESIN SOLU : 3	TION
Packi Label	ing group Is	: II : 3	
IATA UN/IE Prope Class Packi Label Packi aircra Packi ger ai	<b>-DGR</b> D No. er shipping name ing group is ing instruction (cargo ift) ing instruction (passen- ircraft)	: UN 1866 : Resin solutior : 3 : II : Flammable Li : 364 : 353	quids
<b>IMDG</b> UN n Prope	<b>6-Code</b> umber er shipping name	: UN 1866 : RESIN SOLU	TION
Class Packi Label EmS Marin Rema	s ing group Is Code ie pollutant arks	: 3 : II : 3 : F-E, <u>S-E</u> : no : Stowage cate	gory B
Trans	sport in bulk according	g to Annex II of MA	ARPOL 73/78 and the IBC Code
Not a	pplicable for product as	supplied.	
UN/IE Prope	rκ D/NA number er shipping name	: UN 1866 : Resin solutior	I
Class Packi Label ERG Marin	s ing group Is Code ie pollutant	: 3 : II : FLAMMABLE : 127 : no	LIQUID



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#### 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

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 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.



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ISHL		:	All intentional con exempt, or are su	ponents are listed on the inventory, are pplier certified.
KECI		:	All intentional con exempt, or are su	ponents are listed on the inventory, are pplier certified.
PICCS		:	All intentional con exempt, or are su	ponents are listed on the inventory, are pplier certified.
IECSC		:	All intentional con exempt, or are su	ponents are listed on the inventory, are pplier certified.
TCSI		:	All intentional con exempt, or are su	ponents are listed on the inventory, are pplier certified.
TSCA		:	All substances list not required to be	ed as active on the TSCA Inventory or are 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**



### Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
OSHA P0	:	USA. OSHA - TABLE Z-1 Limits for Air Contaminants



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			1910.1000		
OSH	A Z-1		USA. Occupa its for Air Con	tional Exposure Limits (OSHA) - Table Z-1 Lim- taminants	
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		
OSHA Z-1 / TWA		:	8-hour time w	eighted average	

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

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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 condi-



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tions 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.

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