

MODDUS

Version 1.0 Revision Date: 04.06.2018 SDS Number: S114404835 This version replaces all previous versions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : MODDUS

Design code : A7725M

Manufacturer or supplier's details

Company : Syngenta SA (Pty) Ltd

Address : P.O. Box 1044,
No. 4 Krokodildrift Avenue Brits 0250
South Africa

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Telefax : +27 12 250 3125

E-mail address : sds.ch@syngenta.com

Emergency telephone number : +27 (0) 82 446 8946 (Griffon)

Recommended use of the chemical and restrictions on use

Recommended use : Plant growth regulator

2. HAZARDS IDENTIFICATION**Most important hazards**

Warning

H317: May cause an allergic skin reaction.

H410: Very toxic to aquatic life with long lasting effects.

Other hazards

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS**Hazardous components**

Chemical name	CAS-No.	Classification	Concentration (% w/w)
trinexapac-ethyl	95266-40-3	Aquatic Chronic 1; H410	>= 25 - < 30

For explanation of abbreviations see section 16.

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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 : Move the victim to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Keep patient warm and at rest.
Call a physician or poison control centre 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.

5. FIREFIGHTING 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 firefighting : As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10).
Exposure to decomposition products may be a hazard to health.
- Specific extinguishing methods : Do not allow run-off from fire fighting to enter drains or water courses.

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Cool closed containers exposed to fire with water spray.

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

6. ACCIDENTAL RELEASE MEASURES

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

Environmental precautions : Prevent further leakage or spillage if safe to do so. 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, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Clean contaminated surface thoroughly. Clean with detergents. Avoid solvents. Retain and dispose of contaminated wash water.

7. HANDLING AND STORAGE

Advice on safe handling : No special protective measures against fire required. Avoid contact with skin and eyes. When using do not eat, drink or smoke. For personal protection see section 8.

Conditions for safe storage : No special storage conditions required. 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.

Further information on storage stability : Physically and chemically stable for at least 2 years when stored in the original unopened sales container at ambient temperatures.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
trinexapac-ethyl	95266-40-3	TWA	5 mg/m ³	Syngenta

Engineering measures : Containment and/or segregation is the most reliable technical

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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

Material : Nitrile rubber
Break through time : > 480 min
Glove thickness : 0,5 mm

Remarks : Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : No special protective equipment required.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Remove and wash contaminated clothing before re-use.
Wear as appropriate:
Impervious clothing

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.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	yellow to red brown
Odour	:	unpleasant
Odour Threshold	:	No data available
pH	:	2 - 6 Concentration: 1 % w/v
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	79 °C (1.013 hPa) Method: Pensky-Martens closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	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
Density	:	0,98 g/cm ³ (25 °C)
Solubility(ies) Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	250 °C
Decomposition temperature	:	No data available
Viscosity Viscosity, dynamic	:	10,01 mPa.s (20 °C) 5,45 mPa.s (40 °C)
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

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Surface tension : 28,2 - 28,5 mN/m, 20 °C

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.

11. TOXICOLOGICAL INFORMATION

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

Acute toxicity**Product:**

Acute oral toxicity : LD50 (Mouse, male and female): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 2,51 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): > 4.000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Components:**trinexapac-ethyl:**

Acute oral toxicity : LD50 (Rat, male and female): 4.460 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 5,69 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

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Acute dermal toxicity : LD50 (Rat, male and female): > 4.000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation**Product:**

Species : Rabbit
Result : No skin irritation

Components:**trinexapac-ethyl:**

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation**Product:**

Species : Rabbit
Result : No eye irritation

Components:**trinexapac-ethyl:**

Species : Rabbit
Result : No eye irritation

Respiratory or skin sensitisation**Product:**

Species : Guinea pig
Result : May cause sensitisation by skin contact.

Components:**trinexapac-ethyl:**

Test Type : mouse lymphoma cells
Species : Mouse
Result : Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity**Components:****trinexapac-ethyl:**

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

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Carcinogenicity

Components:

trinexapac-ethyl:

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

Reproductive toxicity

Components:

trinexapac-ethyl:

Reproductive toxicity - Assessment : No toxicity to reproduction

Repeated dose toxicity

Components:

trinexapac-ethyl:

Remarks : No adverse effect has been observed in chronic toxicity tests.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 24 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna Straus): 2,9 mg/l
Exposure time: 48 h

Toxicity to algae : ErC50 (Anabaena flos-aquae (cyanobacterium)): 8,3 mg/l
Exposure time: 96 h

ErC50 (Lemna gibba (gibbous duckweed)): 55 mg/l
Exposure time: 7 d

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life., Classification of the product is based on the summation of the concentrations of classified components.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects., Classification of the product is based on the summation of the concentrations of classified components.

Components:

trinexapac-ethyl:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 68 mg/l

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- Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 142 mg/l
Exposure time: 48 h
- LC50 (Americamysis): 6,5 mg/l
Exposure time: 96 h
- Toxicity to algae : ErC50 (Pseudokirchneriella subcapitata (green algae)): 24,5 mg/l
Exposure time: 96 h
- ErC50 (Myriophyllum spicatum (Eurasian watermilfoil)): 1,2 mg/l
Exposure time: 14 d
- EC10 (Myriophyllum spicatum (Eurasian watermilfoil)): 0,011 mg/l
Exposure time: 14 d
- NOEC (Myriophyllum spicatum (Eurasian watermilfoil)): 0,025 mg/l
Exposure time: 14 d
- Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0,41 mg/l
Exposure time: 35 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 2,4 mg/l
Exposure time: 21 d
- M-Factor (Chronic aquatic toxicity) : 1
- Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h

Ecotoxicology Assessment

- Acute aquatic toxicity : Toxic to aquatic life.
- Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Persistence and degradability

Components:

trinexapac-ethyl:

- Biodegradability : Result: Not readily biodegradable.
- Stability in water : Degradation half life: 3,9 - 5,5 d
Remarks: Product is not persistent.

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Bioaccumulative potential**Components:****trinexapac-ethyl:**

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: -2,1 (25 °C)

log Pow: -0,29 (25 °C)

log Pow: 1,5 (25 °C)

Mobility in soil**Components:****trinexapac-ethyl:**

Distribution among environmental compartments : Remarks: Moderately mobile in soils

Stability in soil : Dissipation time: < 0,2 d
Percentage dissipation: 50 % (DT50)
Remarks: Product is not persistent.

Other adverse effects**Components:****trinexapac-ethyl:**

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

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.

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.

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14. TRANSPORT INFORMATION**International Regulations****UNRTDG**

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRINEXAPAC-ETHYL)
Class : 9
Packing group : III
Labels : 9

IATA-DGR

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s. (TRINEXAPAC-ETHYL)
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. (TRINEXAPAC-ETHYL)
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.

15. REGULATORY INFORMATION**Safety, health and environmental regulations/legislation specific for the substance or mixture**

None known.

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16. OTHER INFORMATION**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; 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; CPR - Controlled Products Regulations; 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; 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 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.

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