

**SAFETY DATA SHEET**  
**SOLSTICE HERBICIDE**

**SDS # : 7453-A**  
**Revision date: 2016-05-26**  
**Format: NA**  
**Version 1.03**



**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Identifier**

**Product Name** SOLSTICE HERBICIDE

**Other means of identification**

**Product Code(s)** 7453-A

**Synonyms** 2-[4-(methylsulfonyl)-2-nitrobenzoyl]-1,3-cyclohexanedione; FLUTHIACET-METHYL:  
methyl {  
2-chloro-4-fluoro-5-[(EZ)-5,6,7,8-tetrahydro-3-oxo-1H,3H-[1,3,4]thiadiazolo[3,4-a]pyridazin-1-ylideneamino]phenylthio} acetate (IUPAC Name); methyl  
2-[[2-chloro-4-fluoro-5-[(tetrahydro-3-oxo-1H,3H-[1,3,4]thiadiazolo[3,4-a]pyridazin-1-ylidene)amino]phenyl]thio]acetate(CAS Name)

**Active Ingredient(s)** Mesotrione, Fluthiacet-methyl

**Chemical Family** Benzoylcyclohexanedione, Thiadiazoles

**Recommended use of the chemical and restrictions on use**

**Recommended Use:** Herbicide

**Restrictions on Use:** Use as recommended by the label

**Manufacturer Address**

FMC Corporation  
2929 Walnut Street  
Philadelphia, PA 19104  
(215) 299-6000 (General Information)  
msdsinfo@fmc.com (E-Mail General Information)

**Emergency telephone number**

Medical Emergencies:  
1 800 / 331-3148 (PROSAR - U.S.A. & Canada)  
1 651 / 632-6793 (PROSAR - All Other Countries - Collect)  
For leak, fire, spill or accident emergencies, call:  
1 800 / 424 9300 (CHEMTREC - U.S.A.)  
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)

**2. HAZARDS IDENTIFICATION**

**Classification**

**OSHA Regulatory Status**


This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Carcinogenicity	Category 2

Specific target organ toxicity (repeated exposure)	Category 2
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**GHS Label elements, including precautionary statements**

**EMERGENCY OVERVIEW**

<p><b>Danger</b></p> <p><b>Hazard Statements</b>          H332 - Harmful if inhaled          H351 - Suspected of causing cancer          H373 - May cause damage to organs through prolonged or repeated exposure</p> 
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**Precautionary Statements - Prevention**

P201 - Obtain special instructions before use  
 P202 - Do not handle until all safety precautions have been read and understood  
 P281 - Use personal protective equipment as required  
 P271 - Use only outdoors or in a well-ventilated area  
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray

**Precautionary Statements - Response**

P308 + P313 - If exposed or concerned: Get medical advice/attention  
 P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

**Precautionary Statements - Storage**

P405 - Store locked up

**Precautionary Statements - Disposal**

P501 - Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

No hazards not otherwise classified were identified.

**Other Information**

Very toxic to aquatic life with long lasting effects. May be harmful in contact with skin.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Chemical Family** Benzoylcyclohexanedione, Thiadiazoles.

Chemical name	CAS-No	Weight %
Fluthiacet-methyl	117337-19-6	2.2
Mesotrione	104206-82-8	38.52
Propylene glycol	57-55-6	1-10

Synonyms are provided in Section 1.

**4. FIRST AID MEASURES**

**Eye Contact**

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

<b>Skin Contact</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.
<b>Inhalation</b>	Move person to fresh air. If person is not breathing, contact emergency medical services, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
<b>Ingestion</b>	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
<b>Most important symptoms and effects, both acute and delayed</b>	None known.
<b>Indication of immediate medical attention and special treatment needed, if necessary</b>	Treat symptomatically.

**5. FIRE-FIGHTING MEASURES**

<b>Suitable Extinguishing Media</b>	Foam. Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Water spray or fog.
<b>Specific Hazards Arising from the Chemical</b>	Thermal decomposition can lead to release of irritating and toxic gases and vapors
<b><u>Explosion data</u></b>	
<b>Sensitivity to Mechanical Impact</b>	Not sensitive.
<b>Sensitivity to Static Discharge</b>	Not applicable.
<b>Protective equipment and precautions for firefighters</b>	As in any fire, wear self-contained breathing apparatus and full protective gear. Isolate fire area. Evacuate downwind.

**6. ACCIDENTAL RELEASE MEASURES**

<b>Personal Precautions</b>	Isolate and post spill area. Remove all sources of ignition. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.
<b>Other</b>	For further clean-up instructions, call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.
<b>Environmental Precautions</b>	Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains.
<b>Methods for Containment</b>	Dike to prevent runoff. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
<b>Methods for cleaning up</b>	Clean and neutralize spill area, tools and equipment by washing with bleach water and soap. Absorb rinsate and add to the collected waste. Waste must be classified and labeled prior to recycling or disposal. Dispose of waste as indicated in Section 13.

**7. HANDLING AND STORAGE**

<b>Handling</b>	Avoid breathing vapors or mists. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.
<b>Storage</b>	Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep out of reach of children and animals. Keep/store only in original container.
<b>Incompatible products</b>	None known

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Control parameters

Chemical name	British Columbia	Quebec	Ontario TWAEV	Alberta
Propylene glycol (57-55-6)	-	-	TWA: 10 mg/m <sup>3</sup> aerosol only  TWA: 50 ppm aerosol and vapor  TWA: 155 mg/m <sup>3</sup> aerosol and vapor	-

**Appropriate engineering controls**

**Engineering measures** Apply technical measures to comply with the occupational exposure limits. Ensure adequate ventilation, especially in confined areas. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

**Individual protection measures, such as personal protective equipment**

**Eye/Face Protection** For dust, splash, mist or spray exposure, wear chemical protective goggles.

**Skin and Body Protection** Wear long-sleeved shirt, long pants, socks, shoes, chemical-resistant gloves and headgear.

**Hand Protection** Protective gloves

**Respiratory Protection** For dust, splash, mist or spray exposures wear a filtering mask.

**Hygiene measures** Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

**General information** If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<b>Appearance</b>	Off-white to beige Liquid suspension
<b>Physical State</b>	Liquid
<b>Color</b>	Off-white to beige
<b>Odor</b>	Mild Organic
<b>Odor threshold</b>	No information available
<b>pH</b>	3.48 @ 23.5 °C
<b>Melting point/freezing point</b>	Not applicable
<b>Boiling Point/Range</b>	No information available
<b>Flash point</b>	> 100 °C / > 212 °F
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid, gas)</b>	No information available
<b>Flammability Limit in Air</b>	
<b>Upper flammability limit:</b>	No information available
<b>Lower flammability limit:</b>	No information available
<b>Vapor pressure</b>	No information available
<b>Vapor density</b>	No information available
<b>Density</b>	1.19 g/mL @ 22.8 °C
<b>Specific gravity</b>	No information available
<b>Water solubility</b>	Dispersible in water
<b>Solubility in other solvents</b>	No information available
<b>Partition coefficient</b>	No information available
<b>Autoignition temperature</b>	No information available

Decomposition temperature	No information available
Viscosity, kinematic	No information available
Viscosity, dynamic	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Molecular weight	No information available
Bulk density	9.9 lb/gal @ 22.8 °C

## 10. STABILITY AND REACTIVITY

Reactivity	Not applicable
Chemical Stability	Stable under normal conditions with greater than 10% water content. Upon storage low levels of hydrogen cyanide gas may develop in container headspace.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Do not allow evaporation to dryness. Heat, flames and sparks. Temperatures above 55°C.
Incompatible materials	None known.
Hazardous Decomposition Products	Carbon oxides (COx). Hydrogen cyanide.

## 11. TOXICOLOGICAL INFORMATION

### Product Information

LD50 Oral	> 5000 mg/kg (rat)
LD50 Dermal	> 2000 mg/kg (rat)
LC50 Inhalation	> 2.09 mg/L (rat)

Serious eye damage/eye irritation	Non-irritating.
Skin corrosion/irritation	Non-irritating.
Sensitization	Non-sensitizing

### Information on toxicological effects

**Symptoms** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

<b>Chronic toxicity</b>	Effects are expected to be similar to those that are seen with acute toxicity. Prolonged exposure may cause chronic effects. Possible risks of irreversible effects.
<b>Mutagenicity</b>	Mesotrione, Fluthiacet-methyl: Not genotoxic in laboratory studies.
<b>Carcinogenicity</b>	Mesotrione: No evidence of carcinogenicity from animal studies. Fluthiacet-methyl caused increases in benign pancreatic tumors in male rats at the highest dose, along with pancreatic and liver toxicity. There was an increase in liver tumors at two highest doses in male mice, along with hepatotoxicity, that could both be secondary to liver toxicity. New data indicates that there is no human risk.
<b>Neurological effects</b>	Mesotrione, Fluthiacet-methyl: Not neurotoxic.
<b>Reproductive toxicity</b>	Mesotrione, Fluthiacet-methyl: No toxicity to reproduction in animal studies.
<b>Developmental toxicity</b>	Mesotrione: Not teratogenic in animal studies. Fluthiacet-methyl: A slight delay in fetal development in the rat, with no effects in the rabbit.
<b>STOT - single exposure</b>	No information available.
<b>STOT - repeated exposure</b>	May cause damage to organs through prolonged or repeated exposure. See listed target organs below.
<b>Target organ effects</b>	Liver, bone marrow, spleen, pancreas, lymphatic system, hematopoietic system, uterus and blood. Eyes.
<b>Neurological effects</b>	Mesotrione, Fluthiacet-methyl: Not neurotoxic.
<b>Aspiration hazard</b>	No information available.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

<b>Fluthiacet-methyl (117337-19-6)</b>				
Active Ingredient(s)	Duration	Species	Value	Units
Fluthiacet-methyl	72 h LC50	Algae	0.00251	mg/L
	96 h LC50	Fish	0.043	mg/L
	48 h EC50	Crustacea	2.3	mg/L
	21 d NOEC	Fish	0.0027	mg/L
	21 d NOEC	Crustacea	0.035	mg/L

<b>Mesotrione (104206-82-8)</b>				
Active Ingredient(s)	Duration	Species	Value	Units
Mesotrione	96 h LC50	Rainbow trout	>114	ppm
	5 d EC50	Algae	1.9	ppm
	48 h EC50	Daphnia magna	840	ppm
	14 d LD50	Bobwhite quail	>2000	mg/kg

**Persistence and degradability** Mesotrione, Fluthiacet-methyl: Non-persistent. Does not readily hydrolyze.

**Bioaccumulation** Fluthiacet-methyl: The substance does not have a potential for bioconcentration.

**Mobility** Mesotrione: Mobile; Has potential to reach ground water. Fluthiacet-methyl: Slightly mobile; Not expected to reach groundwater.

**13. DISPOSAL CONSIDERATIONS**

**Waste disposal methods** Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance.

**Contaminated Packaging** Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions.

**14. TRANSPORT INFORMATION**

**DOT** This material is not a hazardous material as defined by U.S. Department of Transportation at 49 CFR Parts 100 through 185.

**TDG** Classification below is only applicable when shipped by vessel and is not applicable when shipped by road or rail only.

**UN/ID no** UN3082

**Proper Shipping Name** Environmentally hazardous substance, liquid, n.o.s.

**Hazard class** 9

**Packing Group** III

**Marine Pollutant** Mesotrione, Fluthiacet-methyl.

**Description** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Mesotrione, Fluthiacet-methyl), 9, PGIII, Marine Pollutant

**ICAO/IATA**

**UN/ID no** UN3082

**Proper Shipping Name** Environmentally hazardous substance, liquid, n.o.s.

**Hazard class** 9

**Packing Group** III

**Description** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Mesotrione, Fluthiacet-methyl), 9, PGIII, Marine Pollutant

**IMDG/IMO**

**UN/ID no** UN3082

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**Packing Group** III  
**EmS No.** F-A, S-F  
**Marine Pollutant** Mesotrione, Fluthiacet-methyl  
**Description** UN3082, Environmentally hazardous substance, liquid, n.o.s. (Mesotrione, Fluthiacet-methyl), 9, PGIII, Marine Pollutant

## 15. REGULATORY INFORMATION

### U.S. Federal Regulations

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

#### **SARA 311/312 Hazard Categories**

**Acute health hazard** No  
**Chronic health hazard** Yes  
**Fire hazard** No  
**Sudden release of pressure hazard** No  
**Reactive Hazard** No

#### **Clean Water Act**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Formaldehyde 50-00-0	100 lb			X
Naphthalene 91-20-3	100 lb	X	X	X

#### **CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Formaldehyde 50-00-0	100 lb 45.4 kg	100 lb
Methyl ethyl ketone 78-93-3	5000 lb 2270 kg	
Naphthalene 91-20-3	100 lb 45.4 kg	

#### *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 required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:*

#### **CAUTION**

*Harmful if absorbed through skin. Causes moderate eye irritation.  
SOLSTICE HERBICIDE is very toxic to algae and moderately toxic to fish.*

### US State Regulations

#### **California Proposition 65**





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**End of Safety Data Sheet**