

Product Name: CHAPARRAL* Herbicide

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Dow AgroSciences LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification

Product Name

CHAPARRAL* Herbicide

COMPANY IDENTIFICATION

Dow AgroSciences LLC
A Subsidiary of The Dow Chemical Company
9330 Zionsville Road
Indianapolis, IN 46268-1189
USA

Customer Information Number: 800-992-5994

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 800-992-5994

Local Emergency Contact: 800-992-5994

2. Hazards Identification

Emergency Overview

Color: Brown

Physical State: Granules.

Odor: Mild

Hazards of product:

CAUTION! May cause eye irritation. May cause skin irritation. Powdered material may form explosive dust-air mixture. Isolate area. Toxic fumes may be released in fire situations. Slipping hazard.

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Eye Contact: May cause moderate eye irritation. May cause slight corneal injury. Solid or dust may cause irritation or corneal injury due to mechanical action.

Skin Contact: Brief contact may cause moderate skin irritation with local redness.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: Inhalation is unlikely due to physical state. No adverse effects are anticipated from single exposure to dust.

Ingestion: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

Aspiration hazard: Based on physical properties, not likely to be an aspiration hazard.

Effects of Repeated Exposure: For similar active ingredient(s). Aminopyralid. In animals, effects have been reported on the following organs: Gastrointestinal tract.

Cancer Information: Lung fibrosis and tumors have been observed in rats exposed to titanium dioxide in two lifetime inhalation studies. Effects are believed to be due to overloading of the normal respiratory clearance mechanisms caused by the extreme study conditions. Workers exposed to titanium dioxide in the workplace have not shown an unusual incidence of chronic respiratory disease or lung cancer. Titanium dioxide was not carcinogenic in laboratory animals in lifetime feeding studies.

3. Composition Information

Component	CAS #	Amount
Aminopyralid Potassium	566191-87-5	62.13 %
Metsulfuron-methyl	74223-64-6	9.45 %
Titanium dioxide	13463-67-7	0.1 %
Kaolin	1332-58-7	>= 0.2 - <= 5.2 %
Balance		>= 23.12 - <= 28.12 %

4. First-aid measures

Eye Contact: Hold eyes 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 eyes. Call a poison control center or doctor for treatment advice.

Skin Contact: 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 an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Ingestion: No emergency medical treatment necessary.

Notes to Physician: May cause injury due to mechanical action. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

Emergency Personnel Protection: If potential for exposure exists refer to Section 8 for specific personal protective equipment.

5. Fire Fighting Measures

Extinguishing Media: Water. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers.

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles.

Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires. Move container from fire area if this is possible without hazard. Contain fire water run-

off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Pneumatic conveying and other mechanical handling operations can generate combustible dust. To reduce the potential for dust explosions, do not permit dust to accumulate. Dense smoke is produced when product burns.

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

6. Accidental Release Measures

Steps to be Taken if Material is Released or Spilled: Contain spilled material if possible. Small spills: Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

Personal Precautions: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Spilled material may cause a slipping hazard. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental Precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

7. Handling and Storage

Handling

General Handling: Keep out of reach of children. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Do not swallow. Avoid breathing dust or mist. Use with adequate ventilation. Good housekeeping and controlling of dusts are necessary for safe handling of product. Keep away from heat, sparks and flame.

Storage

Store in a dry place. Store in original container. Do not store near food, foodstuffs, drugs or potable water supplies.

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Titanium dioxide	ACGIH	TWA	10 mg/m ³
	OSHA Table Z-1	PEL Total dust.	15 mg/m ³
	Z3	Total dust.	5 mg/m ³ millions of particles per cubic foot of air
	Z3	Respirable fraction.	15 mg/m ³ millions of particles per cubic foot of air

Kaolin	ACGIH	TWA	2 mg/m3
		Respirable fraction.	The value is for particulate matter containing no asbestos and <1% crystalline silica.
	OSHA Table Z-1	PEL Respirable fraction.	5 mg/m3
	OSHA Table Z-1	PEL Total dust.	15 mg/m3

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Personal Protection

Eye/Face Protection: Use chemical goggles.

Skin Protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyvinyl chloride ("PVC" or "vinyl"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Respiratory Protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, in dusty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

9. Physical and Chemical Properties

Physical State	Granules.
Color	Brown
Odor	Mild
Flash Point - Closed Cup	Not applicable
Flammable Limits In Air	Lower: Not applicable Upper: Not applicable
Autoignition Temperature	Not applicable
Vapor Pressure	Not applicable
Boiling Point (760 mmHg)	Not applicable.
Vapor Density (air = 1)	Not applicable
Specific Gravity (H2O = 1)	Not applicable
Liquid Density	Not applicable
Bulk Density	0.0007 kg/m3 @ 22.8 °C Literature
Freezing Point	Not applicable
Melting Point	No test data available

Solubility in water (by weight)	No test data available
pH	10.3 (@ 1 %) <i>pH Electrode</i> (1% dispersion)
Decomposition Temperature	No test data available
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Dynamic Viscosity	Not applicable
Kinematic Viscosity	Not applicable

10. Stability and Reactivity

Stability/Instability

Thermally stable at typical use temperatures.

Conditions to Avoid: Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible Materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Hazardous Polymerization

Will not occur.

Thermal Decomposition

Decomposition products depend upon temperature, air supply and the presence of other materials. Toxic gases are released during decomposition.

11. Toxicological Information

Acute Toxicity

Ingestion

As product. LD50, Rat, female > 5,000 mg/kg

Dermal

As product. LD50, Rat, male and female > 5,000 mg/kg

Inhalation

LC50, 4 h, Aerosol, Rat, male and female > 5.09 mg/l

Eye damage/eye irritation

May cause moderate eye irritation. May cause slight corneal injury. Solid or dust may cause irritation or corneal injury due to mechanical action.

Skin corrosion/irritation

Brief contact may cause moderate skin irritation with local redness.

Sensitization

Skin

Did not cause allergic skin reactions when tested in guinea pigs.

Respiratory

No relevant information found.

Repeated Dose Toxicity

For similar active ingredient(s). Aminopyralid. In animals, effects have been reported on the following organs: Gastrointestinal tract.

Chronic Toxicity and Carcinogenicity

Lung fibrosis and tumors have been observed in rats exposed to titanium dioxide in two lifetime inhalation studies. Effects are believed to be due to overloading of the normal respiratory clearance mechanisms caused by the extreme study conditions. Workers exposed to titanium dioxide in the workplace have not shown an unusual incidence of chronic respiratory disease or lung cancer. Titanium dioxide was not carcinogenic in laboratory animals in lifetime feeding studies. For the active ingredient(s): Aminopyralid. Metsulfuron-methyl. Did not cause cancer in laboratory animals.

Carcinogenicity Classifications:

Component	List	Classification
Titanium dioxide	IARC	Possibly carcinogenic to humans.; 2B

Developmental Toxicity

For the active ingredient(s): Aminopyralid. Metsulfuron-methyl. Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive Toxicity

For the active ingredient(s): Aminopyralid. Metsulfuron-methyl. In animal studies, did not interfere with reproduction.

Genetic Toxicology

For similar active ingredient(s). Aminopyralid. In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative. For the active ingredient(s): Metsulfuron-methyl. In vitro genetic toxicity studies were predominantly negative.

12. Ecological Information

ENVIRONMENTAL FATE

Data for Component: **Aminopyralid Potassium**

Movement & Partitioning

For similar active ingredient(s). Aminopyralid. Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient, n-octanol/water (log Pow): 0.72 Estimated.

Persistence and Degradability

For similar active ingredient(s). Aminopyralid. Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

OECD Biodegradation Tests: For similar material(s): Aminopyralid.

Biodegradation	Exposure Time	Method
0 %	28 d	OECD 301F Test

Data for Component: **Metsulfuron-methyl**

Movement & Partitioning

Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Persistence and Degradability

Material is expected to be readily biodegradable.

Data for Component: **Titanium dioxide**

Movement & Partitioning

Partitioning from water to n-octanol is not applicable.

Persistence and Degradability

Biodegradation is not applicable.

Data for Component: **Kaolin**

Movement & Partitioning

Partitioning from water to n-octanol is not applicable.

Persistence and Degradability

Biodegradation is not applicable.

ECOTOXICITY

Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L). Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), static renewal, 96 h: > 120 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, static renewal, 48 h, immobilization: > 120 mg/l

Toxicity to Above Ground Organisms

oral LD50, bobwhite (*Colinus virginianus*): > 2,250 mg/kg

Toxicity to Soil Dwelling Organisms

LC50, Earthworm *Eisenia foetida*, adult, 14 d: 2,000 mg/kg

13. Disposal Considerations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

14. Transport Information

DOT Non-Bulk

NOT REGULATED

DOT Bulk

NOT REGULATED

IMDG

NOT REGULATED

ICAO/IATA

NOT REGULATED

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	No
Reactive Hazard	No

Sudden Release of Pressure Hazard No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Titanium dioxide	13463-67-7	0.1%
Kaolin	1332-58-7	>= 0.2 - <= 5.2 %

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Toxic Substances Control Act (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

16. Other Information

Hazard Rating System

NFPA	Health	Fire	Reactivity
	1	1	0

Revision

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DAS Code: GF-2050

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level

HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

Dow AgroSciences LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.