

Krytox[™] XHT-BDZ

Version 4.0	Revision Date: 04/02/2018	SDS Number: 1764127-00004		Date of last issue: 01/09/2018 Date of first issue: 06/22/2017		
SECTIO	ON 1. IDENTIFICATION					
Pro	oduct name	:	Krytox™ XHT-BD	Z		
Pro	oduct code	:	D12435183			
SD	S-Identcode	:	13000028488			
Ма	nufacturer or supplier's	deta	ils			
Co	mpany name of supplier	:	The Chemours C	ompany FC, LLC		
Ad	dress	:	1007 Market Stre Wilmington, DE 1	et 9899 United States of America (USA)		
Те	lephone	:	1-844-773-CHEN	(outside the U.S. 1-302-773-1000)		
En	nergency telephone	:		cy: 1-866-595-1473 (outside the U.S. 1-302- nsport emergency: +1-800-424-9300 (outside 527-3887)		
Re	commended use of the o	chem	ical and restriction	ons on use		
Re	commended use	:	Lubricant			
Re	strictions on use	:	tions involving im internal body fluid written agreemen	ell Chemours [™] materials in medical applica- plantation in the human body or contact with ls or tissues unless agreed to by Seller in a t covering such use. For further information, ur Chemours representative.		

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

Other hazards

The thermal decomposition vapors of fluorinated plastics may cause polymer fume fever with flulike symptoms in humans, especially when smoking contaminated tobacco.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
Boron Oxide	1303-86-2	>= 0.1 - < 1

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SECTION	4. FIRST AID MEASUR	ES						
lf inh	If inhaled		If inhaled, remove to fresh air. Get medical attention if symptoms occur.					
In cas	se of skin contact	:		er and soap as a precaution. ention if symptoms occur.				
In cas	se of eye contact	:		a water as a precaution. ention if irritation develops and persists.				
lf swa	allowed	:	Get medical att	O NOT induce vomiting. ention if symptoms occur. oroughly with water.				
	important symptoms effects, both acute and red	:	Irritation Shortness of br Skin contact ma Irritation Discomfort Itching Redness Swelling of tiss	ay provoke the following symptoms:				
Prote	Protection of first-aiders		No special precautions are necessary for first aid responders					
Notes	Notes to physician		Treat symptomatically and supportively.					
SECTION	5. FIRE-FIGHTING ME	ASI	JRES					
Suita	ble extinguishing media	:	Not applicable Will not burn					
Unsu media	itable extinguishing a	:	Not applicable Will not burn					
Spec fightir	ific hazards during fire ng	:	Exposure to co	mbustion products may be a hazard to health.				
Haza ucts	rdous combustion prod-	:	Hydrogen fluori carbonyl fluorid potentially toxic aerosolized par Carbon oxides Metal oxides Nitrogen oxides	e fluorinated compounds ticulates				
Spec ods	ific extinguishing meth-	:		ng measures that are appropriate to local cir- d the surrounding environment.				
			0/40					



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				o cool unopened containers. ged containers from fire area if it is safe to do
	ial protective equipment e-fighters	:	necessary.	ed breathing apparatus for firefighting if tective equipment.
SECTION	6. ACCIDENTAL RELE	AS	E MEASURES	
tive e	onal precautions, protec- quipment and emer- y procedures	:	Follow safe handl equipment recom	ing advice and personal protective mendations.
Envir	onmental precautions	:	Prevent further leadership	e environment must be avoided. akage or spillage if safe to do so. se of contaminated wash water. should be advised if significant spillages led.
	ods and materials for inment and cleaning up	:	For large spills, pu containment to ke can be pumped, s container. Clean up remainin absorbent. Local or national u disposal of this m employed in the c determine which u Sections 13 and 1	t absorbent material. rovide diking or other appropriate eep material from spreading. If diked material store recovered material in appropriate ng materials from spill with suitable regulations may apply to releases and aterial, as well as those materials and items leanup of releases. You will need to regulations are applicable. 15 of this SDS provide information regarding itional requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures	:	See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation	:	Use only with adequate ventilation.
Advice on safe handling	:	Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment Take care to prevent spills, waste and minimize release to the environment.
Conditions for safe storage	:	Keep in properly labeled containers. Store in accordance with the particular national regulations.
Materials to avoid	:	No special restrictions on storage with other products.



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age stability

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Furth	er information on stor-	: No decomposition	on if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type	Control parame-	Basis
		(Form of	ters / Permissible	
		exposure)	concentration	
Boron Oxide	1303-86-2	TWA	10 mg/m ³	ACGIH
		TWA	10 mg/m ³	NIOSH REL
		TWA (total	15 mg/m ³	OSHA Z-1
		dust)		

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parame- ters / Permissible concentration	Basis
Hydrofluoric acid	7664-39-3	TWA	3 ppm 2.5 mg/m ³	NIOSH REL
		С	6 ppm 5 mg/m³	NIOSH REL
		TWA	3 ppm	OSHA Z-2
		TWA	0.5 ppm (Fluorine)	ACGIH
		С	2 ppm (Fluorine)	ACGIH
Carbonyl difluoride	353-50-4	TWA	2 ppm	ACGIH
		STEL	5 ppm	ACGIH
		ST	5 ppm 15 mg/m³	NIOSH REL
		TWA	2 ppm 5 mg/m ³	NIOSH REL
Carbon dioxide	124-38-9	TWA	5,000 ppm	ACGIH
		STEL	30,000 ppm	ACGIH
		TWA	5,000 ppm 9,000 mg/m ³	OSHA Z-1
		TWA	5,000 ppm 9,000 mg/m ³	NIOSH REL
		ST	30,000 ppm 54,000 mg/m ³	NIOSH REL
Carbon monoxide	630-08-0	TWA	25 ppm	ACGIH
		TWA	35 ppm 40 mg/m³	NIOSH REL
		С	200 ppm 229 mg/m ³	NIOSH REL
		TWA	50 ppm 55 mg/m ³	OSHA Z-1



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Engi	ineering measures	:	10). Ensure adequate Minimize workpla Dust formation ma product. In additio limitations of cond workplaces have assessment. Rele Particulates Not O dust, 5 mg/m3 - re Particles (insolubl	orm hazardous compounds (see section ventilation, especially in confined areas. ce exposure concentrations. ay be relevant in the processing of this in to substance-specific OELs, general centrations of particulates in the air at to be considered in workplace risk evant limits include: OSHA PEL for Otherwise Regulated of 15 mg/m3 - total espirable fraction; and ACGIH TWA for e or poorly soluble) Not Otherwise /m3 - respirable particles, 10 mg/m3 - s.
Pers	onal protective equipm	ent		
Resp	piratory protection	:	maintain vapor ex concentrations ar unknown, approp Follow OSHA res use NIOSH/MSH/ by air purifying res hazardous chemic supplied respirator release, exposure	exhaust ventilation is recommended to posures below recommended limits. Where e above recommended limits or are riate respiratory protection should be worn. birator regulations (29 CFR 1910.134) and A approved respirators. Protection provided spirators against exposure to any cal is limited. Use a positive pressure air r if there is any potential for uncontrolled levels are unknown, or any other ere air purifying respirators may not provide on.
Hand	d protection			
R	emarks	:	Wash hands befo	re breaks and at the end of workday.
Eye	protection	:	Wear the following Safety glasses	g personal protective equipment:
Skin	and body protection	:	Skin should be wa	ashed after contact.
Hygi	ene measures	:	located close to the When using do not	ushing systems and safety showers are ne working place. ot eat, drink or smoke. ed clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Grease
Color	:	white
Odor	:	odorless
Odor Threshold	:	No data available



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ſ	pН		:	7	
-		point/freezing point	:	No data available)
I		oiling point and boiling	:	No data available	
I	Flash p	point	:	Not applicable	
I	Evapor	ation rate	:	Not applicable	
I	Flamma	ability (solid, gas)	:	Will not burn	
		explosion limit / Upper bility limit	:	No data available)
		explosion limit / Lower bility limit	:	No data available	
Ň	Vapor p	pressure	:	Not applicable	
I	Relative	e vapor density	:	Not applicable	
I	Relative	e density	:	1.9 (75 °F / 24 °C	S)
Ş	Solubili Wat	ty(ies) er solubility	:	insoluble	
	Partitio octanol	n coefficient: n- /water	:	Not applicable	
1	Autoigr	nition temperature	:	No data available)
I	Decom	position temperature	:	662 °F / 350 °C	
N	Viscosi Visc	ty :osity, kinematic	:	Not applicable	
I	Explosi	ve properties	:	Not explosive	
(Oxidizir	ng properties	:	The substance of	r mixture is not classified as oxidizing.
I	Particle	esize	:	No data available	

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reac- tions	:	Hazardous decomposition products will be formed at elevated temperatures.



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II Condit	ions to avoid	:	None known.	
Incompatible materials		:	None.	
Hazar	dous decomposition	prod	ucts	
Thermal decomposition		-	Hydrofluoric acic Carbonyl difluori Carbon dioxide Carbon monoxid	de

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Skin contact Ingestion Eye contact

Acute toxicity

Not classified based on available information.

Components:

Boron Oxide:

Acute oral toxicity	:	LD50 (Rat): > 2,600 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	:	LC50 (Rat): > 2.12 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Remarks: Based on data from similar materials
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg Remarks: Based on data from similar materials

Skin corrosion/irritation

Not classified based on available information.

Components:

Boron Oxide:

Species	:	Rabbit
Result	:	No skin irritation
Remarks	:	Based on data from similar materials

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Boron Oxide:

Species	:	Rabbit
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Metho	Result Method Remarks		 No eye irritation Draize Test Based on data from similar materials 				
Respir	atory or skin sensitiz	zatio	on				
	ensitization ssified based on avail	able	information.				
-	Respiratory sensitization Not classified based on availa		information.				
Comp	onents:						
Boron	Oxide:						
Test T Routes Specie Metho Result Remar	s of exposure s d		Buehler Test Skin contact Guinea pig OECD Test Guid negative Based on data fro	eline 406 om similar materials			
	cell mutagenicity Issified based on avail	able	information.				
Comp	onents:						
	Oxide: oxicity in vitro	:	malian cells Result: negative	o sister chromatid exchange assay in mam- on data from similar materials			

Genotoxicity in vivo	: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
	Species: Mouse
	Application Route: Ingestion
	Result: negative
	Remarks: Based on data from similar materials

Carcinogenicity

Not classified based on available information.

Components:

Boron Oxide:

Species	:	Mouse
Application Route	:	Ingestion
Exposure time	:	103 weeks
Result	:	negative
Species Application Route Exposure time Result Remarks	:	Based on data from similar materials

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



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OSH			this product prese regulated carcinog	nt at levels greater than or equal to 0.1% is lens.
NTP				t at levels greater than or equal to 0.1% is carcinogen by NTP.
-	roductive toxicity classified based on availa	able	information.	
-	l <u>uct:</u> oductive toxicity - As- ment	:	No toxicity to repr	oduction
	ponents: on Oxide:			
	ets on fertility	:	Species: Rat Application Route Result: positive	generation reproduction toxicity study Ingestion on data from similar materials
Effec	ts on fetal development	:	Species: Rat Application Route Method: OECD T Result: positive	
	oductive toxicity - As- ment	:	fertility, based on	adverse effects on sexual function and animal experiments., Clear evidence of n development, based on animal
STO	T-single exposure	ahla	information	
STO	T-repeated exposure classified based on availa			
Repe	eated dose toxicity			
<u>Com</u>	ponents:			
Boro	on Oxide:			

Species NOAEL Application Route Exposure time Remarks	:	Rat 100 mg/kg Ingestion 2 v
Exposure time Remarks		2 y Based on data from similar materials

Aspiration toxicity

Not classified based on available information.



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ersion .0	Revision Date: 04/02/2018	-	0S Number: 64127-00004	Date of last issue: 01/09/2018 Date of first issue: 06/22/2017
ECTION	12. ECOLOGICAL INFO	DRM	ATION	
Ecoto	oxicity			
<u>Comp</u>	onents:			
Boror	n Oxide:			
Toxici	ty to fish	:	LC50: 74 mg/l Exposure time: 9 Remarks: Based	6 h on data from similar materials
	ty to daphnia and other c invertebrates	:	Exposure time: 4	
Toxici	ty to algae	:	EC50 (Phaeodac Exposure time: 7 Remarks: Based	
			Exposure time: 7	ctylum): 27.9 mg/l 2 h on data from similar materials
Toxici icity)	ty to fish (Chronic tox-	:	Exposure time: 3	les promelas (fathead minnow)): 11.2 m 2 d on data from similar materials
	ty to daphnia and other c invertebrates (Chron- city)	:	Exposure time: 2 Method: OPPTS	
Toxici	ty to microorganisms	:		
	stence and degradabili ta available	ty		
Bioac	cumulative potential			
Comp	oonents:			
Boror	n Oxide:			
Bioaco	cumulation	:		factor (BCF): 1 - 22 on data from similar materials
	ity in soil ta available			
Other	adverse effects ta available			

Povicion Data:



Data of last issue: 01/00/2019

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Varcian

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SECTION 13. DISPOSAL CONSIDERATIONS								
Disposal methods								

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Waste from residues	:	Dispose of in accordance with local regulations.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

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

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

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	:	No SARA Hazards
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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 PFPE fluid Additive

Trade secret Trade secret



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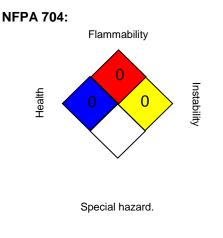
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California Prop. 65

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

SECTION 16. OTHER INFORMATION

Further information



HMIS® IV:

HEALTH	1	0
FLAMMABILITY		0
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

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For further information contact the local Chemours office or nominated distributors. All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

Full text of other abbreviations

ACGIH NIOSH REL OSHA Z-1		USA. ACGIH Threshold Limit Values (TLV) USA. NIOSH Recommended Exposure Limits USA. Occupational Exposure Limits (OSHA) - Table Z-1 Lim- its for Air Contaminants
OSHA Z-2	:	USA. Occupational Exposure Limits (OSHA) - Table Z-2
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
ACGIH / C	:	Ceiling limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
NIOSH REL / C	:	Ceiling value not be exceeded at any time.
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-2 / TWA	:	8-hour time weighted 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



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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

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/

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Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

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