

# SAFETY DATA SHEET

## ENCLAVE

### 1. IDENTIFICATION

Product name: **ENCLAVE**  
Product type: Fungicide  
EPA Registration No.: 53883-309  
Chemical name of active ingredient(s): **Chlorothalonil:** tetrachloroisophthalonitrile  
**Iprodione:** 3-(3,5-dichlorophenyl)-N-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide  
**Thiophanate methyl:** dimethyl[(1,2-phenylene)-bis(iminocarbonothioyl)]bis(carbamate)  
**Tebuconazole:**  $\alpha$ -[2-(4-chlorophenyl)ethyl]- $\alpha$ -(1,1-dimethylethyl)-1H-1,2,4-triazole-1-ethanol

Manufacturer/Registrant: Control Solutions, Inc.  
5903 Genoa-Red Bluff  
Pasadena, TX 77507

For fire, spill, and/or leak emergencies, contact Chemtrec: Phone: 1-800-424-9300  
For medical emergencies and health and safety inquiries, contact Safety Call: Phone: 1-866-897-8050  
Poison Control Center Phone: 1-800-222-1222

### 2. HAZARDS IDENTIFICATIONS

#### OSHA HCS CLASSIFICATION (29 CFR 1910.1200)

#### Acute Toxicity:

	Acute oral	Acute dermal	Acute inhalation	Eye irritation	Skin irritation	Skin Sensitization
<b>Category</b>	Category 4	NC	Category 4	2B	NC	NC

**NC:** Not classified

**SIGNAL WORD:** WARNING

#### HAZARD STATEMENTS:

- Harmful if swallowed.
- Harmful if inhaled
- Cause eye irritation
- Suspected of causing cancer (Category 2)

#### PICTOGRAM:



**PRECAUTIONARY STATEMENTS:** Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. If swallowed: Call a poison center if you feel unwell. Rinse mouth. Avoid breathing mist, vapors and spray. Use only outdoors or in a well-ventilated area. In inhaled: remove a person to fresh air and keep comfortable for breathing. If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye

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irritation persists: get medical advice. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing and eye protection. Contact Safety Call® International for emergency medical treatment at (866) 897-8050.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

COMMON NAME	CAS NO.	%	OSHA PEL	ACGIH TLV	OTHER	NTP/IARC/OSHA (Carcinogen)
Chlorothalonil	1897-45-6	28.7	NE	NE	NE	IARC – 2B*
Iprodione	36734-19-7	9.4	NE	NE	NE	NA
Thiophanate methyl	23564-05-8	9.4	NE	NE	NE	NA
Tebuconazole	107534-96-3	2.8	NE	NE	NE	NA
Propylene glycol	57-55-6	5	NE	NE	10 mg/m <sup>3</sup> (TWA)**	

NE=Not established; NA=Not applicable.

\*IARC Group 2B: The agent is possibly carcinogenic to humans.

\*\*Recommended by AIHA (American Industrial Hygiene Association)

### 4. FIRST AID MEASURES

FIRST AID	
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continuing rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact SafetyCall® at (866) 897-8050 for emergency medical treatment information.</p>	

### 5. FIRE FIGHTING MEASURES

**FLASH POINT:** Not applicable

**FLAMMABLE LIMITS:** Not applicable

**EXTINGUISHING MEDIA:** Water fog, CO<sub>2</sub>, foam, dry chemical.

**FIRE & EXPLOSION HAZARDS:** Pesticide fires have potential to emit hazardous decomposition products.

**FIRE-FIGHTING PROCEDURES:** Isolate fire area and evacuate downwind. DO NOT breathe gases, smoke or vapors generated. Wear self-contained breathing apparatus and full-protective clothing.

**HAZARDOUS DECOMPOSITION PRODUCTS:** May release irritating and toxic gases due to thermal decomposition.

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### 6. ACCIDENTAL RELEASE MEASURES

**ACTION TO TAKE FOR SPILLS/LEAKS:** Contain spill. Remove as much product as possible by absorbing with inert material. Scrub area with a hard water detergent. Remove any contaminated soil. Place in closed, labeled containers and store in a safe place until disposed. Do not contaminate water while cleaning equipment or disposing of wastes. This product is toxic to fish. Keep out of lakes, streams or ponds. Use proper protective equipment to minimize exposure. Take all necessary actions to prevent and to remedy the adverse effects of the spill. Ensure that the disposal is in compliance with federal requirements and state or local regulations.

### 7. HANDLING AND STORAGE

**PRECAUTIONS TO BE TAKEN IN HANDLING:** Do not contaminate water, food, or feed by storage or disposal or cleaning of equipment. Carefully open containers and after partial use close container tightly. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

**PRECAUTIONS TO BE TAKEN IN STORAGE:** Store in original container in dry area. Store locked up. Do not store in a manner where cross-contamination with other pesticides, fertilizers, food or feed could occur.

**STORAGE TEMPERATURE (MIN/MAX):** Normal ambient temperatures.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.**

**FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.**

**HAND PROTECTION:** Chemical-resistant gloves.

**SKIN PROTECTION:** Long-sleeve shirt, long pants, shoes plus socks.

**EYE PROTECTION:** Protective eyewear or chemical safety glasses with side shields or chemical goggles when working in non-ventilated spaces.

**RESPIRATOR REQUIREMENTS:** For most conditions, no respiratory protection should be needed; however, if handling without sufficient ventilation, use NIOSH approved air-purifying respirator with any N, P or R95 class filter and an organic vapor cartridge.

**VENTILATION:** Whenever possible, adequate ventilation should be used to minimize the need for personal protective equipment.

#### **ADDITIONAL PROTECTIVE MEASURES:**

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them.

#### **USER SAFETY RECOMMENDATIONS:**

##### **Users Should:**

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**EXPOSURE GUIDELINES:** Refer to Section 3.

**ENGINEERING CONTROLS:** Refer to product label. Minimize airborne concentrations.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Off white liquid

**ODOR:** Mild to moderate

**pH:** 3.98

**FLASH POINT:** Not applicable

**SPECIFIC GRAVITY:** 1.247 g/cc (10.4 lb/gal) at 25°C

### 10. STABILITY AND REACTIVITY

**STABILITY:** Stable under normal conditions.

**CONDITIONS TO AVOID:** Highly alkaline conditions. Avoid excessive heat.

**HAZARDOUS DECOMPOSITION PRODUCTS:** May release irritating and toxic gases due to thermal decomposition.

**HAZARDOUS POLYMERIZATION:** Will not occur.

### 11. TOXICOLOGICAL INFORMATION

#### ACUTE TOXICITY/IRRITATION STUDIES:

Acute Oral LD<sub>50</sub> (Rat): > 2,000 mg/kg

Acute Dermal LD<sub>50</sub> (Rabbit): > 2,020 mg/kg

Acute Inhalation LC<sub>50</sub> (Rat): > 2.11 mg/L/4 hr

Eye Irritation: Mildly irritating

Skin Irritation: Non-irritating

Dermal Sensitization: Not a skin sensitizer

#### Reproductive/Developmental Effects:

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

#### Chronic/Subchronic Toxicity Studies:

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

**Neurotoxicity:** Chlorothalonil: No evidence in regulatory studies.

**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).

#### Other Toxicity Information:

Studies on rats and mice have suggested that technical chlorothalonil (97%), 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 for which threshold levels have been established in 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 over twenty years has not demonstrated any increase in oncogenic potential to humans.

May cause sensitization by skin contact. Exposure of the skin to chlorothalonil may result in weak contact dermatitis.

#### Target Organs:

Chlorothalonil: Lung, eye, kidney

Inert Ingredient: Propylene Glycol: CNS, skin, eye,

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### 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL HAZARDS:** This pesticide is toxic to mammals, fish and aquatic invertebrates. Do not apply directly to water, to areas where surface waters present or to intertidal areas below the mean high water mark. Run-off from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash waters or rinsate.

#### ECOTOXICOLOGICAL INFORMATION:

Aquatic Organisms Effects: (Chlorothalonil)

Bluegill sunfish (*Lepomis macrochirus*) LC<sub>50</sub> (96 h) - 59 µg/L

Rainbow trout (*Onchorhynchus mykiss*) LC<sub>50</sub> (96 h) - 47 µg/L

Water flea (*Daphnia magna*) LC<sub>50</sub> (48 h) - 70 µg/L

Algal (*Navicula pelliculosa*) toxicity: EC<sub>50</sub> (72 h) - 5.1 µg/L;

Algal (*Selenastrum capricornutum*) EC<sub>50</sub> (120 h) - 210 µg/L

Mallard duck LD<sub>50</sub> - > 4640 mg/kg

Environmental fate, persistence and degradability, mobility:

Chlorothalonil has low mobility or is immobile in soils. In aerobic and anaerobic soil studies the DT50 was 0.3 to 28 days (20° C). Stable to hydrolysis. Degradation is faster in biotic aquatic systems.

### 13. DISPOSAL CONSIDERATIONS

**PESTICIDE DISPOSAL:** Do not contaminate water, food, or feed by storage or disposal. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. Dispose of excess or waste pesticide by use according to label directions, or contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** Dispose of product containers, waste containers, and residues according to label instructions and local, state, and federal health and environmental regulations.

### 14. TRANSPORT INFORMATION

#### Ground Domestic (DOT):

**Packaging < 10.2 gallons:** Not regulated

**Packaging ≥ 10.2 gallons:** UN3082, Environmentally hazardous substances, liquid, N.O.S.  
(Thiophanate-methyl), 9, PGIII, RQ

**Vessel (IMDG):** UN3082, Environmentally Hazardous substances, liquid, n.o.s. (chlorothalonil), 9, PG III, Marine Pollutant

**Air (IATA):** UN3082, Environmentally Hazardous substances, liquid, n.o.s. (chlorothalonil), 9, PG III

### 15. REGULATORY INFORMATION

#### FIFRA INFORMATION:

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information for safety data sheet, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label.

**CAUTION** Harmful if swallowed, absorbed through skin, or inhaled. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

#### SARA TITLE III CLASSIFICATION:

Section 302: Not applicable.

Section 311/312: Acute health hazard (immediate)  
Chronic health hazard (delayed)

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Section 313: Chlorothalonil (28.7%) CAS# 1897-45-6  
Thiophanate-methyl (9.4%) CAS# 23564-05-8

**CA PROPOSITION 65:** This product contains chemicals (chlorothalonil, iprodione) that are known to the State of California to cause cancer and a chemical (thiophanate-methyl) known to the State of California to cause female and male reproductive toxicity.

**CERCLA RQ:** Thiophanate-methyl RQ= 10 lbs. (Product= 10.2 gallons)

**RCRA CLASSIFICATION:** Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

**TSCA STATUS:** The ingredients of this product are listed on the TSCA inventory or are exempt.

## 16. OTHER INFORMATION

HAZARD RATINGS	NFPA	HMIS	
HEALTH:	1	1	0 MINIMAL
FLAMMABILITY:	1	1	1 SLIGHT
REACTIVITY:	0	0	2 MODERATE
			3 HIGH
			4 SEVERE

**MSDS DATE:** 01-21-2013. Supersedes version dated 12-28-2012. Changes made to all sections.

The information and recommendations contained herein are based upon data believed to be correct. However, no warranty of any kind, expressed or implied, is made with respect to the information contained herein.