according to the Globally Harmonized System



# Fenbendazole (20%) Type A Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 04.04.2023
3.1	30.09.2023	7634170-00009	Date of first issue: 02.12.2020

### **1. PRODUCT AND COMPANY IDENTIFICATION**

Product name		Fenbendazole (20%) Type A Formulation
Manufacturer or supplier's de Company	eta	ils MSD
Company	·	
Address	:	Briahnager - Off Pune Nagar Road Wagholi - Pune - India 412 207
Telephone	:	+1-908-740-4000
Emergency telephone number	:	+1-908-423-6000
E-mail address	:	EHSDATASTEWARD@msd.com
Recommended use of the ch	em	ical and restrictions on use
Recommended use Restrictions on use	:	Veterinary product Not applicable

### 2. HAZARDS IDENTIFICATION

### Manufacture, Storage and Import of Hazardous Chemicals Rules 1989

#### Classification

Not classified as hazardous according to criteria laid down in Part I of Schedule-1.

GHS Classification Reproductive toxicity	:	Category 2
Specific target organ toxicity - repeated exposure (Oral)	:	Category 2 (Liver, Stomach, Nervous system, Lymph nodes)
Short-term (acute) aquatic hazard	:	Category 1
Long-term (chronic) aquatic hazard	:	Category 1
GHS label elements		
Hazard pictograms	:	
Signal word	:	Warning
Hazard statements	:	H361fd Suspected of damaging fertility. Suspected of damag-

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Precautionary statements		system, Lympl sure if swallow H410 Very tox Prevention: P203 Obtain, r P260 Do not b P273 Avoid re	se damage to organs (Liver, Stomach, Nervous n nodes) through prolonged or repeated expo- ved. ic to aquatic life with long lasting effects. read and follow all safety instructions before use. reathe dust. lease to the environment. otective gloves/ protective clothing/ eye protec-
		<b>Response:</b> P318 IF expos P391 Collect s	ed or concerned, get medical advice. pillage.
		<b>Storage:</b> P405 Store loc	sked up.
		<b>Disposal:</b> P501 Dispose disposal plant.	of contents/ container to an approved waste

### Other hazards which do not result in classification

Dust contact with the eyes can lead to mechanical irritation. Contact with dust can cause mechanical irritation or drying of the skin. May form explosive dust-air mixture during processing, handling or other means.

#### **3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

Chemical name	CAS-No.	Concentration (% w/w)
fenbendazole	43210-67-9	>= 20 - < 25
White mineral oil (petroleum)	8042-47-5	>= 1 - < 5

#### 4. FIRST AID MEASURES

General advice	<ul> <li>In the case of accident or if you feel unwell, seek medical ac vice immediately.</li> <li>When symptoms persist or in all cases of doubt seek medica advice.</li> </ul>	
If inhaled	: If inhaled, remove to fresh air. Get medical attention.	
In case of skin contact	<ul> <li>In case of contact, immediately flush skin with soap and pler of water.</li> <li>Remove contaminated clothing and shoes.</li> <li>Get medical attention.</li> <li>Wash clothing before reuse.</li> <li>Thoroughly clean shoes before reuse.</li> </ul>	nty

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	case of eye contact swallowed	: If swallowed, DC Get medical atte	ntion if irritation develops and persists. NOT induce vomiting. ntion.
ar	ost important symptoms ad effects, both acute and elayed	: Suspected of dar unborn child. May cause dama exposure if swall Contact with dus the skin.	t can cause mechanical irritation or drying of
	otection of first-aiders	: First Aid respond and use the reco when the potenti	the eyes can lead to mechanical irritation. Hers should pay attention to self-protection, mmended personal protective equipment al for exposure exists (see section 8).
	otes to physician	. Treat symptoma	ically and supportively.
Sı	uitable extinguishing media	: Water spray Alcohol-resistant Carbon dioxide ( Dry chemical	
	nsuitable extinguishing	: None known.	
Sp	edia becific hazards during fire- hting	<ul> <li>Avoid generating dust; fine dust dispersed in air in sufficience of an ignition sour potential dust explosion hazard.</li> <li>Exposure to combustion products may be a hazard to</li> </ul>	
Ha uc	azardous combustion prod- ts	: Carbon oxides Nitrogen oxides Sulphur oxides Silicon oxides Metal oxides	(NOx)
Sr oc	becific extinguishing meth- ls	cumstances and Use water spray	g measures that are appropriate to local cir- the surrounding environment. to cool unopened containers. aged containers from fire area if it is safe to do
	pecial protective equipment r firefighters	: In the event of fir	e, wear self-contained breathing apparatus. Ditective equipment.
6. ACC	DENTAL RELEASE MEAS	URES	
	ersonal precautions, protec- e equipment and emer-		otective equipment. Iling advice (see section 7) and personal pro-

gency procedures		tective equipment recommendations (see section 7) and personal pro-
Environmental precautions	:	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages

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Methods and materials for containment and cleaning up		tainer for dis Avoid disper with compres Dust deposit es, as these leased into the Local or nation posal of this employed in mine which r Sections 13	vacuum up spillage and collect in suitable con- posal. sal of dust in the air (i.e., clearing dust surfaces
7. HAND	LING AND STORAGE		
Technical measures Local/Total ventilation Advice on safe handling		causing an e Provide aded and bonding Use only with Do not breat Do not swalk Avoid contac Avoid prolon Handle in ac practice, bas sessment Minimize dus Keep contair Keep away f Take precau	a value precautions, such as electrical grounding or inert atmospheres. In adequate ventilation. The dust. Sow. Set with eyes. ged or repeated contact with skin. Cordance with good industrial hygiene and safety ed on the results of the workplace exposure as- st generation and accumulation. Ther closed when not in use. Ther closed when not in use.
Conditions for safe storage Materials to avoid		: Keep in prop Store locked Store in acco	erly labelled containers. up. ordance with the particular national regulations. with the following product types:

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value type	Control parame-	Basis
		(Form of	ters / Permissible	
		exposure)	concentration	
fenbendazole	43210-67-9	TWA	100 µg/m3 (OEB	Internal
			2)	
White mineral oil (petroleum)	8042-47-5	TWA (Mist)	5 mg/m3	IN OEL
		STEL (Mist)	10 mg/m3	IN OEL

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/ersion 5.1	Revision Date: 30.09.2023	SDS Number:Date of last issue: 04.04.20237634170-00009Date of first issue: 02.12.2020
		TWA (Inhal- 5 mg/m3 ACGIH able particu- late matter)
Engin	eering measures	<ul> <li>Use feasible engineering controls to minimize exposure to compound.</li> <li>All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.</li> </ul>
Perso	nal protective equip	ment
Filt Hand	ratory protection er type protection terial	<ul> <li>If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.</li> <li>Combined particulates and organic vapour type</li> <li>Chemical-resistant gloves</li> </ul>
Eye pr	rotection	<ul> <li>Wear safety glasses with side shields or goggles.</li> <li>If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.</li> <li>Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.</li> </ul>
Skin a	nd body protection	: Work uniform or laboratory coat.
Hygier	ne measures	<ul> <li>If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.</li> <li>When using do not eat, drink or smoke.</li> <li>Wash contaminated clothing before re-use.</li> <li>The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.</li> </ul>
. PHYSIC	AL AND CHEMICAL	PROPERTIES
Appea	Irance	: powder

Colour	:	tan
		to
		light brown
Odour	:	characteristic
Odour Threshold	:	No data available
рН	:	No data available
Melting point/freezing point	:	No data available

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	nitial boili ange	ng point and boiling	:	No data available	
F	-lash poir	nt	:	Not applicable	
E	Evaporatio	on rate	:	Not applicable	
F	lammabi	lity (solid, gas)	:	May form explosi dling or other me	ve dust-air mixture during processing, han- ans.
F	lammabi	lity (liquids)	:	Not applicable	
	Jpper exp Iammabili	olosion limit / Upper ity limit	:	No data available	)
	ower exp Iammabili	blosion limit / Lower ity limit	:	No data available	)
V	/apour pr	essure	:	Not applicable	
F	Relative v	apour density	:	Not applicable	
F	Relative d	ensity	:	No data available	)
C	Density		:	No data available	)
S	Solubility( Water	ies) solubility	:	No data available	)
	Partition c	oefficient: n-	:	Not applicable	
		on temperature	:	No data available	)
C	Decompo	sition temperature	:	No data available	)
V	/iscosity Viscos	ity, kinematic	:	Not applicable	
E	Explosive	properties	:	Not explosive	
C	Dxidizing	properties	:	The substance or	r mixture is not classified as oxidizing.
Ν	Molecular	weight	:	No data available	)
F	Particle si	ze	:	No data available	)

### **10. STABILITY AND REACTIVITY**

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reac-	:	May form explosive dust-air mixture during processing, han-

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tions	S		dling or other i Can react with	means. strong oxidizing agents.	
Con	ditions to avoid	:	Heat, flames a		
Haz	ompatible materials ardous decomposition ducts	:	Avoid dust for Oxidizing ager No hazardous		
1. TOX			1		
	rmation on likely routes o osure	of :	Inhalation Skin contact Ingestion Eye contact		
	Ite toxicity classified based on avai	lable	information.		
<u>Con</u>	nponents:				
	<b>bendazole:</b> te oral toxicity	:	LD50 (Rat): > 1	0,000 mg/kg	
			LD50 (Mouse):	> 10,000 mg/kg	
Whi	ite mineral oil (petroleu	ım):			
Acu	te oral toxicity	:	LD50 (Rat): > 5	5,000 mg/kg	
Acu	te inhalation toxicity	:	LC50 (Rat): > 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhala tion toxicity		
Acu	te dermal toxicity	:	LD50 (Rabbit): Assessment: T toxicity	> 2,000 mg/kg he substance or mixture has no acute dermal	
_	n corrosion/irritation classified based on avai	lable	information.		
<u>Con</u>	nponents:				
fent	pendazole:				
Spe Res	cies ult	:	Rabbit No skin irritation		
Whi	ite mineral oil (petroleu	ım):			
Spe Res	cies ult	:	Rabbit No skin irritatio	n	

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#### Serious eye damage/eye irritation

Not classified based on available information.

#### **Components:**

#### fenbendazole:

Species	:	Rabbit
Result	:	No eye irritation

#### White mineral oil (petroleum):

Species	:	Rabbit
Result	:	No eye irritation

#### Respiratory or skin sensitisation

#### Skin sensitisation

Not classified based on available information.

#### **Respiratory sensitisation**

Not classified based on available information.

#### **Components:**

#### White mineral oil (petroleum):

Test Type	:	<b>Buehler</b> Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Result	:	negative

#### Germ cell mutagenicity

Not classified based on available information.

#### **Components:**

#### fenbendazole:

Genotoxicity in vitro :	Test Type: Bacterial reverse mutation assay (AMES) Result: negative
	Test Type: DNA Repair Result: negative
	Test Type: Chromosomal aberration Result: negative
	Test Type: in vitro assay Test system: mouse lymphoma cells Metabolic activation: Metabolic activation Result: equivocal
White mineral oil (petroleum):	Test Type: In vitro mammalian cell gene mutation test

Genotoxicity in vitro	:	Test Type: In vitro mammalian cell gene mutation test
		Result: negative

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Ge	notoxicity in vivo	cytoge Specie Applic Metho Result	enetic assay es: Mouse ation Route d: OECD To :: negative	nalian erythrocyte micronucleus test (in vivo /) : Intraperitoneal injection est Guideline 474 on data from similar materials
	<b>rcinogenicity</b> t classified based on avai	lable informa	ition	
	mponents:			
	bendazole:			
Sp Ap Ex NC	ecies plication Route posure time DAEL sult	: Mouse : oral (fe : 2 Year : 405 m : negati	eed) rs g/kg body v	veight
Ap Ex NC Re	ecies plication Route posure time DAEL sult rget Organs	: negati	kg body wei	-
Wł	nite mineral oil (petroleu	ım):		
Sp Ap Ex	ecies plication Route posure time sult	: Rat : Ingest : 24 Mo : negati	nths	
	productive toxicity spected of damaging fert	lity. Suspecte	ed of dama	ging the unborn child.
<u>Co</u>	mponents:			
-	<b>bendazole:</b> ects on fertility	Specie Applic Gener Fertilit	es: Rat ation Route al Toxicity - y: LOAEL: 4	generation reproduction toxicity study : oral (feed) Parent: NOAEL: 15 mg/kg body weight 45 mg/kg body weight
Eff me	ects on foetal develop- ent	: Test T Specie Applic Develo Result	: Embryoto	opment nale

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rsion I	Revision Date: 30.09.2023	SDS Numbe 7634170-00	
		Species Applicati Develop	be: Embryo-foetal development Rabbit on Route: Oral mental Toxicity: NOAEL: 25 mg/kg body weight Fetotoxicity
		Species Applicati	e: Embryo-foetal development Rabbit on Route: Oral mental Toxicity: LOAEL: 63 mg/kg body weight
		Test Typ Species Applicati Develop	e: Embryo-foetal development
Repro sessn	oductive toxicity - As- nent	fertility, t	vidence of adverse effects on sexual function and based on animal experiments., Some evidence of effects on development, based on animal experi-
White	e mineral oil (petroleu	ım):	
Effect	s on fertility	Species	on Route: Skin contact
Effect ment	s on foetal develop-	Species	on Route: Ingestion
	- single exposure lassified based on avai	lable information	on.
May o	- repeated exposure cause damage to organ d or repeated exposure	ns (Liver, Stom	ach, Nervous system, Lymph nodes) through pro-
Com	oonents:		
Expos Targe	endazole: sure routes et Organs ssment		omach, Nervous system, Lymph nodes se damage to organs through prolonged or repea
Repe	ated dose toxicity		
Comr	oonents:		

### Components:

fenbendazole:

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L A E	Species OAEL Applicat Exposul Farget (	ion Route re time	:	Rat 500 mg/kg Oral 2 Weeks Kidney, Liver	
N A E	Species NOAEL Applicat Exposut Remark	ion Route re time	:	Rat > 2,500 mg/kg Oral 30 Days No significant adv	erse effects were reported
L A E T	Exposu	ion Route re time Drgans	· · · ·	Rat 1,600 mg/kg Oral 90 Days Central nervous s Tremors	ystem
N L E	Species NOAEL OAEL Exposul Target (	re time		Dog 4 mg/kg 8 mg/kg 6 Months Stomach, Nervous	s system, Lymph nodes
S L A	Species OAEL	ion Route	ו <b>):</b> : : :	Rat 160 mg/kg Ingestion 90 Days	
L A E	Species OAEL Applicat Exposur Aethod	ion Route		Rat >= 1 mg/l inhalation (dust/m 4 Weeks OECD Test Guide	
	-	ion toxicity sified based on availa	ble	information.	
<u>c</u>	Compo	nents:			
		dazole:	oti -	<u>_</u>	
r	vo aspi	ration toxicity classifica	atio	n	
E	Experie	ence with human exp	osı	ire	
<u>c</u>	Compo	nents:			
f	enben	dazole:			
li	ngestio	n	:	Symptoms: Rapid	respiration, Salivation, anorexia, Diarrhoea

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#### 12. ECOLOGICAL INFORMATION

### Ecotoxicity

### Components:

fenbendazole:	
Toxicity to fish :	LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.009 mg/l Exposure time: 21 d
Toxicity to daphnia and other : aquatic invertebrates	EC50 (Daphnia magna (Water flea)): 0.0088 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
M-Factor (Acute aquatic tox- : icity)	100
Toxicity to daphnia and other : aquatic invertebrates (Chron- ic toxicity)	NOEC: 0.00113 mg/l Exposure time: 21 Days Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211
M-Factor (Chronic aquatic : toxicity)	10
White mineral oil (petroleum):	
Toxicity to fish :	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other : aquatic invertebrates	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic : plants	NOEC ( Pseudokirchneriella subcapitata (green algae)): 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to fish (Chronic tox- : icity)	NOEC: 1,000 mg/l Exposure time: 28 d Species: Oncorhynchus mykiss (rainbow trout)
Toxicity to daphnia and other : aquatic invertebrates (Chron- ic toxicity)	NOEC: 1,000 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)
Persistence and degradability	
Components:	
White mineral oil (petroleum): Biodegradability :	Result: Not readily biodegradable.

Packing instruction (cargo

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			04.07		
		Biodegradatior Exposure time			
Bioa	ccumulative potential				
Com	ponents:				
fenbe	endazole:				
	ion coefficient: n-	: log Pow: 3.32			
	ol/water	. 109 1 011 0.02			
Mobi	lity in soil				
Com	ponents:				
fenbe	endazole:				
	bution among environ-	: log Koc: 3.8 - 4	l.7		
	al compartments	Method: FDA 3			
Othe	r adverse effects				
No da	ata available				
-	osal methods e from residues		of waste into sewer.		
Conta	aminated packaging	: Empty contained dling site for re	Dispose of in accordance with local regulations. Empty containers should be taken to an approved waste har dling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.		
4. TRAN	SPORT INFORMATIO	N			
Interi	national Regulations				
UNR	TDG				
	umber	: UN 3077			
Prope	er shipping name	N.O.S.	ITALLY HAZARDOUS SUBSTANCE, SOLID,		
Class	5	(fenbendazole : 9	7		
	ng group	: 111			
Label	S	: 9			
Envir	onmentally hazardous	: yes			
	-DGR				
UN/IE		: UN 3077			
	er shipping name	(fenbendazole	y hazardous substance, solid, n.o.s.		
Class		: 9			
	ng group	: III : Miscellaneous			
Label	S	: Miscellaneous			

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ger a	aft) king instruction (passen- aircraft) ronmentally hazardous		956 yes	
<b>IMDG-Code</b> UN number Proper shipping name		: E 1	UN 3077 ENVIRONMENTA N.O.S. (fenbendazole)	ALLY HAZARDOUS SUBSTANCE, SOLID,
Labe EmS	king group	: 9 : 1 : 9 : 9	9 III 9 F-A, S-F yes	

#### Transport in bulk according to IMO instruments

Not applicable for product as supplied.

#### 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.

#### **15. REGULATORY INFORMATION**

Safety, health and environmental regulations/legislation specific for the substance or mixture

#### The components of this product are reported in the following inventories:

AICS	:	not determined
DSL	:	not determined
IECSC	:	not determined

#### **16. OTHER INFORMATION**

Revision Date	:	30.09.2023
Further information		
Sources of key data used to compile the Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/
Date format	:	dd.mm.yyyy
Full text of other abbreviation	ons	
ACGIH IN OEL	:	USA. ACGIH Threshold Limit Values (TLV) India. Permissible levels of certain chemical substances in work environment.

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ACGIH / TWA	:	8-hour, time-weighted average
IN OEL / TWA	:	Time-Weighted Average Concentration (TWA) (8 hrs.)
IN OEL / STEL	:	Short-term exposure Limit STEL (15 min)

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR -Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; n.o.s. - Not Otherwise Specified: Nch - Chilean Norm: NO(A)EC - No Observed (Adverse) Effect Concentration: NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

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.

IN / EN