SIPCAM AGRO USA, INC.

A co-pack of

Echo® 720 (EPA Reg. No. 60063-7)

With

Muscle® 3.6F (EPA Reg. No. 60063-29)

Material Safety Data Sheets

EPA Reg. No. 60063-7

MATERIAL SAFETY DATA SHEET

Sipcam Agro USA, Inc.
2520 Meridian Parkway, Suite 525
Durham, NC 27713

In Case of Emergency, Call
Sipcam Agro USA, Inc.: 919-226-1195
CHEMTREC: 800-424-9300

GENERAL INFORMATION

1-Slight Health Hazard 0-Noncombustible 0-Nonreactive

Above: Ratings based on NIOSH "Identification System for Occupationally Hazardous Materials" (1974).

TRANSPORTATION INFORMATION

This product is regulated for transportation purposes as follows:

MODE	*BULK (> 119 GALLONS)*	*NON-BULK (< 119 GALLONS)*
IATA (AIR):	Yes	No
IMO (Water):	Yes	Yes
DOT (Land):	Yes	No

Proper Shipping Name: Environmentally hazardous substance, liquid, N.O.S.(chlorothalonil), 9, UN3082, PG III, ERG # 171
Special Provisions: Marine pollutant
Freight class: NMFC Item #102120

SARA TITLE III INFORMATION

313 Inventory Ingredients: Chlorothalonil (54% wt/wt)
312 Hazards Classification: Acute and Chronic Health (See Section V for Health Hazard Information)

PRODUCT IDENTIFICATION

Product Names: Echo 720 Agricultural Fungicide
Synonyms (active ingredient): Tetrachloroisophthalonitrile, Chlorothalonil

HAZARDOUS INGREDIENTS

The substances listed below are those identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Component	CAS No.
Tetrachloroisophthalonitrile	1897-45-6

Exposure Limits for Echo 720 Agricultural Fungicide:

ACGIH-TLV: Not Established

OSHA-PEL: Not Established

PROPOSITION 65
This product contains a chemical known to the State of California to cause cancer.

PHYSICAL DATA (*denotes data developed from technical active ingredient)

Boiling Point (760 mm Hg):	100°C (lowest boiling component)
Melting Point:	Not Applicable
Freezing Point:	-5°C
Specific Gravity (H20=1):	1.34
Vapor Pressure:	*5.72 x 10^{-7} torr @ 25°C
Vapor Density (Air = 1):	Not Determined
Solubility in H20, % by Wt.:	*0.6 - 0.9 ppm. Formulation: dispersible in water
% Volatiles by Vol.:	45
Evaporation Rate (Butyl Acetate = 1):	Not Determined
Appearance and Odor:	Liquid, white, slight odor
Density at 20°C:	1.33 g/ml (11.12 lbs/gal)

pH: 6 to 9

FIRE AND EXPLOSION DATA

Flash Point:	Nonflammable
Autoignition Temperature:	Not Applicable
Flammable Limits in Air, % by Volume:	Noncombustible Lower: Not Applicable Upper: Not Applicable
Extinguishing Media:	Carbon dioxide, foam, dry chemical or water.
Special Fire Fighting Procedures:	Self-contained breathing apparatus should be provided for firefighters.
Unusual Fire and Explosion Hazards:	May decompose under fire conditions emitting toxic and irritant gases (i.e. hydrogen chloride) to the respiratory tract.

HEALTH HAZARD INFORMATION[1]

Oral LD50 (rat):	3,260 mg/kg (U.S. EPA Category III)
Dermal LD50 (rabbit):	>2,020 mg/kg (U.S. EPA Category III)
Inhalation (4-hour) LC50 (rat):	0.11 mg/liter of air (U.S. EPA Category II)
Primary Dermal Irritation Index (rabbit):	Non-irritating (Draize 0.0 / 8.0) (U.S. EPA Category IV)
Primary Eye Irritation (rabbit)	Eye irritant; reversible corneal, iridal and conjunctival effects in unwashed eyes; minimal irritation in washed eyes (U.S. EPA Category III)
Dermal Sensitization:	Non-sensitizer

Emergency and First Aid Procedures

IF INHALED: 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.

IF IN EYES: Hold eye 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 poison control center or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

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

Have the product container or label with you when calling a poison control center or doctor or going for treatment.

NOTES TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Persons having a temporary allergic reaction respond to treatment with antihistamines or steroid creams and/or systemic steroids.

Effects of Chronic Overexposure

Repeated excessive dermal exposure may cause marked skin irritation and may increase the possibility of allergic reactions. Studies on rats and mice have suggested that technical chlorothalonil, when fed at high levels in the diet, may have oncogenic potential to these laboratory animals. However, neither chlorothalonil nor its metabolites interact with DNA and thus are not mutagenic. Tumor formation has been related to a non-genotoxic mechanism of action from which threshold levels have been established on rats and mice. Comprehensive dietary and worker exposure studies have shown exposure levels for humans to be well below these threshold levels - in addition, surveillance of chlorothalonil plant workers for many years has not demonstrated any increase in oncogenic potential to humans.

[1] For transportation purposes, refer to 49 CFR 173.132 (b) (3)

REACTIVITY DATA

Conditions Contributing to Instability: Under normal use conditions, this product is stable.

Incompatibility: Not known.

Hazardous Decomposition Products: May decompose under fire conditions emitting gases and vapors (i.e. hydrogen chloride) which may be toxic and irritating to the respiratory tract.

Conditions Contributing To Hazardous Polymerization: Material not known to polymerize.

SPILL OR LEAK PROCEDURES

Steps To Be Taken If Material Is Released Or Spilled:
This product is toxic to fish. Keep out of lakes, streams or ponds. Contain spills. Remove as much as possible by shoveling and sweeping. Place contaminated materials in closed, labeled containers and store in a safe place to await proper disposal. Do not contaminate water while cleaning equipment or disposing of wastes. Persons performing this work should wear adequate personal protective equipment and clothing.

Waste Disposal Method:
Waste portions of this product and contaminated absorbent materials may be disposed of by incineration provided the following conditions are observed:
Incinerate in a suitable oven fed by a mixture of air and methane, at 1100-1200° C temperature;
The HCl which may form in the incinerator exhaust gas must be conveyed into an aqueous absorption system containing 18-20% of $Ca(OH)_2$.

INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements

Good industrial hygiene practice dictates that indoor work areas be isolated and provided with adequate local exhaust ventilation. Work upwind in out-of-doors batch operations.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY:	NIOSH - approved dust respirators or pesticide respirators
EYE:	Chemical goggles or face shields.
GLOVES:	Wear protective chemical-resistant gloves to minimize skin contact. Special precautions should be taken so product cannot get inside gloves.

OTHER CLOTHING AND EQUIPMENT
Protective clothing consisting of long sleeve shirt and long pants, should be worn when handling this product. The clothing should be changed at least daily. Persons exposed routinely to this active material should shower prior to leaving work each day. Safety shower and eye-wash stations should be provided in all areas in which this product is stored and/or handled. Contaminated clothing should be removed and washed thoroughly before re-using.

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MATERIAL SAFETY DATA SHEET

Sipcam Agro USA, Inc.
300 Colonial Center Parkway, Suite 230
Roswell, GA 30076

In Case of Emergency, Call
Sipcam Agro USA, Inc.: 770-587-1032
CHEMTREC: 800-424-9300

I. GENERAL INFORMATION

1-Slight Health Hazard 0-Noncombustible 0-Nonreactive

Above: Ratings based on NIOSH "Identification System for Occupationally Hazardous Materials" (1974).

II. TRANSPORTATION INFORMATION

This product is regulated for transportation purposes as follows:

	Yes	No
IATA (Air)		X
IMO (Water)		X
DOT (Land)		X

SARA TITLE III INFORMATION
313 Inventory Ingredients: Tebuconazole

312 Hazards Classification: Acute and Chronic Health*

*See Section VII for Health Hazard Information

III. PRODUCT IDENTIFICATION

Product Name(s): Muscle 3.6F
Synonyms: None

IV. HAZARDOUS INGREDIENTS

The substances listed below are those identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Component	CAS No.
Tebuconazole	80443-41-0

Exposure Limits:

ACGIH-TLV: Not Established

OSHA-PEL: Not Established

V. PHYSICAL DATA (* denotes data for technical active ingredient)

Boiling Point:	Not established
Specific Gravity (H_20=1):	Not established
Solubility:	Negligible solubility in water; forms suspension in water
pH:	Not established
% Volatiles by Volume:	Not established
Appearance and Odor:	Light tan liquid

VI. FIRE AND EXPLOSION DATA

Flash Point:	>200° F (Non-flammable)
Extinguishing media:	Water, Carbon dioxide, Dry chemical, Foam
Special fire fighting procedures:	Keep out of smoke; cool exposed containers with water spray. Fight fire from upwind position. Use self-contained breathing equipment. Contain run-off by diking to prevent entry into sewers or waterways. De-contaminate equipment or materials involved in pesticide fires.

VII. HEALTH HAZARD INFORMATION *denotes data for the technical active ingredient

Oral LD50 (rat):	*> 3,700 mg/kg (Category III)
Dermal LD50 (rat):	*> 2,011 mg/kg (Category III)
Inhalation LC50 (4-hour; rat):	*> 2.5 mg/liter of air (Category IV)
Primary Eye Irritation (rabbit):	*Minimally irritating (Category IV)
Primary Dermal Irritation Index (rabbit):	*Slightly irritating (Category IV)
Dermal sensitization (guinea pig):	*Non-sensitizer

Emergency and First Aid Procedures

Eyes: Hold eye 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 poison control center or doctor for treatment advice.

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

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.

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

Possible Effects of Chronic Overexposure (no studies have been performed on humans):
Based on animal toxicity studies on the active ingredient, there may be toxic effects on the following organs following chronic repeated exposure: spleen, liver, adrenal gland, and lens of the eye.
In dermal toxicity studies using rabbits, the active ingredient was administered at doses up to and including 1000 mg/kg for 6 hours/day, 5 days/week for a period of 3 weeks. There were no local or systemic effects observed at any of the levels tested. The no-observed-effect-level (NOEL) was 1000 mg/kg.
In a 3-week inhalation study, rats were exposed to the active ingredient for 6 hours/day, 5 days/week at aerosol concentrations of 1.2, 10.6, or 155.8 mg/cubic meter of air. Liver enzyme effects were observed at the high concentration. The NOEL was 10.6 mg/cubic meter of air.
In chronic dog studies, the active ingredient was administered for 52 weeks at dietary concentrations of 40, 100, 150, 200 or 1000 ppm. Due to a lack of significant effects, the high dose was increased to 2000 ppm at 40 weeks for the remainder of the study. At the high dose, effects relating to liver, spleen, ocular and adrenal were observed. The overall NOEL from these studies was 100 ppm based on adrenal effects.
In a 2-year study, the active ingredient was administered to rats at dietary concentrations of 100, 300 or 1000 ppm. There was a reduction in body weight gains and an increased incidence of liver and spleen effects at the high dose. The NOEL was 300 ppm.
The active ingredient was investigated for carcinogenicity in feeding studies using rats and mice. There was no indication of a carcinogenic effect in rats or mice when tested at dose levels up to and including the maximum tolerated dose (MTD) for each species. An increased incidence of hepatocellular neoplasms occurred in mice at a dose level approximately three fold greater than the MTD.
The active ingredient has been evaluated for developmental toxicity in oral studies using mice, rats and rabbits. In mice treated at dose levels ranging from 1-100 mg/kg, the NOELS for maternal and developmental toxicity were 3 and 10 mg/kg, respectively. When rats were treated at dose levels of 30, 60 or 120 mg/kg, the NOELs for maternal and developmental toxicity were 30 and 60 mg/kg, respectively. For rabbits treated at dose levels of 10, 30 or 100 mg/kg, the NOELs for maternal and developmental toxicity were less than 10 and 30 mg/kg, respectively. In dermal teratology studies on rats and mice, the active ingredient was administered during gestation at dose levels of 100, 300 or 1000 mg/kg. In rats, there was no indication of maternal or

developmental toxicity; therefore, the maternal and developmental NOEL was 1000 mg/kg. In mice, the NOELs for maternal and developmental toxicity were 100 and 300 mg/kg, respectively.
In a reproduction study, the active ingredient was administered to rats at dietary concentrations of 100, 300 or 1000 ppm for 2 generations. Smaller litter sizes and decreased pup weight gain was observed in conjunction with maternal toxicity at the high concentration. The maternal and reproductive NOEL was 300 ppm.

VIII. REACTIVITY DATA

Conditions Contributing to Instability: None known.

Incompatibility: None known.

Hazardous Decomposition Products: Possibly under fire or other extreme conditions, CO_2, oxides of nitrogen

Hazardous Polymerization: Not known to polymerize.

IX. SPILL OR LEAK PROCEDURES

Steps To Be Taken If Material Is Released Or Spilled:
Isolate area and keep unauthorized people way. Do not walk through spilled material. Avoid breathing vapors and skin contact. Remove sources of ignition if combustible or flammable vapors may be present and ventilate area. Wear proper protective equipment. Dike contaminated area with absorbent granules, soil, sand, etc. If large spill, material should be recovered. Small spills can be absorbed with absorbent granules, spills control pads, or any absorbent material. Carefully sweep up absorbed spilled material. Place in covered container for reuse or disposal. Scrub contaminated area with soap and water. Use dry absorbent materials such as clay granules to absorb and collect wash solution for proper disposal. Contaminated soil may have to be removed and disposed. Do not allow material to enter streams, sewers or other waterways or contact vegetation.

Waste Disposal Method:
Dispose in a RCRA hazardous waste incinerator.

X. INDUSTRIAL HYGIENE CONTROL MEASURES

Ventilation Requirements

Good industrial hygiene practice dictates that indoor work areas be isolated and provided with adequate local exhaust ventilation. Work upwind in out-of-doors batch operations.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

EYE: Splashproof goggles or face shields.

RESPIRATOR: If necessary under the conditions of use (enclosed areas), wear a NIOSH-approved pesticide respirator.

GLOVES: Wear protective chemical-resistant gloves to minimize skin-contact.

OTHER CLOTHING AND EQUIPMENT

Protective clothing consisting of long sleeve shirt, long pants, socks and shoes should be worn when handling this product. Clothing should be changed at least daily. Persons exposed routinely to this active material should shower prior to leaving work each day. Safety shower and eye-wash stations should be provided in all areas in which this product is stored and/or handled. Contaminated clothing should be removed and washed thoroughly before re-using. Do not wear leather shoes, as such material cannot be decontaminated.