

Version	Revision Date:	SDS Number:	Date of last issue: 06-09-2021
6.1	01-08-2024	101208925	Date of first issue: 01-08-2024

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 Product code	:	D.E.R.® 664 HA Epoxy Resin 00000001000001988
Manufacturer or supplier's o	deta	ails
Company name of supplier	:	BLUE CUBE OPERATIONS LLC
Address	:	190 CARONDELET PLAZA, SUITE 1530 CLAYTON MO 63105-3467
Telephone	:	
E-mail address	:	ÎNFÓ@OLIN.COM
24-Hour Emergency Contact	:	+1 800 424 9300
Local Emergency Contact Identified uses	:	1-800-424-9300 Coatings.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Combustible dust

	GHS label elements Signal Word	:	Warning
	Hazard Statements	:	May form combustible dust concentrations in air.
	Other hazards None known.		
SE	CTION 3. COMPOSITION/INFO	DRM	ATION ON INGREDIENTS
	Substance / Mixture	:	Substance
	Substance name	:	Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1- methylethylidene)bis(4,1- phenyleneoxymethylene)]bis[oxirane]
	CAS-No.	:	25036-25-3
	Synonyms	:	Polymer
	Components		



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Chemical name Phenol, 4,4'-(1-meth polymer with 2,2'-[(1- methylethylidene)bis phenyleneoxymethyl	lethylidene)bis-, 25 4,1-	AS-No. 5036-25-3	Concentration (% w/w) 100

SECTION 4. FIRST AID MEASURES

If inhaled	:	Move person to fresh air; if effects occur, consult a physician.	
In case of skin contact	:	Wash off with plenty of water.	
In case of eye contact	:	Flush eyes with plenty of water; remove contact lenses after the first 1-2 minutes then continue flushing for several minu- tes. Only mechanical effects expected. If effects occur, con- sult 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	:	If potential for exposure exists refer to Section 8 for specific personal protective equipment.	
Notes to physician	:	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.
Unsuitable extinguishing media	No information available.
Specific hazards during fire fighting	Pneumatic conveying and other mechanical handling opera- tions can generate combustible dust. To reduce the potential for dust explosions, do not permit dust to accumulate. Dense smoke is emitted when burned without sufficient oxy- gen.
Hazardous combustion prod- ucts	During a fire, smoke may contain the original material in addi- tion 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.

SAFETY DATA SHEET



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Further information		 Keep people away. Isolate fire and deny unnecessary entry Soak thoroughly with water to cool and prevent re-ignition. If material is molten, do not apply direct waterstream. Use fine water spray or foam. Cool surroundings with water to localize fire zone. Hand held dry chemical or carbon dioxide extinguishers ma be used for small fires. Contain fire water run-off if possible. Fire water run-off, if n contained, may cause environmental damage. Review the 'Accidental Release Measures' and the 'Ecolog Information' sections of this (M)SDS. 				
	Special protective equipment for fire-fighters		:	(SCBA) and prote ting helmet, coat, Avoid contact with If contact is likely, clothing with self- available, wear fu contained breathin location. For protective equ	ssure self-contained breathing apparatus ctive fire fighting clothing (includes fire figh- trousers, boots, and gloves). In this material during fire fighting operations. change to full chemical resistant fire fighting contained breathing apparatus. If this is not Il chemical resistant clothing with self- ing apparatus and fight fire from a remote support in post-fire or non-fire clean-up si- he relevant sections.	

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec- tive equipment and emer- gency procedures	:	Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
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	:	Remove all sources of ignition. Use non-sparking tools in cleanup operations. Contain spilled material if possible. Clean up promptly by sweeping or vacuum. Material can create slippery conditions. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional infor- mation.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	 Keep away from heat, sparks and flame. Keep container closed. Use with adequate ventilation. No smoking, open flames or sources of ignition in handling and storage area. Electrically bond and ground all containers and equipment. Good housekeeping and controlling of dusts are necessary for safe handling of product.
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Cor	nditions for safe storage	:	avoid direct sunl	erm storage flowability, it is recommended to ight or prolonged periods of high temperatu- onal load by stacked pallets. Iry place.
Sto	rage period	:	24 Months	
	ther information on stor- stability	:	impacting the flo information, plea	nditions sintering of this product may occur, wability of the solid product flakes. For more se refer to Olin Technical Bulletin for Sinte- aterial or contact us via info@olin.com

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Contains no substances with o	ontains no substances with occupational exposure limit values.				
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 require- ments or guidelines, general ventilation should be sufficient for most operations.			
Personal protective equipme	ent				
Respiratory protection	:	Respiratory protection should be worn when there is a poten- tial 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 experi- enced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be nee- ded; however, in dusty atmospheres, use an approved parti- culate respirator.			
Filter type	:	The following should be effective types of air-purifying respi- rators: Particulate filter.			
Hand protection					
Remarks	:	Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.			
Eye protection	:	Use safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.			
Skin and body protection	:	No precautions other than clean body-covering clothing should be needed.			

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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Appea	arance	:	Flakes	
Color		:	Yellow	
Odor		:	Odorless	
Odor	Threshold	:	No test data ava	ilable
рН		:	Not applicable	
Meltir	ng point/range	:	No test data ava	ilable
Freez	ing point		Not applicable	
Softe	ning point		239 - 248 °F / 11 Method: ASTM [
Boilin	g point/boiling range	:	Not applicable	
Flash	point	:	Method: closed on Not applicable	cup
Evapo	oration rate	:	Not applicable	
Flamr	mability (solid, gas)	:	May form combu	stible dust concentrations in air.
Self-i	gnition	:	The substance o	r mixture is not classified as pyrophoric.
	r explosion limit / Upper nability limit	:	Not applicable	
	r explosion limit / Lower nability limit	:	Not applicable	
Vapo	r pressure	:	Not applicable	
Relati	ive vapor density	:	Not applicable	
Relati	ive density	:	1.18 Method: Literatu	re
	ility(ies) ater solubility	:	Insoluble	
Autoi	gnition temperature	:	Not applicable	
Deco	mposition temperature	:	No test data ava	ilable
Visco Vis	sity scosity, dynamic	:	No data available	e



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Vi	scosity, kinematic	: Not applicabl	e	
Explo	osive properties	: No data avail	able	
Oxidi	zing properties	: No data avail	able	

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 specific 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	:	Exposure to elevated temperatures can cause product to de- compose.
Incompatible 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.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Components:

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

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 toxici- ty



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Skin	corrosion/irritation		
Comp	oonents:		
	ol, 4,4'-(1-methyleth yleneoxymethylene)		r with 2,2'-[(1-methylethylidene)bis(4,1-
Result		: No skin irritatio	
Rema	ks	: Essentially non	rritating to skin.
Serio	us eye damage/eye	irritation	
Com	oonents:		
	ol, 4,4'-(1-methyleth yleneoxymethylene		r with 2,2'-[(1-methylethylidene)bis(4,1-
Result		: No eye irritation	
Rema	Irks	: May cause slig Corneal injury	ght temporary eye irritation. is unlikely.
			nay cause irritation or corneal injury due to m
Resp	iratory or skin sens	itization	
Com	oonents:		
	ol, 4,4'-(1-methyleth yleneoxymethylene		r with 2,2'-[(1-methylethylidene)bis(4,1-
Rema	ırks	: For skin sensi No relevant da	
Rema	irks	: For respiratory	
		No relevant da	ita found.
Germ	cell mutagenicity		
Com	oonents:		
	ol, 4,4'-(1-methyleth yleneoxymethylene		r with 2,2'-[(1-methylethylidene)bis(4,1-
Geno	toxicity in vitro	: Remarks: Some tests, while othe	similar resins have shown genetic toxicity in in vers have not.
Carci	nogenicity		
<u>Comp</u>	oonents:		
	ol, 4,4'-(1-methyleth yleneoxymethylene		r with 2,2'-[(1-methylethylidene)bis(4,1-
Rema	ks	: Similar epoxy r ies.	esin did not cause cancer in long-term animal stud



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	identified a	as probable, possible o	r confirmed human carcinogen by IARC.	
OSHA		nent of this product pro s list of regulated carci	esent at levels greater than or equal to 0.1% is nogens.	
NTP	NTP No ingredient of this product present at levels greater than or equal to 0.1% identified as a known or anticipated carcinogen by NTP.			
Repro	ductive toxicity			
Produ Effects	ict: s on fertility	: Remarks: No re	levant data found.	
<u>Comp</u>	onents:			
	ol, 4,4'-(1-methyleth /leneoxymethylene)		r with 2,2'-[(1-methylethylidene)bis(4,1-	
Effects	s on fertility	: Remarks: No re	levant data found.	
Effects on fetal development : Remarks: No relevant data found.				
STOT	-single exposure			
Comp	onents:			
			r with 2,2'-[(1-methylethylidene)bis(4,1-	
pheny Asses	vleneoxymethylene)		available data auggests that this material is as	
Asses	sment	an STOT-SE t	available data suggests that this material is no oxicant.	
Repea	ated dose toxicity			
Comp	onents:			
			r with 2,2'-[(1-methylethylidene)bis(4,1-	
pheny Remar	vleneoxymethylene) الع		ble data, repeated exposures are not anticipated to	
Kennal	V9		at adverse effects.	
Aspira	ation toxicity			
<u>Comp</u>	onents:			
	ol, 4,4'-(1-methyleth /leneoxymethylene)		r with 2,2'-[(1-methylethylidene)bis(4,1-	



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CTION	12. ECOLOGICAL IN	FORMATION	
Ecoto	oxicity		
<u>Prod</u> u	<u>ıct:</u>		
Ecoto	oxicology Assessme	nt	
	aquatic toxicity		s no known ecotoxicological effects.
Chron	ic aquatic toxicity	: This product ha	s no known ecotoxicological effects.
<u>Comp</u>	oonents:		
	ol, 4,4'-(1-methylethy /leneoxymethylene)		with 2,2'-[(1-methylethylidene)bis(4,1-
	ty to fish	: Remarks: Not e	xpected to be acutely toxic, but may cause adverse cal/mechanical means.
Persis	stence and degradal	bility	
Comp	oonents:		
	ol, 4,4'-(1-methylethy /leneoxymethylene)		with 2,2'-[(1-methylethylidene)bis(4,1-
Biodeg	gradability	sunlight.	ce photodegradation is expected with exposure to biodegradation is expected.
Bioac	cumulative potentia	I	
<u>Comp</u>	oonents:		
	ol, 4,4'-(1-methylethy /leneoxymethylene)		with 2,2'-[(1-methylethylidene)bis(4,1-
	on coefficient: n- l/water	: Remarks: In the remain in the so	terrestrial environment, material is expected to il.
Mobil	ity in soil		
Comp	oonents:		
	ol, 4,4'-(1-methylethy /leneoxymethylene)		with 2,2'-[(1-methylethylidene)bis(4,1-
Distrib	oution among environ- compartments		aquatic environment, material will sink and remain
Other	adverse effects		
<u>Comp</u>	oonents:		
	ol, 4,4'-(1-methylethy /leneoxymethylene)		r with 2,2'-[(1-methylethylidene)bis(4,1-
huen	s of PBT and vPvB as-		has not been assessed for persistence, bioaccumula



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sessme	ent	tion and toxicity	7 (PBT).
SECTION	13. DISPOSAL CON	SIDERATIONS	
Dispo	sal methods		
Waste	e from residues	MANAGEMEN PROCESSES MATERIAL. THE INFORM, TO THE PROI CONDITION A tion Informatio All disposal pra State/Provincia Regulations m Waste charact are the respon DO NOT DUM OR INTO ANY FOR UNUSED ferred options	PPLIER, WE HAVE NO CONTROL OVER THE IT PRACTICES OR MANUFACTURING OF PARTIES HANDLING OR USING THIS ATION PRESENTED HERE PERTAINS ONLY DUCT AS SHIPPED IN ITS INTENDED AS DESCRIBED IN MSDS SECTION: Composi- n. actices must be in compliance with all Federal, al and local laws and regulations. ay vary in different locations. erizations and compliance with applicable laws sibility solely of the waste generator. P INTO ANY SEWERS, ON THE GROUND, ' BODY OF WATER. D & UNCONTAMINATED PRODUCT, the pre- include sending to a licensed, permitted: other thermal destruction device.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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 Not regulated as a dangerous good

Special precautions for user

Not applicable

SECTION 15. REGULATORY INFORMATION

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 : Combustible dust



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SAR	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 S	tate Regulations				
Penn	sylvania Right To Kn Benzene	ow			71-43-2
	national Regulations real Protocol			:	Not applicable
Rotte	rdam Convention (Prio	or Info	rmed Consent)	:	Not applicable
Stock	cholm Convention (Pers	sisten	t Organic Polluta	nts) :	Not applicable
The i	ngredients of this pro	oduct	are reported in	the foll	owing inventories:
TCSI		:	All intentional co exempt, or are s	•	nts are listed on the inventory, are certified.
TSC	Ą	:	All substances I not required to I		active on the TSCA Inventory or are
AIIC		:	All intentional contract exempt, or are set of the set		nts are listed on the inventory, are certified.
DSL		:			ed in this product are listed on the ostances List (DSL) or are not required
ENC	S	:	All intentional contract and a second contra		nts are listed on the inventory, are certified.
ISHL		:	All intentional contract and a second		nts are listed on the inventory, are certified.
KECI		:	All intentional co		nts are listed on the inventory, are certified.
PICC	S	:	All intentional co		nts are listed on the inventory, are certified.
IECS	С	:	All intentional co		nts are listed on the inventory, are certified.
NZIo	С	:	All intentional components are listed on the inventory, are exempt, or are supplier certified.		
CH II	٩V	:	All intentional components are listed on the inventory, are exempt, or are supplier certified.		
TECI		:	All intentional contract and the exempt, or are set of the exempt, or are set of the exempt.		nts are listed on the inventory, are certified.



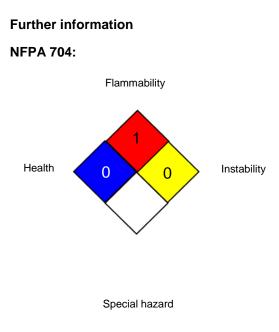
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TSCA list

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

AIIC - Australian Inventory of Industrial Chemicals; 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



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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; TECI - Thailand Existing Chemicals 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 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)SDS 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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