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™ C FUNGICIDE
EPA REGISTRATION NUMBER(S): 66330-379
SYNONYM(S): None

COMPANY
Arysta LifeScience North America LLC 15401 Weston Parkway, Suite 150 Cary, NC 27513

EMERGENCY TELEPHONE NUMBERS	
HEALTH EMERGENCY:	SPILL EMERGENCY:
1-866-303-6952, or 1-651-632-8946	**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
Chlorothalonil	1897-45-6	**TWA**[a] OSHA PEL[b]: None ACGIH TLV[c]: None NIOSH REL[d]: None	38.4	NDA
Fluoxastrobin	361377-29-9	**TWA**[a] OSHA PEL[b]: None ACGIH TLV[c]: None NIOSH REL[d]: None	2.44	NDA

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 2003*, compiled 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**: U.S. Occupational Safety and Health Administration Permissible Exposure Limits.

[c]**ACGIH® TLV®**: American Conference of Governmental Industrial Hygienists Threshold Limit Values.

[d]**NIOSH REL**: U.S National Institute for Occupational Safety and Health Recommended Exposure Limits.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION:
- **HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN**
- **CAUSES MODERATE EYE IRRITATION**
- **MAY CAUSE SKIN SENSITIZATION BY SKIN CONTACT**
- **AVOID CONTACT WITH EYES, SKIN OR CLOTHING**
- **AVOID BREATHING SPRAY MIST**
- **KEEP OUT OF REACH OF CHILDREN**

Acute Health Hazards

Signs and Symptoms of Acute Exposure: May cause eye, respiratory system and skin irritation. May cause contact dermatitis. May cause sensitization by skin contact.

Eye: Irritating to eyes. The degree of the injury will depend on the amount and duration of the contact and the speed and thoroughness of the first aid treatment.

Skin: This product is slightly irritating to the skin. The degree of injury will depend on the amount and duration of the contact and the speed and thoroughness of the first aid treatment.

Ingestion: This product is expected to be minimally toxic if ingested. The degree of injury will depend on the amount of material absorbed and the speed and thoroughness of first aid treatment.

Inhalation: Irritating to the respiratory system.

Chronic Health Hazards (Including Cancer): Limited evidence of carcinogenic effect.

Reproductive and Developmental Toxicity: No evidence of adverse developmental effects in rabbit and rat studies.

SECTION 4: FIRST AID MEASURES

Inhalation: Move person 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 poison control center or doctor for further treatment advice.

Skin: Remove contaminated clothing and thoroughly wash the affected parts of the body with soap and water. Seek medical aid if irritation persists.

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

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

Notes to Physician: Treat symptomatically. There is no specific antidote if this product is ingested. Persons suffering a temporary allergic reaction may respond to treatment with antihistamines or steroid creams and/or systemic steroids.

SECTION 5: FIRE FIGHTING MEASURES

Flammable Limits in Air (% by volume):		
	Upper:	NDA
	Lower:	NDA
Flash Point:		Not flammable
	Method Used:	NDA
Autoignition Temperature:		NDA
LEL/UEL:		NDA
NFPA Hazard Classification:		
	Health:	1
	Flammability:	1
	Reactivity:	0
	Other:	NDA
Extinguishing Media:		Water spray, foam, dry chemical powder, CO_2
Special Fire Fighting Procedures:		Fire fighters should wear full protective gear, including SCBA.
Hazardous Combustion Products:		May decompose at high temperatures forming toxic gases.

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

Retain spilled liquids and collect with sand or other absorbent inert material. Do not wash into sewers or waterways. Use barrier to prevent runoff.

SECTION 7: HANDLING AND STORAGE

Do not eat, drink or smoke when using. Wear appropriate protective clothes, adequate gloves, glasses or masks. Avoid prolonged or frequent skin contact. Wash hands thoroughly after using. Do not wash working clothes with household linen. Store under cover, away from heat and sources of fire at temperature <35°C. Keep away from food, drink, and animal feedstuffs.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection: Wear a face screen or protective safety goggles.

Skin Protection: Wear appropriate, and if possible disposable, clothes. Wear single-use gloves of good quality.

Respiratory/Ventilation Requirements: Wear a face mask with filter appropriate for dust and aerosol.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Off-white to Light grey suspension
Odor:	Slight
Physical State:	Liquid
pH:	4.0 – 5.0
Boiling Point:	212°F
Melting Point:	NDA
Freezing Point	NDA
Vapor Pressure:	NDA
Vapor Density:	NDA
Bulk Density:	10.43 lbs/gallon
Specific Gravity:	1.25
Evaporation Rate:	NDA
Solubility:	Miscible with water in all proportions.
Percent Solids by Weight:	NDA
Percent Volatile:	NDA
Volatile Organic Compounds:	NDA
Molecular Weight:	265.9 (Chlorothalonil), 458.8 (Fluoxastrobin)
Viscosity:	NDA
Partition Coefficient (octanol/water):	NDA

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal conditions of use
Hazardous Polymerization:	This product is not known to polymerize.
Flash Point:	NDA
Flammable Point:	Not flammable
Auto Ignition:	NDA
Incompatibility With Other Materials:	Strong oxidants, strong acids, strong bases
Decomposition Products:	May decompose at high temperatures forming toxic gases.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute:

Oral Toxicity: LD_{50} rat: 1,750 mg/kg
Dermal Toxicity: LD_{50} rabbit: > 5,000 mg/kg
Inhalation Toxicity: LC_{50} rat (4 hour): > 1.08 mg/L
Eye Irritation: Moderately irritating
Skin Irritation: Mildly irritating
Skin Sensitization: A skin sensitizer

Subchronic/Chronic Toxicity:
Chlorothalonil: In dogs, 1 year administration caused a significant decrease in body weight gain and increases in absolute liver and kidney weights.

Fluoxastrobin: Fluoxastrobin has a mild or low toxicity following repeated administration in the rat and mouse but higher toxicity in the dog. In both the 90-day and one-year oral feeding dog studies, there was liver toxicity in the form of cholestasis as evidenced by hepatocytomegaly and cytoplasmic granular changes associated with increased liver weight and increased serum liver alkaline phospatase (ALP). The no observed adverse effect level (NOAEL) of 1.5 mg/kg/day in the one year dog study was used for setting the chronic reference Dose (RfD).

Carcinogenicity:
Chlorothalonil: No evidence of carcinogenicity in dogs after administration for up to one year. Treatment related increases in the incidence of renal tubular adenoma and carcinoma were observed in rats and male mice. Squamous cell adenomas and carcinomas were also observed in the forestomach of both species. The forestomach tumors seen in rodent studies are not relevant to human health, as humans do not possess an anatomical equivalent of the rodent forestomach. The relevance of renal tumors to human health is unclear, although metabolism data suggest that the dog, a species that is resistant to Chlorothalonil-induced renal injury, may be more representative of humans than the rat. IARC identifies Chlorothalonil as a 2B carcinogen (possibly carcinogenic to humans).

Fluoxastrobin: There was no evidence of carcinogenicity in rats or mice.

Mutagenicity:
Chlorothalonil: NDA

Fluoxastrobin: Fluoxastrobin and its major metabolites gave negative results in a battery of genotoxicity tests.

Developmental Toxicity:
Chlorothalonil: No evidence of adverse developmental effects in rabbit and rat studies.

Fluoxastrobin: In the rat and rabbit developmental toxicity studies and the two-generation reproduction rat study, there was no increased susceptibility to prenatal or postnatal exposure to Fluoxastrobin.

Reproduction:
Chlorothalonil: No evidence of adverse developmental effects in rabbit and rat studies.

Fluoxastrobin: In the rat and rabbit developmental toxicity studies and the two-generation reproduction rat study, there was no increased susceptibility to prenatal or postnatal exposure to Fluoxastrobin and no effects on reproduction.

Neurotoxicity:
Chlorothalonil: No evidence in regulatory studies.

Fluoxastrobin: Fluoxastrobin is not acutely neurotoxic in rats up to a single high dose of 2000 mg/kg/day or by repeated dietary feeding in the rat subchronic neurotoxicity screening study where the top dose was nearly half the limit dose of 1000 mg/kg/day. There were no treatment-related neurotoxicity findings in dogs.

SECTION 12: ECOLOGICAL INFORMATION

Environmental Summary: This pesticide is very toxic to aquatic organisms. Do not apply directly to water. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not clean equipment or dispose of equipment wash waters in a manner that will contaminate water resources.

Environmental Fate and Distribution (Chlorothalonil):

DT_{50} soil (field):	6 to 45 days
DT_{50} water:	49 days at 22°C and pH 9

Environmental Fate and Distribution (Fluoxastrobin):

Biodegradation under aerobic conditions could take several months to several years, depending on the soil texture (half life of 29.4 days in sandy loam to 393 days in loamy sand; average half-life of 141 days). Fluoxastrobin is expected to have low to medium mobility, as it absorbs strongly to all tested soils. Fluoxastrobin could persist for several months in non-sand soils to several years in sandy type soils.

Aquatic Organism Toxicity (based on Chlorothalonil Technical):

Freshwater fish (guppy)	LC_{50} (96 hr) = 0.115 mg/L
Rainbow trout	LC_{50} (96 hr) = 47 ppb
Bluegill	LC_{50} (96 hr) = 26.3 ppb

Aquatic Organism Toxicity (based on Fluoxastrobin Technical):

Rainbow trout	LC_{50} (96 hr) = 0.44 mg/L
Bluegill	LC_{50} (96 hr) = 0.97 mg/L

Avian Toxicity (based upon Chlorothalonil Technical):

Japanese quail	LD_{50} = 200 mg/kg

Avian Toxicity (based upon Fluoxastrobin Technical):

Bobwhite quail	LD_{50} = > 2,000 mg/kg

Other Non-Target Organism Toxicity (based on Chlorothalonil Technical):

Bee (*Apis cerana indica*)	LC_{50} oral (48 hr) = 130 ppm
Bee (*Apis cerana indica*)	LD_{50} contact (24 hr) = 2.40 µg/bee

Other Non-Target Organism Toxicity (based on Fluoxastrobin Technical):

Bee (*Apis cerana indica*)	LC_{50} oral (48 hr) = > 843 µg/bee
Bee (*Apis cerana indica*)	LD_{50} contact = > 200 µg/bee

SECTION 13: DISPOSAL CONSIDERATIONS

End users must dispose of any unused product as per the label recommendations and in accordance with all applicable laws and regulations. Check governmental regulations and local authorities for approved disposal of this material.

SECTION 14: TRANSPORT INFORMATION

DOT Classification

Ground Transport – NAFTA
Non-Bulk: Not regulated by US DOT.

Air Transport – NAFTA
Not regulated by US DOT

B/L Freight Classification

Fungicides, NOI, O/T Poison

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): NA

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

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 Company Information (Section 1)
Prepared by:	Ashley R. Brown
Issue date:	8/28/08
Supersedes date:	7/03/08
MSDS number:	00371

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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