

# SAFETY DATA SHEET



## Abamectin Liquid Formulation

Version  
5.1

Revision Date:  
2023/09/30

SDS Number:  
1219555-00020

Date of last issue: 2023/04/04  
Date of first issue: 2017/01/18

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### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Abamectin Liquid Formulation

#### Manufacturer or supplier's details

Company : MSD

Address : 126 E. Lincoln Avenue  
Rahway, New Jersey U.S.A. 07065

Telephone : +1-908-740-4000

Emergency telephone number : +1-908-423-6000

E-mail address : EHSDATASTEWARD@msd.com

#### Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product

Restrictions on use : Not applicable

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### 2. HAZARDS IDENTIFICATION

#### GHS Classification

Acute toxicity (Inhalation) : Category 4

Specific target organ toxicity - repeated exposure : Category 2 (Central nervous system)

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

#### GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H332 Harmful if inhaled.  
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure.  
H410 Very toxic to aquatic life with long lasting effects.

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### Precautionary statements

#### **Prevention:**

P260 Do not breathe mist or vapours.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.

#### **Response:**

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.  
P314 Get medical advice/ attention if you feel unwell.  
P391 Collect spillage.

#### **Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

### Other hazards which do not result in classification

None known.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

### Components

Chemical name	CAS-No.	Concentration (% w/w)
abamectin (combination of avermectin B1a and avermectin B1b) (ISO)	71751-41-2	>= 1 -< 2.5

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## 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.

When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air.

If not breathing, give artificial respiration.

If breathing is difficult, give oxygen.

Get medical attention.

In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.

Remove contaminated clothing and shoes.

Get medical attention.

Wash clothing before reuse.

Thoroughly clean shoes before reuse.

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.

Rinse mouth thoroughly with water.

Most important symptoms : Harmful if inhaled.

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and effects, both acute and delayed	May cause damage to organs through prolonged or repeated exposure.
Protection of first-aiders	: First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
Notes to physician	: Treat symptomatically and supportively.

## 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Water spray Alcohol-resistant foam Carbon dioxide (CO <sub>2</sub> ) Dry chemical
Unsuitable extinguishing media	: None known.
Specific hazards during fire-fighting	: Exposure to combustion products may be a hazard to health.
Hazardous combustion products	: Carbon oxides
Specific extinguishing methods	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.
Special protective equipment for firefighters	: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
Environmental precautions	: Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	: Soak up with inert absorbent material. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked 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.

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Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

## 7. HANDLING AND STORAGE

Technical measures	: See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation	: If sufficient ventilation is unavailable, use with local exhaust ventilation.
Advice on safe handling	: Do not breathe mist or vapours. Do not swallow. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Wash skin thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment Keep container tightly closed. Do not eat, drink or smoke when using this product. Take care to prevent spills, waste and minimize release to the environment.
Conditions for safe storage	: Keep in properly labelled containers. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations.
Materials to avoid	: Do not store with the following product types: Strong oxidizing agents

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parame- ters / Permissible concentration	Basis
abamectin (combination of avermectin B1a and avermectin B1b) (ISO)	71751-41-2	TWA	15 µg/m <sup>3</sup> (OEB 3)	Internal
		Wipe limit	150 µg/100 cm <sup>2</sup>	Internal

### Engineering measures

: Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).  
All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.  
Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).

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Minimize open handling.

### Personal protective equipment

Respiratory protection	: If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Filter type	: Combined particulates and organic vapour type
Hand protection	
Material	: Chemical-resistant gloves
Remarks	: Consider double gloving.
Eye protection	: Wear safety glasses with side shields or goggles. If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles. Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.
Skin and body protection	: Work uniform or laboratory coat. Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces. Use appropriate degowning techniques to remove potentially contaminated clothing.
Hygiene measures	: If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use. 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.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: light yellow
Odour	: characteristic
Odour Threshold	: No data available
pH	: No data available
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: No data available

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Flash point	: No data available
Evaporation rate	: No data available
Flammability (solid, gas)	: Not applicable
Flammability (liquids)	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Vapour pressure	: No data available
Relative vapour density	: No data available
Relative density	: No data available
Density	: 0.90 - 0.94 g/cm <sup>3</sup>
Solubility(ies)	
Water solubility	: insoluble
Partition coefficient: n-octanol/water	: Not applicable
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	
Viscosity, kinematic	: No data available
Explosive properties	: Not explosive
Oxidizing properties	: The substance or mixture is not classified as oxidizing.
Molecular weight	: No data available
Particle size	: Not applicable

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## 10. STABILITY AND REACTIVITY

Reactivity	: Not classified as a reactivity hazard.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Can react with strong oxidizing agents.
Conditions to avoid	: None known.
Incompatible materials	: Oxidizing agents

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Hazardous decomposition products : No hazardous decomposition products are known.

### 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation  
Skin contact  
Ingestion  
Eye contact

#### Acute toxicity

Harmful if inhaled.

#### Product:

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 2.3 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg  
Method: Calculation method

#### Components:

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Acute oral toxicity : LD50 (Rat): 24 mg/kg  
LD50 (Mouse): 10 mg/kg  
LDLo (Monkey): 24 mg/kg  
Symptoms: Dilatation of the pupil

Acute inhalation toxicity : LC50 (Rat): 0.023 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): 330 mg/kg  
LD50 (Rabbit): 2,000 mg/kg

#### **Skin corrosion/irritation**

Not classified based on available information.

#### Components:

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Species : Rabbit  
Result : No skin irritation

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### **Serious eye damage/eye irritation**

Not classified based on available information.

#### **Components:**

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Species : Rabbit  
Result : Mild eye irritation

### **Respiratory or skin sensitisation**

#### **Skin sensitisation**

Not classified based on available information.

#### **Respiratory sensitisation**

Not classified based on available information.

#### **Components:**

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Test Type : Maximisation Test  
Exposure routes : Skin contact  
Result : Not a skin sensitizer.

### **Germ cell mutagenicity**

Not classified based on available information.

#### **Components:**

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Test system: Chinese hamster lung cells  
Result: negative

Test Type: Alkaline elution assay  
Result: negative

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: negative

### **Carcinogenicity**

Not classified based on available information.

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### Components:

#### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Species	:	Rat
Application Route	:	Oral
Exposure time	:	105 weeks
Result	:	negative
Species	:	Mouse
Application Route	:	Oral
Exposure time	:	93 weeks
Result	:	negative

### **Reproductive toxicity**

Not classified based on available information.

### Components:

#### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Effects on fertility	:	Test Type: Fertility Species: Rat, male Application Route: Oral Result: Effects on fertility
		Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: Oral Early Embryonic Development: NOAEL: 0.12 mg/kg body weight Result: Fetotoxicity
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Mouse Application Route: Oral General Toxicity Maternal: NOAEL: 0.05 mg/kg body weight Developmental Toxicity: NOAEL: 0.2 mg/kg body weight Result: Cleft palate Remarks: Adverse developmental effects were observed
		Test Type: Embryo-foetal development Species: Rabbit Application Route: Oral Developmental Toxicity: LOAEL: 2 mg/kg body weight Result: Cleft palate, Teratogenic effects, Reduced embryonic survival Remarks: Adverse developmental effects were observed
		Test Type: Development Species: Rat Application Route: Oral Developmental Toxicity: LOAEL: 1.6 mg/kg body weight Result: Teratogenic effects

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Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, based on animal experiments., Some evidence of adverse effects on development, based on animal experiments.

**STOT - single exposure**

Not classified based on available information.

**STOT - repeated exposure**

May cause damage to organs (Central nervous system) through prolonged or repeated exposure.

**Components:****abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Exposure routes : Ingestion  
Target Organs : Central nervous system  
Assessment : Causes damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity****Components:****abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Species : Rat  
NOAEL : 1.5 mg/kg  
Application Route : Oral  
Exposure time : 24 Months  
Target Organs : Central nervous system  
Symptoms : Tremors, ataxia

Species : Mouse  
NOAEL : 4.0 mg/kg  
Application Route : Oral  
Exposure time : 24 Months  
Target Organs : Central nervous system  
Symptoms : Tremors, ataxia

Species : Dog  
NOAEL : 0.25 mg/kg  
LOAEL : 0.5 mg/kg  
Application Route : Oral  
Exposure time : 53 Weeks  
Target Organs : Central nervous system  
Symptoms : Tremors, weight loss  
Remarks : mortality observed

Species : Monkey  
NOAEL : 1.0 mg/kg  
Application Route : Oral  
Exposure time : 14 Weeks

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Target Organs : Central nervous system

### Aspiration toxicity

Not classified based on available information.

### Experience with human exposure

#### Components:

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Ingestion : Symptoms: May cause, Tremors, Diarrhoea, central nervous system effects, Salivation, tearing

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## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 3.2 µg/l  
Exposure time: 96 h

LC50 (Lepomis macrochirus (Bluegill sunfish)): 9.6 µg/l  
Exposure time: 96 h

LC50 (Ictalurus punctatus (channel catfish)): 24 µg/l  
Exposure time: 96 h

LC50 (Cyprinus carpio (Carp)): 42 µg/l  
Exposure time: 96 h

LC50 (Cyprinodon variegatus (sheepshead minnow)): 15 µg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Americamysis): 0.022 µg/l  
Exposure time: 96 h

EC50 (Daphnia magna (Water flea)): 0.34 µg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 100 mg/l  
Exposure time: 72 h

M-Factor (Acute aquatic toxicity) : 10,000

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.52 µg/l  
Exposure time: 32 d

Toxicity to daphnia and other aquatic invertebrates (Chronic) : NOEC (Daphnia magna (Water flea)): 0.03 µg/l  
Exposure time: 21 d

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ic toxicity)

NOEC (Mysidopsis bahia (opossum shrimp)): 0.0035 µg/l  
Exposure time: 28 d

M-Factor (Chronic aquatic toxicity)

: 10,000

Toxicity to microorganisms

: EC50: > 1,000 mg/l

Exposure time: 3 h

Test Type: Respiration inhibition

### Persistence and degradability

#### Components:

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Stability in water : Hydrolysis: 50 %(< 12 h)

### Bioaccumulative potential

#### Components:

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Bioaccumulation : Bioconcentration factor (BCF): 52

Partition coefficient: n-octanol/water : log Pow: 4

### Mobility in soil

#### Components:

##### **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Distribution among environmental compartments : log Koc: > 3.6

### Other adverse effects

No data available

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## 13. DISPOSAL CONSIDERATIONS

#### **Disposal methods**

Waste from residues : Do not dispose of waste into sewer.

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.

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## 14. TRANSPORT INFORMATION

#### **International Regulations**

#### **UNRTDG**

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**UN number** : UN 3082  
**Proper shipping name** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(abamectin (combination of avermectin B1a and avermectin B1b) (ISO))

**Class** : 9  
**Packing group** : III  
**Labels** : 9  
**Environmentally hazardous** : yes

### IATA-DGR

**UN/ID No.** : UN 3082  
**Proper shipping name** : Environmentally hazardous substance, liquid, n.o.s.  
(abamectin (combination of avermectin B1a and avermectin B1b) (ISO))  
**Class** : 9  
**Packing group** : III  
**Labels** : Miscellaneous  
**Packing instruction (cargo aircraft)** : 964  
**Packing instruction (passenger aircraft)** : 964  
**Environmentally hazardous** : yes

### IMDG-Code

**UN number** : UN 3082  
**Proper shipping name** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(abamectin (combination of avermectin B1a and avermectin B1b) (ISO))  
**Class** : 9  
**Packing group** : III  
**Labels** : 9  
**EmS Code** : F-A, S-F  
**Marine pollutant** : yes

### Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

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.

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## 15. REGULATORY INFORMATION

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

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**Minister of Industry Regulation No. 23/M-IND/PER/4/2013 concerning the Revision of Minister of Industry Regulation No. 87/M-IND/PER/9/2009 concerning Globally Harmonized System of Classification and Labelling of Chemicals.**

**Regulation of the Minister of Health No. 472 of 1996 on the Safeguarding of Substances Hazardous to Health**

Hazardous substances that must be registered : Not applicable

**Government Regulation No. 74 of 2001 on the Management of Hazardous and Toxic Substances**

Hazardous substances approved for use : Not applicable

Prohibited substances : Not applicable

Restricted substances : Not applicable

**Regulation of the Ministry of Trade No. 7 of 2022 on Distribution and Control of Hazardous Materials**

Type of hazardous materials subject to distribution and control, Annex I : Not applicable

Type of hazardous materials subject to distribution and control, Annex II : Not applicable

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

AICS : not determined

DSL : not determined

IECSC : not determined

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## 16. OTHER INFORMATION

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### 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 : yyyy/mm/dd

### Full text of other abbreviations

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

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x% response; EL<sub>x</sub> - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErC<sub>x</sub> - 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; IC<sub>50</sub> - 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; LC<sub>50</sub> - Lethal Concentration to 50 % of a test population; LD<sub>50</sub> - 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.

ID / EN