

SAFETY DATA SHEET

PRO-GRO®

Version Revision Date: MSDS Number: Country: US
1.5 09/16/2015 000000001449 Language: EN

SECTION 1. IDENTIFICATION

Product name : PRO-GRO®
Product code : 000000001449

Manufacturer or supplier's details

Company: MacDermid Agricultural Solutions, Inc
 245 Freight St
 Waterbury, CT
 United States of America
 06702
 Telephone : +1 800 423 8569

Prepared by sds.request@arysta.com

Further information for the safety data sheet :
sds.request@arysta.com

1.4 Emergency telephone number

Emergency telephone number: Agriphar Crop Solutions: +1 800 423 8569(24 hours) 800-424-9300
 For additional emergency telephone numbers see section 16 of the
 Safety Data Sheet.

Recommended use of the chemical and restrictions on use

Recommended use : Fungicide
 Plant protection agent

Restrictions on use : Agriculture, For professional users only.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral) : Category 4

Acute toxicity (Dermal) : Category 4

Eye irritation : Category 2A

Carcinogenicity : Category 1A

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Specific target organ toxicity : Category 2
- repeated exposure (Oral)

Acute aquatic toxicity : Category 1

Chronic aquatic toxicity : Category 1

GHS Label element

Hazard pictograms :



Signal word : Danger

Hazard statements : H302 + H312 Harmful if swallowed or in contact with skin
H319 Causes serious eye irritation.
H350 May cause cancer.
H373 May cause damage to organs through prolonged or repeated exposure if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.
P280 Wear protective gloves/ protective clothing.
P281 Use personal protective equipment as required.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P302 + P352 + P312 IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste dis-

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posal plant.

Other hazards

Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture
Chemical nature : Fungicide

Hazardous components

Chemical Name	CAS-No.	Concentration (% w/w)
thiram	137-26-8	>= 30 - < 50
carboxin	5234-68-4	>= 20 - < 30
kaolin	1332-58-7	>= 10 - < 20
titanium dioxide	13463-67-7	>= 0.1 - < 1

SECTION 4. FIRST AID MEASURES

If inhaled : Remove to fresh air.
If not breathing, give artificial respiration.
Obtain medical attention.

In case of skin contact : Remove contaminated clothing and shoes.
Wash off with warm water and soap.
If symptoms persist, call a physician.
Wash clothing before reuse.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids,
for at least 15 minutes.
Obtain medical attention.

If swallowed : Do NOT induce vomiting.
Rinse mouth with water.
Obtain medical attention.

Most important symptoms and effects, both acute and delayed : irritant effects
Symptoms may be delayed.
Harmful if swallowed or in contact with skin
Causes serious eye irritation.
May cause cancer.
May cause damage to organs through prolonged or repeated exposure.

Notes to physician : The first aid procedure should be established in consultation
with the doctor responsible for industrial medicine.

SECTION 5. FIREFIGHTING MEASURES

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- Suitable extinguishing media : Extinguishing media - large fires
Alcohol-resistant foam
(on small fires)
Carbon dioxide (CO₂)
Dry chemical
Water spray
- Unsuitable extinguishing media : Water spray jet
- Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system.
- Special protective equipment for firefighters : Body covering protective clothing, full "turn-out" gear.
Self-contained breathing apparatus (EN 133)
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Wear suitable protective equipment.
Avoid contact with skin and eyes.
- Environmental precautions : Do not allow contact with soil, surface or ground water.
Do not flush into surface water or sanitary sewer system.
- Methods and materials for containment and cleaning up : Pick up and arrange disposal without creating dust.
-

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Use plant protection products safely. Always read the label and product information before use.
Handle in accordance with good industrial hygiene and safety practice.
Avoid contact with skin, eyes and clothing.
Wear personal protective equipment.
Use with adequate ventilation.
Avoid dust formation.
Keep away from sources of ignition - No smoking.
May form explosive dust-air mixture.
Take precautionary measures against static discharges.
- Conditions for safe storage : Store in original container.
Keep tightly closed in a dry, cool and well-ventilated place.
-

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of ex-	Control parameters / Permissible con-	Basis
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		posure)	centration	
thiram	137-26-8	TWA (Inhalable fraction and vapor)	0.05 mg/m ³	ACGIH
		TWA	5 mg/m ³	OSHA Z-1
		TWA	5 mg/m ³	OSHA P0
		TWA	5 mg/m ³	NIOSH REL
kaolin	1332-58-7	TWA (Respirable fraction)	2 mg/m ³	ACGIH
		TWA (total dust)	15 mg/m ³	OSHA Z-1
		TWA (respirable fraction)	5 mg/m ³	OSHA Z-1
		TWA (Respirable)	5 mg/m ³	NIOSH REL
		TWA (total)	10 mg/m ³	NIOSH REL
		TWA (Total dust)	10 mg/m ³	OSHA P0
		TWA (respirable dust fraction)	5 mg/m ³	OSHA P0
titanium dioxide	13463-67-7	TWA	10 mg/m ³	ACGIH
		TWA (total dust)	15 mg/m ³	OSHA Z-1
		TWA (Total dust)	10 mg/m ³	OSHA P0
		TWA	10 mg/m ³ (Titanium dioxide)	ACGIH

Hazardous components without workplace control parameters

Components	CAS-No.
carboxin	5234-68-4

Personal protective equipment

Respiratory protection : Wear a NIOSH/MSHA approved dust respirator if dusting occurs, or there is potential for airborne exposures to exceed established threshold values.

Hand protection

Remarks : Impervious gloves

Eye protection : Safety glasses with side-shields

Skin and body protection : Impervious clothing

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : solid

Colour : off-white

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Odour : slight, musty

Odour Threshold : No data available

pH : No data available

Melting point/range : No data available

Boiling point/boiling range : Not applicable

Flash point : 112 °C

Evaporation rate : No data available

Upper explosion limit : No data available

Lower explosion limit : No data available

Vapour pressure : Not applicable

Relative vapour density : Not applicable

Relative density : No data available

Solubility(ies)

 Water solubility : No data available

 Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

Auto-ignition temperature : not determined

Decomposition temperature : No data available

Viscosity

 Viscosity, dynamic : Not applicable

 Viscosity, kinematic : Not applicable

Self-Accelerating decomposition temperature (SADT) : Method: No information available.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions : Hazardous polymerisation does not occur.

Incompatible materials : Oxidizing agents
Strong acids and strong bases

Hazardous decomposition products : Carbon oxides

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ucts

Nitrogen oxides (NOx)

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Skin contact
Inhalation
Eye contact

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat): 1,326 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.8 mg/l
Acute toxicity estimate: 6.95 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

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

Components:

thiram:

Acute oral toxicity : LD50 (Rat, female): 1,800 mg/kg

Acute inhalation toxicity : LC50 (Rat, female): 3.46 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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

carboxin:

Acute oral toxicity : LD50 (Rat, male): 2,588 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 4.7 mg/l
Exposure time: 4 h
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.

Acute dermal toxicity : LD50 (Rabbit, male and female): > 4,000 mg/kg

kaolin:

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

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

titanium dioxide:

Acute oral toxicity : LD50 (Rat): > 10,000 mg/kg

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Acute inhalation toxicity : LC50 (Rat): > 6.8 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 10,000 mg/kg

Skin corrosion/irritation

Product:

Species: Rabbit
Assessment: No skin irritation
Result: No skin irritation

Components:

thiram:

Species: Rabbit
Result: No skin irritation

carboxin:

Species: Rabbit
Result: No skin irritation

titanium dioxide:

Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation

Product:

Species: Rabbit
Result: Severe irritation
Assessment: Causes severe burns.

Components:

thiram:

Species: Rabbit
Result: Irritating to eyes.
Assessment: Irritating to eyes.

carboxin:

Species: Rabbit
Result: slight irritation
Assessment: No eye irritation

titanium dioxide:

Species: Rabbit
Result: No eye irritation

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Respiratory or skin sensitisation

Product:

Species: Guinea pig
Result: Did not cause sensitisation on laboratory animals.

Components:

thiram:

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

carboxin:

Species: Guinea pig
Assessment: May cause sensitisation by skin contact.
Method: Magnusson-Kligmann-Test
Result: positive
GLP: yes

titanium dioxide:

Species: Guinea pig
Assessment: Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity

Components:

thiram:

Genotoxicity in vitro	: Species: Salmonella typhimurium Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay) Result: positive
	: Species: Chinese hamster ovary cells Result: negative
	: Species: Chinese hamster ovary cells Method: In Vitro mammalian Cell Gene Mutation Test Result: negative
Genotoxicity in vivo	: Test Type: Mammalian bone marrow chromosome aberration test Species: Mouse Result: negative
Germ cell mutagenicity - Assessment	: negative

carboxin:

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation test Species: Salmonella typhimurium Result: negative
	: Test Type: Chromosome aberration test in vitro

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Species: Chinese hamster ovary cells
Result: Negative without activation, positive with activation

: Test Type: In Vitro mammalian Cell Gene Mutation Test
Species: Chinese hamster ovary cells
Result: negative

: Test Type: Unscheduled DNA synthesis (UDS)
Species: rat hepatocytes
Result: positive

Genotoxicity in vivo : Test Type: Mammalian bone marrow chromosome aberration test
Species: Sprague-Dawley rat bone marrow cells
Result: negative

Test Type: Mammalian bone marrow chromosome aberration test
Species: Sprague-Dawley rat bone marrow cells
Result: negative

Test Type: Unscheduled DNA synthesis (UDS)
Species: Male Sprague-Dawley rat liver hepatocyte cells
Result: negative

Germ cell mutagenicity - Assessment : negative

titanium dioxide:
Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Result: negative

: Test Type: Unscheduled DNA synthesis (UDS)
Result: negative

: Test Type: in vitro assay
Metabolic activation: with and without metabolic activation
Result: negative

: Test Type: Chromosome aberration test in vitro
Metabolic activation: with and without metabolic activation
Result: negative

Genotoxicity in vivo : Test Type: in vivo assay
Species: Rat (female)
Application Route: Oral
Result: negative

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

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Carcinogenicity

Components:

thiram:

Species: Rat
Application Route: Oral
NOAEL: No observed adverse effect level: 1.5 mg/kg bw/day

Carcinogenicity - Assessment : negative

carboxin:

Species: Rat, (male)
Application Route: Oral
NOAEL: No observed adverse effect level: 0.82 mg/kg bw/day

Carcinogenicity - Assessment : negative

titanium dioxide:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

: Limited evidence of carcinogenicity in animal studies, Tumors were noticed after prolonged inhalation toxicity testing on rats., Considered carcinogenic to animals in certain countries.

IARC

Group 1: Carcinogenic to humans

kaolin 1332-58-7

Group 2B: Possibly carcinogenic to humans

titanium dioxide 13463-67-7

OSHA

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

Known to be human carcinogen

kaolin 1332-58-7

Reproductive toxicity

Components:

thiram:

Effects on fertility : Species: Rat
General Toxicity - Parent: No observed adverse effect level: 2.3 mg/kg bw/day
General Toxicity F1: No observed adverse effect level F1: 9 mg/kg bw/day

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Effects on foetal development : Early Embryonic Development: No observed adverse effect level F2: 3 mg/kg bw/day
: Species: Rabbit
General Toxicity Maternal: No observed adverse effect level: 10 mg/kg bw/day
Teratogenicity: No observed adverse effect level: 10 mg/kg bw/day

Reproductive toxicity - Assessment : Species: Rat
Teratogenicity: No observed adverse effect level: 7.5 mg/kg bw/day

Reproductive toxicity - Assessment : negative
negative

carboxin:
Effects on fertility : General Toxicity - Parent: No observed adverse effect level: 1 mg/kg bw/day
General Toxicity F1: No observed adverse effect level F1: 20 mg/kg bw/day
Early Embryonic Development: No observed adverse effect level F2: 10 mg/kg bw/day

Effects on foetal development : Species: Rat
General Toxicity Maternal: No observed adverse effect level: 10 mg/kg bw/day
Teratogenicity: No observed adverse effect level: 90 mg/kg bw/day

Reproductive toxicity - Assessment : Species: Rabbit
General Toxicity Maternal: No observed adverse effect level: 75 mg/kg bw/day
Teratogenicity: No observed adverse effect level: 75 mg/kg bw/day

Reproductive toxicity - Assessment : negative
negative

STOT - single exposure

Product:

Remarks: No data available

STOT - repeated exposure

Components:

titanium dioxide:

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

Repeated dose toxicity

Components:

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thiram:

Species: Rat
NOAEL: 2.5 mg/kg
Application Route: Oral
Exposure time: 90 d
Target Organs: Stomach

Species: Rabbit
NOAEL: 300 mg/kg
Application Route: Dermal
Exposure time: 21 d

Species: Dog
NOAEL: 2 mg/kg
Application Route: Oral
Exposure time: 90 d
Target Organs: Liver

carboxin:

Species: Rat, male
NOAEL: 30 mg/kg
Application Route: Dermal
Exposure time: 28 d
GLP: yes
Target Organs: Kidney

Species: Rat, male
NOAEL: 5.5 mg/kg
Application Route: Oral
Exposure time: 90 d
GLP: yes
Target Organs: Kidney

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

thiram:

- | | |
|---|--|
| Toxicity to fish | : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.046 mg/l
Exposure time: 96 h
Test Type: static test |
| Toxicity to daphnia and other aquatic invertebrates | : EC50 (Daphnia magna (Water flea)): 0.011 mg/l
Exposure time: 48 h
Test Type: static test |
| Toxicity to algae | : EC50 (Pseudokirchneriella subcapitata (green algae)): 0.065 mg/l
Exposure time: 120 h
Test Type: static test |
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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : (Daphnia magna (Water flea)): 0.008 mg/l
Exposure time: 21 d

carboxin:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2.3 mg/l
Exposure time: 96 h
Test Type: flow-through test
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 57 mg/l
Exposure time: 48 h
Test Type: flow-through test
GLP: yes

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 0.48 mg/l
Exposure time: 5 d
Test Type: static test

Toxicity to fish (Chronic toxicity) : NOEC (Cyprinus carpio (Carp)): 0.32 mg/l
Exposure time: 21 d
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.32 mg/l
Exposure time: 17 d
GLP: yes

kaolin:

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): > 1,100 mg/l
Exposure time: 48 h

titanium dioxide:

Toxicity to fish : LC0 (Leuciscus idus (Golden orfe)): 1,000 mg/l
Exposure time: 48 h
Test Type: static test

LC50 (Cyprinodon variegatus (sheepshead minnow)): 240 - 370 mg/l
Exposure time: 96 h

Persistence and degradability

Components:

thiram:

Biodegradability : Result: Not readily biodegradable.

carboxin:

Biodegradability : Result: Not readily biodegradable.

Bioaccumulative potential

Components:

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thiram:

Partition coefficient: n-octanol/water : log Pow: 2.1

carboxin:

Partition coefficient: n-octanol/water : log Pow: 2.3

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : There is no data available for this product. Avoid release to the environment.

Components:

thiram:

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

carboxin:

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

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : In accordance with local and national regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulation

UNRTDG

UN number : UN 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (thiram, carboxin)
Class : 9
Packing group : III

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Labels : 9

IATA-DGR

UN/ID No. : UN 3077

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., Environmentally hazardous substance, solid, n.o.s. (thiram, carboxin)

Class : 9

Packing group : III

Labels : Miscellaneous

Packing instruction (cargo aircraft) : 956

Packing instruction (passenger aircraft) : 956

IMDG-Code

UN number : UN 3077

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (thiram, carboxin)

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.

National Regulations

49 CFR

UN/ID/NA number : UN 3077

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (thiram, carboxin)

Class : 9

Packing group : III

Labels : CLASS 9

ERG Code : 171

Marine pollutant : yes(thiram, carboxin)

Remarks : RQ applies
Not regulated by DOT and TDG if shipped or transported in packaging less than 20 Lbs by road and/or rail. Please refer to 49 CFR for any details.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ	Component RQ (lbs)
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		(lbs)	
Thiram	137-26-8	10	20

SARA 304 Extremely Hazardous Substances Reportable Quantity

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

SSARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

thiram	137-26-8	49.7495 %
carboxin	5234-68-4	29.7371 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

naphthalene	91-20-3	0.000 %
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The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

naphthalene	91-20-3	0.000 %
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This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

TSCA list

Not relevant

Not relevant

FIFRA Hazard Information:

This chemical is a pesticide product registered by the United States 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 (SDS), and for

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workplace labels of non-pesticide chemicals. The pesticide label also includes other important information, including directions for use.

The hazard information required on the pesticide label is reproduced below.

DANGER

Corrosive. Causes irreversible eye damage. Do not get in eyes or on clothing. Harmful if inhaled. Avoid breathing dust. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

This pesticide is toxic to fish and aquatic invertebrates and may cause reproductive effects in wildlife. Do not apply directly to water or areas where surface water is present or to intertidal areas below the mean high water mark. Runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash water.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

(Q)SAR - (Quantitative) Structure Activity Relationship; ASTM - American Society for the Testing of Materials; bw - Body weight; DIN - Standard of the German Institute for Standardisation; EC_x - Concentration associated with x% response; EL_x - Loading rate associated with x% response; EmS - Emergency Schedule; ErC_x - Concentration associated with x% growth rate response; GHS - Globally Harmonized 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; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; 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; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); AICS - Australian Inventory of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; DOT - Department of Transportation; EHS - Extremely Hazardous Substance; HMIS - Hazardous Materials Identification System; MSHA - Mine Safety and Health Administration; NFPA - National Fire Protection Association; RCRA - Resource Conservation and Recovery Act; RQ - Reportable Quantity; SARA - Superfund Amendments and Reauthorization Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice; ERG - Emergency Response Guide; NTP - National Toxicology Program; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods

SAFETY DATA SHEET

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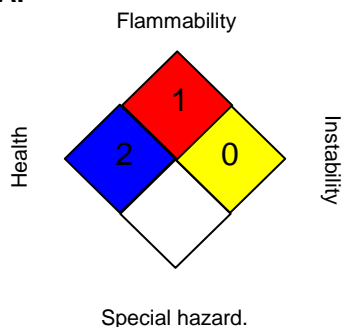
Revision Date:
09/16/2015

MSDS Number:
000000001449

Country: US
Language: EN

Further information

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 09/16/2015

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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