GRADUATE

Version	Revision Date:	SDS Number:	Date of last issue: -
0.0	07/25/2024	S1114241439	Date of first issue: 06/08/2015

SECTION 1. IDENTIFICATION

Product name : GRADUATE
Design code : A7850D

Product Registration number : 100-969

Manufacturer or supplier's details

Company name of supplier : Syngenta Crop Protection, LLC
Address : Post Office Box 18300
Greensboro NC 27419
United States of America (USA)

Telephone : 1 800 334 9481
Telefax : 1 336 632 2192

E-mail address : sds.requests@syngenta.com
Emergency telephone : 1 800 888 8372

Recommended use of the chemical and restrictions on use

Recommended use : Fungicide

Restrictions on use : General Use Pesticide

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Combustible dust

GHS label elements

Signal Word : Warning

Hazard Statements : May form combustible dust concentrations in air.

Other hazards

May form combustible dust concentrations in air.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
fludioxonil	131341-86-1	50
talc	14807-96-6	>= 30 - < 50
Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts	68425-94-5	>= 1 - < 5
gum arabic	9000-01-5	>= 1 - < 5

25417-20-3		>= 1 - < 5
sodium butyl naphthalene sulfonate	25638-17-9	>= 1 - < 5
dioxosilane	14808-60-7	>= 0.1 - < 1
ethanamine, N,N-diethyl-	121-44-8	0 - < 0.1

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice	:	Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment.
If inhaled	:	Take the victim into fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a physician or poison control center immediately.
In case of skin contact	:	Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.
In case of eye contact	:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.
If swallowed	:	If swallowed, seek medical advice immediately and show this container or label. Do NOT induce vomiting.
Most important symptoms and effects, both acute and delayed	:	Nonspecific No symptoms known or expected.
Notes to physician	:	There is no specific antidote available. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Extinguishing media - small fires Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Extinguishing media - large fires Alcohol-resistant foam or Water spray
Unsuitable extinguishing media	:	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards during fire fighting	:	As the product contains combustible organic ingredients, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.
Further information	:	Do not allow run-off from fire fighting to enter drains or water courses.

Cool closed containers exposed to fire with water spray.

Special protective equipment for fire-fighters : Wear full protective clothing and self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Refer to protective measures listed in sections 7 and 8.
Avoid dust formation.

Environmental precautions : Do not flush into surface water or sanitary sewer system.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).
Do not create a powder cloud by using a brush or compressed air.
Clean contaminated surface thoroughly.
Clean with detergents. Avoid solvents.
Retain and dispose of contaminated wash water.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : This material is capable of forming flammable dust clouds in air, which, if ignited, can produce a dust cloud explosion.
Flames, hot surfaces, mechanical sparks and electrostatic discharges can serve as ignition sources for this material.
Electrical equipment should be compatible with the flammability characteristics of this material. The flammability characteristics will be made worse if the material contains traces of flammable solvents or is handled in the presence of flammable solvents.
This material can become readily charged in most operations.
Avoid contact with skin and eyes.
When using do not eat, drink or smoke.
For personal protection see section 8.

Conditions for safe storage : Keep containers tightly closed in a dry, cool and well-ventilated place.
Keep out of the reach of children.
Keep away from food, drink and animal feedingstuffs.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
fludioxonil	131341-86-1	TWA	5 mg/m3	Syngenta

		TWA (Inhalable particulate matter)	1 mg/m3	ACGIH
talc	14807-96-6	TWA (Dust)	20 Million particles per cubic foot	OSHA Z-3
		TWA (respirable dust fraction)	2 mg/m3	OSHA P0
		TWA (Respirable particulate matter)	2 mg/m3	ACGIH
		TWA (Respirable)	2 mg/m3	NIOSH REL
		TWA	0.1 fibres per cubic centimeter	ACGIH
dioxosilane	14808-60-7	TWA (respirable)	10 mg/m3 / %SiO2+2	OSHA Z-3
		TWA (respirable)	250 mppcf / %SiO2+5	OSHA Z-3
		TWA (respirable dust fraction)	0.1 mg/m3	OSHA P0
		TWA (Respirable particulate matter)	0.025 mg/m3 (Silica)	ACGIH
		TWA (Respirable dust)	0.05 mg/m3 (Silica)	NIOSH REL
		TWA (Respirable dust)	0.05 mg/m3	OSHA Z-1
ethanamine, N,N-diethyl-	121-44-8	TWA	0.5 ppm	ACGIH
		STEL	1 ppm	ACGIH
		TWA	25 ppm 100 mg/m3	OSHA Z-1
		STEL	15 ppm 60 mg/m3	OSHA P0
		TWA	10 ppm 40 mg/m3	OSHA P0

Engineering measures : THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THE PRODUCT. FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.
The extent of these protection measures depends on the actual risks in use.
Maintain air concentrations below occupational exposure standards.

Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Respiratory protection	:	No personal respiratory protective equipment normally required. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Hand protection		
Remarks	:	No special protective equipment required.
Eye protection	:	No special protective equipment required.
Skin and body protection	:	No special protective equipment required. Select skin and body protection based on the physical job requirements.
Protective measures	:	The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	powder
Color	:	off-white
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability (solid, gas)	:	May form combustible dust concentrations in air.
Burning number	:	2 (68 °F / 20 °C) 5 (212 °F / 100 °C)
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available

Relative vapor density	:	No data available
Density	:	No data available
Bulk density	:	0.37 g/cm3
Solubility(ies)		
Water solubility	:	No data available
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Minimum ignition temperature	:	600 °C
Viscosity		
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Minimum ignition energy	:	100 - 300 mJ
Particle characteristics		
Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	None reasonably foreseeable.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	No decomposition if used as directed.
Incompatible materials	:	None known.
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Ingestion
Inhalation
Skin contact
Eye contact

Acute toxicity

Based on available data, the classification criteria are not met.

Product:

Acute oral toxicity : LD50 (Rat, male and female): > 5,050 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 6.49 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 2,150 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Components:

fludioxonil:

Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 2.6 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

sodium butyl naphthalene sulfonate:

Acute oral toxicity : Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : Assessment: The component/mixture is moderately toxic after short term inhalation.

ethanamine, N,N-diethyl-:

Acute oral toxicity : LD50 (Rat): 730 mg/kg

Acute inhalation toxicity : LC50 (Rat): 7.22 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rat): 580 mg/kg

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Product:

Species : Rabbit
Result : No skin irritation

Components:

fludioxonil:

Species : Rabbit
Result : No skin irritation

Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:

Species : reconstructed human epidermis (RhE)
Result : No skin irritation

25417-20-3:

Result : Irritating to skin.

ethanamine, N,N-diethyl-:

Species : Rabbit
Result : Corrosive after 3 minutes or less of exposure

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Product:

Species : Rabbit
Result : No eye irritation

Components:

fludioxonil:

Species : Rabbit
Result : No eye irritation

Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:

Species : Rabbit
Result : Irritation to eyes, reversing within 21 days

gum arabic:

Result : Eye irritation

25417-20-3:

Result : Risk of serious damage to eyes.

ethanamine, N,N-diethyl-:

Result : Risk of serious damage to eyes.

Respiratory or skin sensitization

Skin sensitization

Based on available data, the classification criteria are not met.

Respiratory sensitization

Not classified due to lack of data.

Product:

Test Type	:	Buehler Test
Species	:	Guinea pig
Result	:	Does not cause skin sensitization.

Components:

fludioxonil:

Species	:	Guinea pig
Result	:	Does not cause skin sensitization.

Germ cell mutagenicity

Not classified due to lack of data.

Components:

fludioxonil:

Germ cell mutagenicity - Assessment	:	Animal testing did not show any mutagenic effects.

ethanamine, N,N-diethyl-:

Germ cell mutagenicity - Assessment	:	In vitro tests did not show mutagenic effects

Carcinogenicity

Not classified due to lack of data.

Components:

fludioxonil:

Carcinogenicity - Assessment	:	No evidence of carcinogenicity in animal studies.

dioxosilane:

Carcinogenicity - Assessment	:	Weight of evidence does not support classification as a carcinogen IARC has concluded that there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the form of quartz or cristobalite from occupational sources and in experimental animals from quartz and cristobalite (Group 1). It was noted however, that carcinogenicity was not detected in all industrial circumstances and may be dependent on inherent characteristics of the crystalline silica or external factors affecting its biological activity.

IARC	Group 1: Carcinogenic to humans dioxosilane (Silica dust, crystalline)	 14808-60-7
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.	
NTP	Known to be human carcinogen dioxosilane (Silica, Crystalline (Respirable Size))	 14808-60-7

Reproductive toxicity

Not classified due to lack of data.

Components:

fludioxonil:

Reproductive toxicity - Assessment	:	No toxicity to reproduction

ethanamine, N,N-diethyl-:

Reproductive toxicity - Assessment	:	No toxicity to reproduction

STOT-single exposure

Not classified due to lack of data.

Components:

ethanamine, N,N-diethyl-:

Assessment	:	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT-repeated exposure

Not classified due to lack of data.

Components:

fludioxonil:

Assessment	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

dioxosilane:

Routes of exposure	:	Inhalation
Target Organs	:	Lungs
Assessment	:	The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Aspiration toxicity

Not classified due to lack of data.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Cyprinus carpio (Carp)): 25 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 3.8 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): 1.2 mg/l Exposure time: 72 h NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.41 mg/l Exposure time: 72 h Test Type: Growth inhibition

Components:

fludioxonil:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.23 mg/l Exposure time: 96 h LC50 (Pimephales promelas (fathead minnow)): 0.7 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.4 mg/l Exposure time: 48 h EC50 (Americamysis): 0.27 mg/l Exposure time: 96 h
Toxicity to algae/aquatic plants	:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): 0.259 mg/l Exposure time: 96 h EC10 (Raphidocelis subcapitata (freshwater green alga)): 0.077 mg/l End point: Growth rate Exposure time: 96 h ErC50 (Skeletonema costatum (marine diatom)): 0.43 mg/l Exposure time: 96 h NOEC (Skeletonema costatum (marine diatom)): 0.14 mg/l End point: Growth rate Exposure time: 96 h
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 0.04 mg/l Exposure time: 28 d

EC10 (Pimephales promelas (fathead minnow)): 0.018 mg/l
Exposure time: 116 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.035 mg/l
Exposure time: 21 d

NOEC (Americamysis): 0.018 mg/l
Exposure time: 28 d

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
Exposure time: 3 h

25417-20-3:

Ecotoxicology Assessment

Acute aquatic toxicity : Harmful to aquatic life.

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

ethanamine, N,N-diethyl-:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 36 mg/l
Exposure time: 96 h

Toxicity to algae/aquatic plants : ErC50 (Raphidocelis subcapitata (freshwater green alga)): 9.8 mg/l
Exposure time: 72 h

Persistence and degradability

Components:

fludioxonil:

Biodegradability : Result: Not readily biodegradable.

Stability in water : Degradation half life: 450 - 700 d
Remarks: Persistent in water.

Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:

Biodegradability : Result: Not readily biodegradable.

ethanamine, N,N-diethyl-:

Biodegradability : Result: Readily biodegradable.

Bioaccumulative potential

Components:

fludioxonil:

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 4.12 (77 °F / 25 °C)

Mobility in soil

Components:

fludioxonil:

Distribution among environmental compartments : Remarks: immobile

Stability in soil : Dissipation time: 14 d
Percentage dissipation: 50 % (DT50)
Remarks: Product is not persistent.

Other adverse effects

Components:

fludioxonil:

Results of PBT and vPvB assessment : Substance is not persistent, bioaccumulative, and toxic (PBT).
Substance is not very persistent and very bioaccumulative (vPvB).

ethanamine, N,N-diethyl-:

Results of PBT and vPvB assessment : Substance is not persistent, bioaccumulative, and toxic (PBT).
Substance is not very persistent and very bioaccumulative (vPvB).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.
This product will not be classified as a RCRA characteristic hazardous waste when discarded.

Contaminated packaging : Empty remaining contents.
Triple rinse containers.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3077

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

(FLUDIOXONIL)

Class	:	9
Packing group	:	III
Labels	:	9
Environmentally hazardous	:	yes
Remarks	:	This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IATA-DGR

UN/ID No.	:	UN 3077
Proper shipping name	:	Environmentally hazardous substance, solid, n.o.s. (FLUDIOXONIL)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	956
Packing instruction (passenger aircraft)	:	956
Environmentally hazardous	:	yes
Remarks	:	This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IMDG-Code

UN number	:	UN 3077
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (FLUDIOXONIL)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes
Remarks	:	This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

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

Not applicable for product as supplied.

Domestic regulation

49 CFR

Not regulated as a dangerous good

Remarks	:	Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

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

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:
Caution
Causes moderate eye irritation.
Avoid contact with skin, eyes or clothing.
Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.
Remove and wash contaminated clothing before re-use.
Harmful if absorbed through skin.

SARA 304 Extremely Hazardous Substances Reportable Quantity

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

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

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

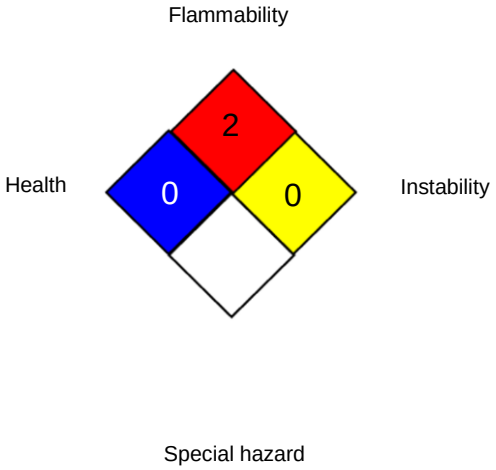
SARA 311/312 Hazards : Combustible dust

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

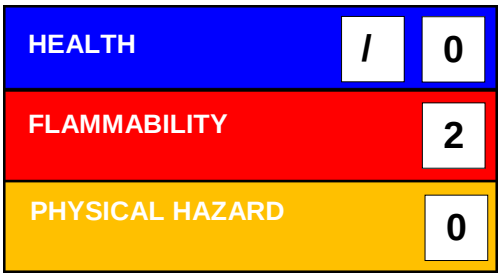
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:



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

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	:	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
Syngenta	:	Syngenta Occupational Exposure Limits
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA P0 / TWA	:	8-hour time weighted average
OSHA P0 / STEL	:	Short-term exposure limit
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-3 / TWA	:	8-hour time weighted average
Syngenta / TWA	:	Time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the 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; 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

Revision Date : 07/25/2024

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 given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / Z8