

# SAFETY DATA SHEET

United States

Section 1. Identification Product name

## Ni Sepharose™ excel, 25 ml

Catalogue Number 17371201

Other means of identification Product type

Not available. Liquid.

Relevant identified uses of the substance or mixture and uses advised against

#### Identified uses

Laboratory chemicals Liquid chromatography. Scientific research and development

Industrial applications: Analytical chemistry. Liquid chromatography. Scientific research and development.

#### Supplier

Cytiva Amersham Place Little Chalfont Buckinghamshire HP7 9NA United Kingdom +44 0800 515 313 Cytiva USA 100 Results Way Marlborough, MA 01752 1-800-526-3593

In case of emergency

INFOTRAC - 24 Hour number: 1-800-535-5053 Outside of the United States, call 24 Hour number: 001-352-323-3500 (Call Collect)

## Section 2. Hazards identification

**OSHA/HCS** status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). FLAMMABLE LIQUIDS - Category 3 **Classification of the substance** SKIN SENSITIZATION - Category 1 or mixture CARCINOGENICITY - Category 2 **GHS** label elements Hazard pictograms Signal word Warning Hazard statements Flammable liquid and vapor. May cause an allergic skin reaction. Suspected of causing cancer. **Precautionary statements** Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves: 1 - 4 hours (breakthrough time): butyl rubber, neoprene. Wear protective clothing: Recommended: lab coat. Wear eye or face protection: Recommended: safety glasses with side-shields. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating or lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Keep container tightly closed. Avoid breathing vapor. Contaminated work clothing must not be allowed out of the workplace.

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Response	IF exposed or concerned: Get medical advice or attention. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention.
Storage	Store locked up. Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazards not otherwise classified	None known.
Section 3. Composition	/information on ingredients
Substance/mixture	Mixture
Other means of identification	Not available.

<u>CAS number/other ident</u> CAS number	tifiers Not applicable.		
Ingredient name		%	CAS number
ethanol nickel		14 - 19 <0.75	64-17-5 7440-02-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

## Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

#### **Description of necessary first aid measures**

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact	Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

### Most important symptoms/effects, acute and delayed

wost important symptoms/enect	s, acute and delayed
Potential acute health effects	
Eye contact	No known significant effects or critical hazards.
Inhalation	No known significant effects or critical hazards.
Skin contact	May cause an allergic skin reaction.
Ingestion	No known significant effects or critical hazards.
Over-exposure signs/symptom	<u>s</u>
Eye contact	No specific data.
Inhalation	No specific data.
Skin contact	Adverse symptoms may include the following: irritation redness
Ingestion	No specific data.
Indication of immediate medical	attention and special treatment needed, if necessary
Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
See toxicological information (Se	ection 11)

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## Section 5. Fire-fighting measures

## Extinguishing media

Suitable extinguishing media	Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
Unsuitable extinguishing media	Do not use water jet.
Specific hazards arising from the chemical	Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
Hazardous thermal decomposition products	Decomposition products may include the following materials: carbon dioxide carbon monoxide
Special protective actions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

## Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Methods and materials for conta	inment and cleaning up
Small spill	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion- proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion- proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal

## Section 7. Handling and storage

## Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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Conditions for safe storage, including any incompatibilities

Store between the following temperatures: 4 to 30°C (39.2 to 86°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

## Section 8. Exposure controls/personal protection

## **Control parameters**

Occupational exposure limits			
Ingredient name	Exposu	re limits	
ethanol		ACGIH TLV (United States, 1/2022). Notes: 1996 Adoption Refers to Appendix A Carcinogens. STEL: 1000 ppm 15 minutes. NIOSH REL (United States, 10/2020). Notes: TWA: 1900 mg/m³ 10 hours. NIOSH REL (United States, 10/2020). TWA: 1000 ppm 10 hours. OSHA PEL (United States, 5/2018). TWA: 1900 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 1900 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.	
nickel		ACGIH TLV (United States, 1/2022). Notes: Refers to Appendix A Carcinogens. Inhalable fraction. See Appendix C, paragraph A. Inhalable Particulate Mass TLVs (IPM-TLVs) for those materials that are hazardous when deposited anywhere in the respiratory tract. 1998 Adoption. TWA: 1.5 mg/m <sup>3</sup> 8 hours. Form: Inhalable fraction NIOSH REL (United States, 10/2020). [nickel metal and other compounds as Ni] Notes: as Ni TWA: 0.015 mg/m <sup>3</sup> , (as Ni) 10 hours. OSHA PEL (United States, 5/2018). [Nickel, metal and insoluble compounds (as Ni)] Notes: as Ni TWA: 1 mg/m <sup>3</sup> , (as Ni) 8 hours. OSHA PEL 1989 (United States, 3/1989). [Nickel, metal and insoluble compounds (as Ni)] Notes: as Ni TWA: 1 mg/m <sup>3</sup> , (as Ni) 8 hours.	
<b>Biological exposure indices</b>			
No exposure indices known.			
Appropriate engineering controls	engineering controls to keep worker exposu	ocess enclosures, local exhaust ventilation or other ire to airborne contaminants below any recommended or so need to keep gas, vapor or dust concentrations below roof ventilation equipment.	
Environmental exposure controls	Emissions from ventilation or work process with the requirements of environmental prot	equipment should be checked to ensure they comply tection legislation. In some cases, fume scrubbers, filters equipment will be necessary to reduce emissions to	
Individual protection measures			
Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.		
Eye/face protection	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: safety glasses with side-shields		
Skin protection			
Hand protection	times when handling chemical products if a Considering the parameters specified by the are still retaining their protective properties. glove material may be different for different	olying with an approved standard should be worn at all risk assessment indicates this is necessary. e glove manufacturer, check during use that the gloves It should be noted that the time to breakthrough for any glove manufacturers. In the case of mixtures, consisting f the gloves cannot be accurately estimated. 1 - 4 hours	

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**Respiratory protection** 

#### Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Recommended: lab coat

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: A respirator is not needed under normal and intended conditions of product use.

Personal protective equipment (Pictograms)



## Section 9. Physical and chemical properties

<u>Appearance</u>						
Physical state	Liquid.					
Color	Blue. Green.					
Odor	Alcohol-like. [Slight	t]				
Odor threshold	180 ppm					
pН	5.5 to 8.5 [Conc. (%	6 w/w): 100%	61			
Melting point/freezing point	Not available.	,	-1			
Boiling point, initial boiling	Not available.					
point, and boiling range						
Flash point	Closed cup: 38 to 4	13°C (100 4 t	o 109 4°F)			
-		10 0 (100.4 1	0 100.4 1 )			
Burning time	Not applicable.					
Burning rate	Not applicable.					
Evaporation rate	Not available.					
Flammability	Not available.					
Lower and upper explosive	Not available.					
(flammable) limits						
Vapor pressure	Not available.					
		Va	por Pressu	ire at 20°C	Vapor pres	sure at 50°C
	Ingredient name	mm Hg	kPa	Method	mm Hg kPa	Method
	ethanol	42.95	5.7			
	water	23.8	3.2			
	Agarose	0	0			
Relative vapor density	Not available.					
Relative density	Not available.					
Solubility(ies)						
	Media	F	Result			
	cold water	Ea	asily soluble	•		
	hot water		asily soluble			
Solubility in water	Not available.					
Miscible with water	Yes.					
Partition coefficient: n-octan	ol/ Not applicable.					
water						
Auto-ignition temperature	Not available.					
<b>.</b> .	Ingredient name		°C	°F	Method	
	ethanol		455	851	DIN 51794	
Decomposition temperature	Not available.					
SADT	Not available.					
Viscosity						
	Not available.					
•	Not available. Not available.					
Flow time (ISO 2431)						
•						



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## Section 10. Stability and reactivity

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatible materials	Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

## Information on toxicological effects

Acute toxicity Product/ingredient name ethanol	<b>Result</b> LC50 Inhala	ation Vapor		<b>Species</b> Rat	<b>Dose</b> 124700 mg/m³	<b>Exposure</b> 4 hours
Irritation/Corrosion Not available.						
<u>Sensitization</u> Not available.						
<u>Mutagenicity</u> Not available.						
Carcinogenicity Not available.						
Classification Product/ingredient name Nickel	OSHA -	<b>IARC</b> 2B	<b>NTP</b> Reasonably	anticipated to be	a human carcinogen.	
Reproductive toxicity Not available.						
<u>Teratogenicity</u> Not available.						
<u>Specific target organ toxicity (si</u> Not available.	ingle exposu	<u>re)</u>				
Specific target organ toxicity (re	neated expo	suro)				
Name		<u>suiej</u>	Cate	gory	Route of exposure	Target organs
Nickel				egory 1	-	-
Aspiration hazard Not available.						
Information on the likely routes of exposure	Routes of en	try anticipate	ed: Oral, Derma	al, Inhalation, Ey	es.	
Potential acute health effects						
Eye contact	No known sid	nificant effe	cts or critical h	azards.		
Inhalation	No known significant effects or critical hazards. No known significant effects or critical hazards.					
Skin contact	May cause an allergic skin reaction.					
Ingestion	No known significant effects or critical hazards.					
Symptoms related to the physical	l, chemical ar	nd toxicolog	ical characte	<u>ristics</u>		
Eye contact	No specific d	ata.				
Inhalation	No specific d	ata.				
Skin contact	Adverse sym irritation redness	ptoms may i	nclude the follo	owing:		
Ingestion	No specific d	ata.				
Delayed and immediate offects or						
Delayed and immediate effects ar	nd also chron	<u>ic effects fr</u>	<u>om short and</u>	long term expo	sure	

Short term exposure

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Ni Sepharose™ excel, 25 ml Potential immediate effects	Not available.					1737120	
Potential delayed effects	Not available.						
Long term exposure	Not available.						
Potential immediate effects	Not available.						
Potential delayed effects	Not available.						
Potential chronic health effects							
Not available.							
General Carcinogenicity Mutagenicity	Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low level: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure. No known significant effects or critical hazards.						
Reproductive toxicity	No known significan	t effects or critical haz	zards.				
Numerical measures of toxicity							
Acute toxicity estimates							
Product/ingredient name		Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/ I)	
ethanol		7000	N/A	N/A	124.7	N/A	
Other information		nclude the following: may include the follow					
Section 12. Ecological in	formation			-			
Toxicity							
Product/ingredient name	Result		Spec	ies		Exposure	
ethanol	Acute EC50 3306 m			e - Ulva pertusa		96 hours	
	Acute EC50 1074 mg/l Fresh water Acute EC50 9.3 mg/l Fresh water			aceans - Cypris s inia - Daphnia ma		48 hours 48 hours	
		00 µg/l Marine water	•	- Alburnus alburn	•	46 hours 96 hours	
		5 mg/l Marine water		e - Ulva pertusa		96 hours	
	Chronic NOEC 100	ul/L Fresh water		nia - <i>Daphnia ma</i>		21 days	
Nickel	Acute EC50 2 ppm			e - Macrocystis py		4 days	
	Acute EC50 450 µg			tic plants - Lemna		4 days	
				nia - <i>Daphnia ma</i> aceans - Cerioda		48 hours 48 hours	
	Acute LC30 54.0 µg/i Fresh water			Juvenile (Fledgling, Hatchling,			
		. <b>F</b> actor <b>1</b>	Wear			001	
	Acute LC50 1.3 ppn		Fish - <i>Cyprinus carpio</i> - Juvenile (Fledgling, Hatchling, Weanling)		96 hours		
						72 hours	
Persistence and degradability							
Product/ingredient name	Test	Result		Dose	Inoc	ulum	
ethanol	-	100 % - Readily - 2	0 days	-	-		
Product/ingredient name	Aquatic half-life	Phot	olysis		Biodegradabi	lity	
ethanol	-	-			Readily		
Bioaccumulative potential							
Product/ingredient name	LogPow	BCF			Potential		
ethanol	-0.35	0.66			Low		
Nickel	-	16			Low		
Mobility in soil Soil/water partition coefficient (K <sub>oc</sub> )	Not available.						
Other adverse effects	No known significan	t effects or critical haz	ards.				
	nsiderations						

## Section 13. Disposal considerations

**Disposal methods** 

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the

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Ni Sepharose™ excel, 25 ml				17371201
	internally. Avoid dispers sewers.	veld or grind used contain sal of spilled material and		en cleaned thoroughly soil, waterways, drains and
Waste stream	Code: D001 Classification: Ignitabilit	у		
Section 14. Transport i	nformation			
Product is not regulated as d	langerous goods for trans	port.		
Section 15. Regulatory	information			
U.S. Federal regulations	TSCA 8(a) CDR Exemp Clean Water Act (CWA	ot/Partial exemption: Not ) 307: Nickel	determined	
Clean Air Act Section 112(b) H (HAPs)	lazardous Air Pollutants	Listed		
Clean Air Act Section 602 Clas		Not listed		
Clean Air Act Section 602 Clas DEA List I Chemicals (Precurs		Not listed Not listed		
DEA List I Chemicals (Frecurs	•	Not listed		
SARA 302/304	,			
Composition/information on	ingredients			
No products were found.	-			
SARA 304 RQ	Not applicable.			
SARA 311/312				
Classification	FLAMMABLE LIQUIDS SKIN SENSITIZATION CARCINOGENICITY - (	- Category 1		
Composition/information on	ingredients			
Name	%	Classification		
ethanol nickel	14 - 19 <0.75	FLAMMABLE LIQUIDS SKIN SENSITIZATION CARCINOGENICITY - SPECIFIC TARGET OI Category 1	- Category 1	ATED EXPOSURE) -
<u>SARA 313</u>				
	Product name		CAS number	%
Form R - Reporting requirements	Nickel		7440-02-0 7440-02-0	<0.75
Supplier notification				
SARA 313 notifications must n redistribution of the notice attac				hall include copying and
State regulations				
Massachusetts	• .	nts are listed: ETHYL ALC	COHOL	
New York New Jersey	None of the component	s are listed. nts are listed: ETHYL ALC		
Pennsylvania California Prop. 65	• •	nts are listed: ETHANOL		
	can expose you to Nickel, wl 5Warnings.ca.gov.	hich is known to the State	of California to cause ca	ncer. For more
Ingredient name			No significant risk level	Maximum acceptable dosage level
Nickel			-	-
International regulations				
Chemical Weapon Convention	on List Schedules I, II & III (	<u>Chemicals</u>		
Not listed.				
Montreal Protocol				
Not listed.				
Stockholm Convention on Pe	ersistent Organic Pollutant	ts		
Not listed.	organic Fonutani	<u></u>		



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Rotterdam Convention on Prior	r Informed Consent (PIC)				
Not listed.					
UNECE Aarhus Protocol on PO	Ps and Heavy Metals				
Not listed.					
Inventory list					
United States	Not determined.				
Canada inventory	All components are listed or ex	empted.			
	•				
Section 16. Other inform					
National Fire Protection Associat	<u>tion (U.S.A.)</u>				
	3 Flamma	bility			
	Health 2 0 Insta	bility/Reactivity			
	Special	hazards			
Procedure used to derive the cla	<u>ssification</u>				
	fication	Justification			
FLAMMABLE LIQUIDS - Categor SKIN SENSITIZATION - Categor CARCINOGENICITY - Category	y 1	On basis of test data Calculation method Calculation method			
History					
Date of printing	9/28/2023				
Date of issue/Date of revision	9/28/2023				
Date of previous issue	3/30/2022				
Version	5				
	sds_author@cytiva.com				
Key to abbreviations	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor				
	GHS = Globally Harmonized System of Classification and Labelling of Chemicals				
	IATA = International Air Transport Association				
	IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)				
References	Not available.				
Indicates informa	ation that has changed from previ	ously issued version.			

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

