



## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Patriot Selective Herbicide

**EPA Reg. No.:** 228-391

**Product Type:** Herbicide

**Company Name:** Nufarm Americas Inc  
11901 S. Austin Avenue  
Alsip, IL 60803  
1-800-345-3330

**Telephone Numbers:** For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,  
Call CHEMTREC Day or Night: 1-800-424-9300  
For Medical Emergencies Only, Call 1-877-325-1840

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not exactly the same as on the FIFRA label. Certain sections are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

## 2. HAZARDS IDENTIFICATION

**PHYSICAL HAZARDS:**

Not hazardous

**HEALTH HAZARDS:**

Carcinogen

Category 1A

Specific Target Organ Toxicity – Repeat Exposure

Category 1

**ENVIRONMENTAL HAZARDS:**

Hazardous to aquatic environment, acute

Category 1

Hazardous to aquatic environment, chronic

Category 1

**SIGNAL WORD:**

DANGER

**HAZARD STATEMENTS:**

May cause cancer by inhalation. Causes damage to lungs through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.



**PRECAUTIONARY STATEMENTS**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Wash thoroughly after handling. Do not eat, drink, or smoke when using this product. Use personal protective equipment as required. Avoid release to the environment.

IF exposed or concerned: Get medical advice. Get medical advice if you feel unwell. Collect spillage.

Store locked up.

Dispose of contents in accordance with local, state, and federal regulations.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	% BY WEIGHT
Metsulfuron-methyl	74223-64-6	58.2 – 61.8
Kaolin	1332-58-7	13.3 – 14.7
Crystalline Silica (quartz)	14808-60-7	< 0.2
Titanium dioxide	13463-67-7	< 0.3
Other Ingredients	Trade Secret	Trade Secret
<b>Synonyms:</b>	Mixture containing Metsulfuron methyl (Methyl 2-[ [ [ [(4-methoxy-6-methyl-1,3,5-triazin-2-ly) amino]carbonyl]amino] sulfonyl]benzoate)	

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

### 4. FIRST AID MEASURES

**If on Skin or Clothing:** Take off contaminated clothing. Wash with soap and water. Get medical attention if irritation develops and persists.

**If in Eyes:** Hold eye open and rinse slowly and gently with water for several minutes. Remove contact lenses, if present, then continue rinsing eye. Get medical attention if irritation occurs and persists.

**If Swallowed:** Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. If symptoms develop, get medical advice.

**If Inhaled:** Move person to fresh air. If symptoms develop, get medical advice.

**Most important symptoms/effects, acute and delayed:** May cause mild eye irritation. Prolonged or repeated inhalation may cause lung damage or cancer.

**Indication of immediate medical attention and special treatment if needed:** For ingestion there is no specific antidote available. Treat symptomatically.

### 5. FIRE FIGHTING MEASURES

**Extinguishing Media:** Use extinguishing media suitable for surrounding materials. Dry chemical, carbon dioxide, foam, water spray or fog.

**Special Fire Fighting Procedures:** Firefighters should wear NIOSH approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

**Unusual Fire and Explosion Hazards:** Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source, is a potential dust explosion hazard. If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later. Decontaminate tools and equipment following cleanup.

**Hazardous Decomposition Materials (Under Fire Conditions):** May produce gases such as oxides of carbon, hydrogen, nitrogen and sulfur.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

**Environmental Precautions:** Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

**Methods for Containment:** Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

**Methods for Cleanup and Disposal:** Avoid creation of dusty conditions. If dry, sweep or scoop up material and place into container for disposal. If wet, pump any free liquid into an appropriate closed container. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

**Other Information:** Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

### 7. HANDLING AND STORAGE

#### HANDLING:

Avoid contact with eyes or clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and

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water. 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.

### STORAGE:

Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place. Do not contaminate water, food or feed by storage or disposal.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

### Personal Protective Equipment:

**Eye/Face Protection:** To avoid contact with eyes, wear chemical goggles. An emergency eyewash or water supply should be readily accessible to the work area.

**Skin Protection:** To avoid contact with skin, wear long-sleeved shirt and long pants, shoes, socks, and chemical-resistant gloves. Washing facilities should be readily accessible to the work area.

**Respiratory Protection:** Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

**General Hygiene Considerations:** Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

### Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
Metsulfuron-methyl	NE	NE	NE	NE	
Kaolin	15 (T) 5 (R)	NE	2.0 (R)	NE	mg/m <sup>3</sup>
Crystalline Silica (quartz)	30 / %SiO <sub>2</sub> +2 (T) 10 / %SiO <sub>2</sub> +2 (R)	NE	0.025 (R)	NE	mg/m <sup>3</sup>
Titanium dioxide	15 (T)	NE	10	NE	mg/m <sup>3</sup>
Other Ingredients	NE	NE	NE	NE	

NE = Not Established

T= Total Dust

R= Respirable Fraction

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Light brown granular solid
<b>Odor:</b>	Mild
<b>Odor threshold:</b>	No data available
<b>pH:</b>	4.01 (1% w/w dispersion in DIW)
<b>Melting point/freezing point:</b>	No data available
<b>Initial boiling point and boiling range</b>	No data available
<b>Flash point:</b>	No data available
<b>Evaporation rate:</b>	No data available
<b>Flammability (solid, gas):</b>	No data available
<b>Upper/lower flammability or explosive limits:</b>	No data available
<b>Vapor pressure:</b>	No data available
<b>Vapor density:</b>	Not applicable
<b>Relative density:</b>	1.3976 g/cc
<b>Solubility(ies):</b>	No data available
<b>Partition coefficient: n-octanol/water:</b>	No data available
<b>Autoignition temperature:</b>	No data available
<b>Decomposition temperature:</b>	No data available

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**Viscosity:** Not applicable due to product form (solid)

**Note:** Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

## 10. STABILITY AND REACTIVITY

**Reactivity:** Not reactive.

**Chemical Stability:** This material is stable under normal handling and storage conditions.

**Possibility of Hazardous Reactions:** Will not occur.

**Conditions to Avoid:** Excessive heat. Do not store near heat or flame.

**Incompatible Materials:** Strong oxidizing agents: bases and acids.

**Hazardous Decomposition Products:** Under fire conditions may produce gases such as oxides of carbon, hydrogen, nitrogen and sulfur.

## 11. TOXICOLOGICAL INFORMATION

**Likely Routes of Exposure:** Inhalation, eye and skin contact.

**Symptoms of Exposure:**

**Eye Contact:** Slightly irritating based on toxicity studies.

**Skin Contact:** Mildly toxic and non-irritating based on toxicity studies.

**Ingestion:** Slightly toxic based on toxicity studies.

**Inhalation:** Low inhalation toxicity. May cause cancer or lung damage through prolonged or repeated exposure.

**Delayed, immediate and chronic effects of exposure:** None expected.

**Toxicological Data:**

Data from laboratory studies on a substantially similar product are summarized below:

**Oral:** Rat LD<sub>50</sub>: >5,000 mg/kg

**Dermal:** Rat LD<sub>50</sub>: >5,000 mg/kg

**Inhalation:** Rat 4-hr LC<sub>50</sub>: >5 mg/L (based on data for Metsulfuron methyl)

**Eye Irritation:** Rabbit: Slight irritation

**Skin Irritation:** Rabbit: Mildly irritating

**Skin Sensitization:** Not a contact sensitizer in guinea pigs following repeated skin exposure.

**Subchronic (Target Organ) Effects:** Repeated overexposure to metsulfuron-methyl may cause decreased body weight gain and decreased liver weights. Prolonged or repeated inhalation may cause cancer or lung damage.

**Carcinogenicity / Chronic Health Effects:** There was no evidence of carcinogenicity in animal studies using metsulfuron-methyl.

**Reproductive Toxicity:** Animal tests with metsulfuron-methyl have not demonstrated reproductive effects.

**Developmental Toxicity:** Animal tests with metsulfuron-methyl have not demonstrated developmental effects.

**Genotoxicity:** There have been some positive and negative studies, but the weight of evidence is that metsulfuron-methyl is not mutagenic.

**Assessment Carcinogenicity:**

This product contains substances that are considered to be probable or suspected human carcinogens as follows:

Component	Regulatory Agency Listing As Carcinogen			
	ACGIH	IARC	NTP	OSHA
Metsulfuron Methyl	No	No	No	No
Kaolin	A4	No	No	No
Crystalline Silica (quartz)	A2	1	Known	No
Titanium dioxide	A4	2B	No	No
Other Ingredients	No	No	No	No

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity:**

Data on Metsulfuron-methyl technical:

**Bluegill** 96-hour LC<sub>50</sub>: >150 mg/l

**Rainbow Trout** 96-hour EC<sub>50</sub>: >150 mg/l

**Daphnia** 48-hour EC<sub>50</sub>: >150 mg/l

**Green Algae** 72-hour EC<sub>50</sub>: 0.045 mg/l

**Bobwhite Quail** 8-day Dietary LC<sub>50</sub>: >5,620 ppm

**Mallard Duck** 8-day Dietary LC<sub>50</sub>: >5,620 ppm

**Mallard Duck** Oral LD<sub>50</sub>: >2,510 mg/kg

**Honey Bee** Contact LD<sub>50</sub>: >25 ug/bee

**Environmental Fate:**

Metsulfuron-methyl is relatively mobile in most soils, but will be retained longer in soils with higher percentages of organic matter. It is more mobile in alkaline soils than in acidic soils. Metsulfuron-methyl will degrade faster under acidic conditions, and in soils with higher moisture contents and higher temperature. Metsulfuron-methyl is stable to photolysis, but will break down in ultraviolet light. Half-life estimates in soil range from 14 to 180 days, with an average of 30 days. Metsulfuron-methyl is stable to hydrolysis at neutral and alkaline pHs. The estimated half-life in acidic water is 3 weeks.

**13. DISPOSAL CONSIDERATIONS****Waste Disposal Method:**

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**Container Handling and Disposal:**

Non-refillable container. Do not reuse or refill this container. Offer for recycling, if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank. Fill the container half full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

**14. TRANSPORTATION INFORMATION**

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this SDS.

**DOT**

Non Regulated

**IMDG**

UN 3077, Environmentally hazardous substance, solid, nos, (Metsulfuron-methyl), 9, III, Marine Pollutant

**IATA**

UN 3077, Environmentally hazardous substance, solid, nos, (Metsulfuron-methyl), 9, III,

**15. REGULATORY INFORMATION****EPA FIFRA INFORMATION**

This chemical is a pesticide product registered by the United States 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 (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION. Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing.

**U.S. FEDERAL REGULATIONS**

**TSCA Inventory:** This product is exempted from TSCA because it is solely for FIFRA regulated use.

**SARA Hazard Notification/Reporting:****Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):**

Chronic Health

**Section 313 Toxic Chemical(s):**

None

**Reportable Quantity (RQ) under U.S. CERCLA:**

None

**RCRA Waste Code:**

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.

**State Information:**

Other state regulations may apply. Check individual state requirements.

**California Proposition 65:** Not Listed.

**16. OTHER INFORMATION****National Fire Protection Association (NFPA) Hazard Rating:**

**Rating for this product: Health: 1 Flammability: 1 Reactivity: 0**

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

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