



Please read the entire document. This Material Safety Data Sheet contains important environmental, health and toxicology information for your employees, and anyone who will use, transport, store, dispose of or handle this product. Please make sure this information is given to them. It also contains information to help you meet community right-to-know/emergency response reporting requirements under SARA Title III and many other laws. If you resell this product, this MSDS must be given to the buyer or the information contained herein must be incorporated in your MSDS.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: DISARM® M FUNGICIDE
EPA REGISTRATION NUMBER(S): 66330-388
SYNONYM(S): ARY-0473-012, Fluoxastrobin-Myclobutanil SC

<u>COMPANY</u>	<u>EMERGENCY TELEPHONE NUMBERS</u>	
Arysta LifeScience North America LLC 15401 Weston Parkway, Suite 150 Cary, NC 27513	HEALTH EMERGENCY: 1-866-303-6952, or 1-651-632-8946	SPILL EMERGENCY: 1-800-424-9300, or 1-703-527-3887

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Active Ingredient(s)/ Hazardous Inert Ingredient(s)	CAS #	Exposure Limits*	% Weight	% Volume
Fluoxastrobin: (Methanone, [2-[[6-(2-chlorophenoxy)-5-fluoro-4-pyrimidinyl]-oxy]phenyl](5,6-dihydro-1,4,2-dioxazine-3-yl)-,O-methyloxime,(E)-	361377-29-9	<u>TWA</u> ^a OSHA PEL ^b : NA ACGIH TLV ^c : NA NIOSH REL ^d : NA	15.81	NA
Myclobutanil: alpha-butyl-alpha-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile	88671-89-0	<u>TWA</u> ^a OSHA PEL ^b : NA ACGIH TLV ^c : NA NIOSH REL ^d : NA	25.60	NA

Only the identities of the active ingredient(s) and any hazardous inert ingredients are listed. Specific information on all of this product's ingredients can be obtained by the treating medical professional or spill emergency responder for the management of exposures, spills, or safety assessments.

*Source: *Guide to Occupational Exposure Values 2008*, published by ACGIH

^a**TWA**: Time-weighted average exposure concentration for a conventional 8-hour (TLV, PEL) or up to a 10-hour (REL) workday and a 40-hour workweek.

^b**OSHA PEL**: Occupational Safety and Health Administration Permissible Exposure Limits.

^c**ACGIH TLV**: American Conference of Governmental Industrial Hygienists, Inc., Threshold Limit Values.

^d**NIOSH REL**: National Institute for Occupational Safety and Health Recommended Exposure Limits.

SECTION 3: HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

CAUTION:

- HARMFUL IF SWALLOWED
- CAUSES MODERATE EYE IRRITATION
- AVOID CONTACT WITH EYES OR CLOTHING
- KEEP OUT OF REACH OF CHILDREN
- VERY TOXIC TO AQUATIC ORGANISMS

Acute Health Hazards

Eye: May cause moderate irritation to eyes. Avoid contact with eyes.

Skin: May cause slight irritation. Harmful if absorbed through skin. Avoid contact with skin and clothing.

Ingestion: Harmful if swallowed. Do not take internally.

Inhalation: Harmful if inhaled. Avoid inhalation of vapor or mist.

Chronic Health Hazards (Including Cancer): Fluoxastrobin is not a carcinogen. Myclobutanil did not cause cancer in laboratory animals.

Reproductive and Developmental Toxicity: Fluoxastrobin is not a reproductive or development toxicant. For Myclobutanil, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

SECTION 4: FIRST AID MEASURES

Inhalation: Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a physician or poison control center for treatment advice.

Eyes: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center for treatment advice.

Ingestion: Call a physician or poison control center immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless directed to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person. Do not leave victim unattended.

Note to Physician: Therapeutic measures: Basic aid, decontamination, symptomatic treatment.

SECTION 5: FIRE FIGHTING MEASURES

Flammable Limits in Air (% by volume):		
	Upper:	NA
	Lower:	NA
Flash Point:		> 93 °C
	Method Used:	NDA
Autoignition Temperature:		NA
LEL/UEL:		NDA
NFPA Hazard Classification:		
	Health:	2
	Flammability:	1
	Reactivity:	0
	Other:	
Extinguishing Media:		Sprayed water jet, foam, extinguishing powder, CO ₂ , sand.
Special Fire Fighting Procedures:		Keep out of smoke. Fight fire from upwind position. Evacuate personnel to safe areas. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.
Hazardous Combustion Products:		In the event of fire, the formation of toxic vapors must be anticipated.

SECTION 6: ACCIDENTAL RELEASE MEASURES

EMERGENCY PHONE NUMBERS

Exposure Calls (PROSAR): 1-866-303-6952 or 1-651-632-8946 (International)

Spill Calls (CHEMTREC): 1-800-424-9300 or 1-703-527-3887

Use personal protective equipment. Do not empty into drains or waters. Take up spilled product with absorbent material and place into closable container. To clean the floor and all objects contaminated by this material, use damp cloth. Also place used cleaning materials into closable receptacles.

SECTION 7: HANDLING AND STORAGE

Store in a dry place. Keep away from food, drink and animal feeding stuffs.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection: Wear eye protection, goggles.

Skin Protection: Wear long-sleeved shirt, long pants, protective gloves for chemicals, shoes and socks. Keep the place of work clean. Avoid contact with product. Keep working clothes separate. Change badly soiled or soaked clothing. Wash hands before breaks and at end of work.

Respiratory/Ventilation Requirements: When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Viscous off-white to beige liquid
Odor:	Faint latex paint like odor
Physical State:	Liquid suspension
pH:	7.23 (1%)
Boiling Point:	NDA
Melting Point:	NA
Freezing Point:	NDA
Vapor Pressure:	NA
Vapor Density:	NDA
Bulk Density:	NDA
Specific Gravity:	1.13
Evaporation Rate:	NDA
Solubility in Water:	NA
Percent Solids by Weight:	NDA
Percent Volatile:	NDA
Volatile Organic Compounds:	NDA
Molecular Weight:	NDA
Viscosity:	800 – 1200 cps @25°C

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal conditions
Hazardous Polymerization:	NDA
Flash Point:	> 93 °C
Flammable Point:	NA
Auto Ignition:	NA
Incompatibility With Other Materials:	NA
Decomposition Products:	NDA

SECTION 11: TOXICOLOGICAL INFORMATION

Acute:

Oral Toxicity: LD₅₀ (rat): 3129 mg/kg

Dermal Toxicity: LD₅₀ (rat): > 5000 mg/kg

Inhalation Toxicity: LC₅₀ (rat): > 2.0 mg/kg

Eye Irritation: Moderately irritating.

Skin Irritation: Slightly irritating.

Skin Sensitization: Product is not a sensitizer or is negative for sensitization (guinea pig) (via the Buehler Test).

Subchronic: In subchronic studies with Fluoxastrobin Technical, the NOEL for rat were 1000 ppm (M) and 2000 ppm (F), for mice was not assigned, and for dog 100 ppm. Reduced body weight gain and food intake, calculi in the urethra and kidney, urinary bladder, and urethra, vacuolation in the zona fasciculata in rats. There were no dose related toxicity effects in mice. Reduced net body weight gain and food efficiency in addition to toxicity findings in the liver in dogs.

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Chronic Toxicity: In the dog chronic study with Fluoxastrobin Technical, the NOEL was 50 ppm. Reduced body weight and hepatocytomegaly and cytoplasmic changes associated with increased serum liver alkaline phosphatase indicative of cholestasis. In chronic studies, Myclobutanil increased liver mixed function oxidase (at 39.2 mg/kg/day) and caused hepatocyte hypertrophy at 125 mg/kg/day.

Carcinogenicity: Fluoxastrobin has no evidence of carcinogenicity. Myclobutanil did not cause cancer in laboratory animals.

Mutagenicity: Fluoxastrobin Technical is negative in the following genotoxicity assays: *In vitro* bacterial reverse gene mutation, *In vitro* mammalian chromosome aberration in Chinese hamster lung (V79) cells, mammalian cytogenetics-micronucleus assay (mouse). For Myclobutanil, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Developmental Toxicity: In the developmental studies with Fluoxastrobin Technical the NOEL for rats were 1000 mg/kg/day (maternal) and 1000 mg/kg/day (developmental) (limit dose). The NOEL for rabbits were 100 mg/kg/day (maternal) based on cold years, transient body weight loss and decreased food consumption, and 400 mg/kg/day (developmental).

Reproduction: Fluoxastrobin is not a reproductive or development toxicant. For Myclobutanil, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animal. In the livers of male rats from reproductive studies, Myclobutanil caused hepatocyte hypertrophy at 9.84 mg/kg/day and more generalized hepatotoxicity at 46.4 mg/kg/day.

Neurotoxicity: Fluoxastrobin did not show evidence of neurotoxicity. There is no indication that Myclobutanil is a neurotoxic chemical.

SECTION 12: ECOLOGICAL INFORMATION

Aquatic Organism Toxicity (Fluoxastrobin Technical):

Trout (<i>Oncorhynchus mykiss</i>)	96 hr LC ₅₀ = 0.435 mg/L
Carp (<i>Cyprinus carpio</i>)	96 hr LC ₅₀ = 0.57 mg/L
Bluegill sunfish (<i>Lepomis macrochirus</i>)	96 hr LC ₅₀ = 0.97 mg/L
Water flea (<i>D. magna</i>)	48 hr EC ₅₀ = 0.48 mg/L
Mysid (<i>M. bahia</i>)	96 hr LC ₅₀ = 0.053 mg/L

Aquatic Organism Toxicity (Myclobutanil Technical):

Trout (<i>Oncorhynchus mykiss</i>)	96 hr LC ₅₀ = 2.0 mg/L
Bluegill sunfish (<i>Lepomis macrochirus</i>)	96 hr LC ₅₀ = 4.4 mg/L
Water flea (<i>D. magna</i>)	48 hr EC ₅₀ = 17 mg/L
Mysid (<i>M. bahia</i>)	96 hr LC ₅₀ = 7.1 mg/L

Other Non-Target Organism Toxicity (Fluoxastrobin Technical):

Green algae (<i>Selenastrum capricornutum</i>)(biomass):	72-hour EC ₅₀ = 0.45 mg/L
Green algae (<i>Selenastrum capricornutum</i>)(growth rate):	72-hour EC ₅₀ = 2.67 mg/L
Bacteria (activated sludge):	EC ₅₀ > 10000 mg/L

Other Non-Target Organism Toxicity (Myclobutanil Technical):

Green algae (<i>Selenastrum capricornutum</i>)(static):	96-hour EC ₅₀ = 0.91 mg/L
Bees:	LD ₅₀ Oral = > 171 µg/bee
Bees:	LD ₅₀ Contact = > 200 µg/bee

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of wastes and empty containers in accordance with local, state and federal regulations, preferably through incineration.

SECTION 14: TRANSPORT INFORMATION

Only regulated when shipped by water or in bulk package via all modes of transportation. Describe as: UN3082, Environmentally hazardous substances, liquid, n.o.s. (Fluoxastrobin), 9, PG III, Marine Pollutant.

SECTION 15: REGULATORY INFORMATION

U.S Federal Regulations

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act): All pesticides are governed under FIFRA. Therefore, the regulations presented below are pertinent only when handled outside of the normal use and applications of pesticides. This includes waste streams resulting from manufacturing/formulation facilities, spills or misuse of products, and storage of large quantities of products containing hazardous or extremely hazardous substances.

CERCLA (Comprehensive Response Compensation, and Liability Act): None

EPCRA (Emergency Planning and Community Right-to-Know Act) Section 313: Yes

OSHA (Occupational Safety and Health Administration): This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

SARA Title III (SUPERFUND Amendments and Reauthorization Act):

Section 302 (EHS) TPQ: None

Section 304 (EHS) RQ: None

Section 311/312 CATEGORIES	1.	Immediate (Acute) Health Effects; YES
	2.	Delayed (Chronic) Health Effect; YES
	3.	Fire Hazard; NO
	4.	Sudden Release of Pressure Hazard; NO
	5.	Reactivity Hazard; NO

TSCA (Toxic Substance Control Act): This product is exempt from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.

State Regulations: Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list of all state regulations. Therefore, the user should consult state or local authorities.

SECTION 16: OTHER INFORMATION

Reason for issue:	Changes to Section 14 (Transportation Information)
Prepared by:	Ashley R. Brown
Issue date:	11/30/11
Supersedes date:	03/24/11
MSDS number:	00378

The information in this MSDS is based on data available to us as of the issue date given herein, and believed to be correct. Contact Arysta LifeScience North America LLC at (919) 678-4900 to determine if additional data and information have become available since the issue date.

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