

Krytox[™] GPL 220

Vers 5.0	sion	Revision Date: 11/06/2018		0S Number: 88595-00005	Date of last issue: 04/02/2018 Date of first issue: 06/26/2017			
SEC	TION 1	. IDENTIFICATION						
	Product name		:	Krytox™ GPL 220				
	Produc	t code	:	D12430342				
	SDS-Id	entcode	:	13000031507				
	Manufa	acturer or supplier's (deta	ails				
	Compa	ny name of supplier	:					
	Address		:	1007 Market Street Wilmington, DE 19899 United States of America (USA)				
	Telephone		:	1-844-773-CHEM (outside the U.S. 1-302-773-1000)				
	Emergency telephone		:	Medical emergency: 1-866-595-1473 (outside the U.S. 1-302-773-2000) ; Transport emergency: +1-800-424-9300 (outside the U.S. +1-703-527-3887)				
	Recom	mended use of the c	hen	nical and restriction	ons on use			
	Recommended use		:	Lubricant				
	Restric	tions on use	:	tions involving imp internal body fluid written agreemen	only. ell Chemours™ materials in medical applica- plantation in the human body or contact with s 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

Components

Chemical name	CAS-No.	Concentration (% w/w)
Sodium nitrite	7632-00-0	>= 1 - < 5



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Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASUF	SECTION 4. FIRST AID MEASURES						
If inhaled	:	If inhaled, remove to fresh air. Get medical attention if symptoms occur.					
In case of skin contact	:	Wash with water and soap as a precaution. Get medical attention if symptoms occur.					
In case of eye contact	:	Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.					
If swallowed	:	If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.					
Most important symptoms and effects, both acute and delayed	:	Inhalation may provoke the following symptoms: Irritation Lung edema Eye contact may provoke the following symptoms Blurred vision Discomfort Lachrymation Skin contact may provoke the following symptoms: Irritation Redness					
Protection of first-aiders	:	No special precautions are necessary for first aid responders.					
Notes to physician	:	Treat symptomatically and supportively.					

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Not applicable Will not burn
Unsuitable extinguishing media	:	Not applicable Will not burn
Specific hazards during fire fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion prod- ucts	:	Hydrogen fluoride carbonyl fluoride potentially toxic fluorinated compounds aerosolized particulates Carbon oxides Nitrogen oxides (NOx) Metal oxides
Specific extinguishing meth- ods	:	Use extinguishing measures that are appropriate to local cir- cumstances and the surrounding environment.



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			Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe so. Evacuate area.				
	sial protective equipment re-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.				
SECTION	I 6. ACCIDENTAL RELE	AS	E MEASURES				
tive e	Personal precautions, protec- tive equipment and emer- gency procedures Environmental precautions Methods and materials for containment and cleaning up		Follow safe handling advice and personal protective equipment recommendations.				
Envi			Prevent further le Retain and dispos	e environment must be avoided. akage or spillage if safe to do so. se of contaminated wash water. should be advised if significant spillages ned.			
			Soak up with inert absorbent material. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national 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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Furthe age st	er information on stor- ability	: No decomposition	on if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

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
		C	6 ppm 5 mg/m ³	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/m ³	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/m ³	NIOSH REL
		С	200 ppm 229 mg/m ³	NIOSH REL
		TWA	50 ppm 55 mg/m ³	OSHA Z-1

Engineering measures

Processing may form hazardous compounds (see section 10).

Ensure adequate ventilation, especially in confined areas. Minimize workplace exposure concentrations.

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Pers	onal protective equip	ment				
Res	Respiratory protection		General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.			
Hand	Hand protection					
F	lemarks	:	Wash hands befo	re breaks and at the end of workday.		
Eye	Eye protection Skin and body protection		Wear the following Safety glasses	g personal protective equipment:		
Skin			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
рН	:	7
Melting point/freezing point	:	608 °F / 320 °C
Initial boiling point and boiling range	:	No data available
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Will not burn



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	Lower explosion limit / Lower flammability limit Vapor pressure		:	No data available	
			:	Not applicable	
	Relative	e vapor density	:	Not applicable	
	Relative	e density	:	1.89 - 1.93	
	Solubili Wat	ty(ies) er solubility	:	insoluble	
	Partitio octanol	n coefficient: n- /water	:	Not applicable	
	Autoigr	nition temperature	:	No data available)
	Decom	position temperature	:	608 °F / 320 °C	
	Viscosi Visc	ty cosity, kinematic	:	Not applicable	
	Explosi	ve properties	:	Not explosive	
	Oxidizir	ng properties	:	The substance of	mixture is not classified as oxidizing.
	Particle	e size	:	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.
Conditions to avoid	:	None known.
Incompatible materials	:	None.

Hazardous decomposition products

Thermal decomposition	: Hydrofluoric acid
	Carbonyl difluoride
	Carbon dioxide
	Carbon monoxide



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SECTION	11. TOXICOLOGICAL	INF	ORMATION	
Skin o Inges	mation on likely routes contact tion contact	s of	exposure	
	e toxicity lassified based on avail	able	information.	
<u>Produ</u>	<u>uct:</u>			
Acute	oral toxicity	:	Assessment: The icity	substance or mixture has no acute oral tox-
Acute	inhalation toxicity	:	Acute toxicity est Exposure time: 4 Test atmosphere Method: Calculat	h : dust/mist
<u>Com</u>	oonents:			
Sodiu	um nitrite:			
Acute	oral toxicity	:	LD50 (Rat): 180 i	ng/kg
Acute	inhalation toxicity	:	LC50 (Rat): 5.5 n Exposure time: 4 Test atmosphere	ĥ
Skin	corrosion/irritation			
Not cl	lassified based on avail	able	information.	
Com	oonents:			
Sodiu	um nitrite:			
Speci Metho Resul	es od	::	Rabbit OECD Test Guid No skin irritation	eline 404
	us eye damage/eye in lassified based on avail			
Com	oonents:			
Sodiı	um nitrite:			
Speci		:	Rabbit	
Resul Metho	lt	:	Irritation to eyes, OECD Test Guid	reversing within 21 days eline 405
Resp	iratory or skin sensiti	zatio	on	
Skin	sensitization			
Not cl	lassified based on avail	able	information.	



Respiratory sensitization Not classified based on available information. Gern cell mutagenicity Not classified based on available information. Components: Sodium nitrite: Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES) Result: positive Genotoxicity in vitro :: Test Type: In vitro mammalian cell gene mutation test Result: positive Genotoxicity in vivo :: Test Type: Mammalian erythrocyte micronucleus test (i cytogenetic assay) Species: Mouse Application Route: Intraperitoneal injection Result: negative Test Type: Mammalian erythrocyte micronucleus test (i cytogenetic assay) Species: Rat Application Route: Intraperitoneal injection Result: negative Carcinogenicity Not classified based on available information. Components: Sodium nitrite: : : Species: Rat Application Route : Ingestion Exposure time : 2 Years Result : negative : IARC Group 2A: Probably carcinogenic to humans Sodium nitrite : negative : Marc Group 2A: Probably carcinogenic to humans Sodium nitrite : negative : MARC Group 2A: Probably carcinogenic to humans Sodium nitrite : regative : Marc Group 2A: Probably carcinogenic to humans Sodium nitrite : regative :	
Germ cell mutagenicity Not classified based on available information. Components: Sodium nitrite: Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES) Result: positive Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test Result: positive Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (i cytogenetic assay) Species: Mouse Application Route: Intraperitoneal injection Result: negative Test Type: Mammalian erythrocyte micronucleus test (i cytogenetic assay) Species: Rat Application Route: Intraperitoneal injection Result: negative Carcinogenicity Not classified based on available information. Components: Sodium nitrite: Species : Rat Application Route Application Route : Ingestion Exposure time Exposure time : 2 Years Result Result : negative IARC Group 2A: Probably carcinogenic to humans Sodium nitrite Sodium nitrite 7632-00-0 (nitrite (ingested) under conditions that result in endogenous nitrosation) OSHA No component of this product present at levels greater than or equal to 0. on OSHA's list of regulated carcinogens. NTP No ingredient of this product present at levels greater than	
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Not classified based on available information.	1% is
Components'	
Components:	
Sodium nitrite: Effects on fertility : Test Type: Two-generation reproduction toxicity study	



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			Species: Mouse Application Route Result: negative	: Ingestion
Effec	ets on fetal development	:	Test Type: Embry Species: Rat Application Route Result: negative	o-fetal development : Ingestion
	T-single exposure classified based on availa	ble	information.	
	T-repeated exposure classified based on availa	ble	information.	
Repe	eated dose toxicity			
Com	ponents:			
Sodi	um nitrite:			
Spec NOA		÷	Rat 10 mg/kg	
Appl	ication Route osure time	:	Ingestion 2 y	
-	ration toxicity	la la	information.	
	classified based on availa			
SECTION	I 12. ECOLOGICAL INFO	DRN	MATION	
Ecot	oxicity			
Com	ponents:			
Sodi	um nitrite:			
Τοχία	city to fish	:	LC50 (Oncorhync Exposure time: 96	hus mykiss (rainbow trout)): 0.54 mg/l S h
	city to daphnia and other tic invertebrates	:	EC50 (Daphnia m Exposure time: 48 Method: OECD Te	

Toxicity to algae :		EC50 (Scenedesmus capricornutum (fresh water algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
		NOEC (Scenedesmus capricornutum (fresh water algae)): 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to fish (Chronic tox- icity)	:	NOEC (Cyprinus carpio (Carp)): 21 mg/l Exposure time: 30 d



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			Method: OECD T	est Guideline 210
	y to daphnia and other invertebrates (Chron- ity)	:	NOEC (Penaeid S Exposure time: 80	Shrimp): 9.86 mg/l) d
Toxicit	y to microorganisms	:	EC50: 281 mg/l Exposure time: 4{	3 h
Persis	tence and degradabili	ity		
No dat	a available			
Bioaco	cumulative potential			
No dat	a available			
Mobili	ty in soil			
No dat	a available			
Other	adverse effects			
No dat	a available			

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

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

UN/ID/NA number Proper shipping name	:	UN 3077 Environmentally hazardous substance, solid, n.o.s. (Sodium nitrite)
Class	:	9
Packing group	:	
Labels	:	CLASS 9



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5.0		1788595-00005	Date of first issue: 06/26/2017
ERG (Marine Rema	e pollutant	SIZES WHERE	FORMATION ONLY APPLIES TO PACKAGE THE HAZARDOUS SUBSTANCE MEETS BLE QUANTITY.

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

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ	Calculated product RQ
		(lbs)	(lbs)
Sodium nitrite	7632-00-0	100	5050
Sodium hydroxide	1310-73-2	1000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

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

No SARA Hazards

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

	•					
SARA 313	:	5	The following components are subject to reporting levels established by SARA Title III, Section 313:			
		Sodium nitrite	7632-00-0	>= 1 - < 5 %		

US State Regulations

SARA 311/312 Hazards

Pennsylvania Right To Know

PFPE fluid Fluoropolymer Sodium nitrite Trade secret Trade secret 7632-00-0

California Prop. 65

WARNING: This product can expose you to chemicals including pentadecafluorooctanoic acid, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substa	ances	
Sodium nitrite		7632-00-0
Additional regulatory information		
Sodium nitrite	7632-00-0	



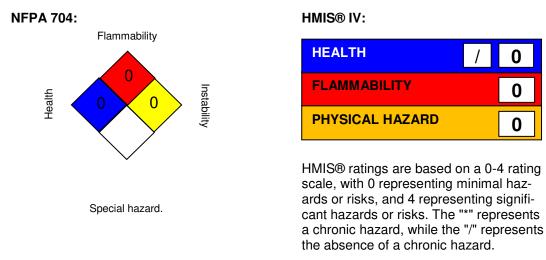
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The United States Environmental Protection Agency (USEPA) has established a Significant New Use Rule (SNUR) for one of the components in this product. See 40 CFR § 721.4740

SECTION 16. OTHER INFORMATION





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Chemours[™] and the Chemours Logo are trademarks of The Chemours Company. Before use read Chemours safety information.

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	:	
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 OSHA Z-1 / TWA OSHA Z-2 / TWA		Ceiling value not be exceeded at any time. 8-hour time weighted average 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,



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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

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 Agen- cy, http://echa.europa.eu/
Revision Date	:	11/06/2018

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

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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