

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

Effective Date: 19-Aug-10
Product Code: 20126
MSDS: 004006

SPIKE* 20P HERBICIDE SPECIALTY

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Spike* 20P Herbicide Specialty

COMPANY IDENTIFICATION:

Dow AgroSciences
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Gray to dark brown pellet. Faint musty odor. May cause slight eye irritation with corneal injury. LD₅₀ for skin absorption in rabbits is >2000 mg/kg. Oral LD₅₀ for rats is >2000 mg/kg. Will emit toxic fumes if involved in a fire. Toxic to fish.

Toxic to fish.

EMERGENCY PHONE NUMBER: 800-992-5994

3. COMPOSITION/INFORMATION ON INGREDIENTS:

Tebuthiuron: N-(5-(1,1-Di- CAS# 034014-18-1 20%
methylethyl)-1,3,4-thiadiazol-
2-yl)-N,N'-Dimethylurea
Inert Ingredients, total including: 80%
Clay (Kaolin, crystalline silica) CAS# 001332-58-7

4. FIRST AID:

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

SKIN: Wash off in flowing water or shower.

INGESTION: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: Not applicable

METHOD USED: Not applicable

FLAMMABLE LIMITS

LFL: Not applicable

UFL: Not applicable

AUTO-IGNITION TEMPERATURE: No ignition up to 1382°F (750°C)

EXTINGUISHING MEDIA: Use water fog, foam, or CO₂ if product is involved in fire.

FIRE AND EXPLOSION HAZARDS: Will emit toxic vapors as it burns.

FIRE-FIGHTING EQUIPMENT: Wear positive-pressure, self-contained breathing apparatus and full protective clothing if product is involved in fire.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS: Contain and sweep up material of small spills and dispose of waste. Report large spills to Dow AgroSciences on 800-992-5994. Prevent runoff.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Handling: Keep out of reach of children. Causes eye irritation. Harmful if swallowed, inhaled or absorbed through the skin. Avoid breathing dust and contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Storage: Store in the original container in a dry area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions with a high potential for exposure. If handling procedures are such that there is only a low potential for exposure, less protection may be needed. Emergency conditions may require additional precautions.

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EXPOSURE GUIDELINE(S): Kaolinite: ACGIH TLV is 2 mg/M³ respirable, A4, for Kaolin. OSHA PEL is 10 mg/M³ total dust, 5 mg/M³ respirable for kaolin. PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline.

SKIN PROTECTION: No precautions other than clean body-covering clothing should be needed.

EYE/FACE PROTECTION: Use chemical goggles.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: Not applicable

VAPOR PRESSURE: Not applicable

VAPOR DENSITY: Not applicable

SOLUBILITY IN WATER: Not soluble, disintegrates in water

SPECIFIC GRAVITY: Not applicable

APPEARANCE: Gray to dark brown pellet

ODOR: Faint musty odor

pH: (aqueous 50/50) 4.3 to 7.0

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) The herbicidal properties of this product require caution in handling, storage, and transportation - very potent herbicide.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)
None known

HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of nitrogen and sulfur may be formed if product is involved in fire.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause slight eye irritation with corneal injury.

SKIN: Essentially non-irritating to skin. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The LD₅₀ for skin absorption in rabbits is >2000 mg/kg.

INGESTION: Single dose oral toxicity is low. The oral LD₅₀ for rats is >2000 mg/kg. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

INHALATION: At room temperature, vapors are minimal due to physical properties; a single exposure is not likely to be hazardous.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: In animals, has been shown to cause RBC, kidney and pancreatic effects.

CANCER INFORMATION: Tebuthiuron did not cause cancer in laboratory animals. Crystalline silica is listed as a carcinogen for hazard communication purposes under OSHA Standard 29 CFR Part 1910.1200. The clay component may contain crystalline silica, which has caused cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): For tebuthiuron, birth defects are unlikely. Even exposures having an adverse effect on the mother should have no effect on the fetus.

REPRODUCTIVE EFFECTS: Tebuthiuron, did not interfere with reproduction in animal studies.

MUTAGENICITY: In-vitro mutagenicity studies were negative in some cases and positive in other cases. Animal mutagenicity studies were negative.

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12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE

Data for Component: **Tebuthiuron**

MOVEMENT & PARTITIONING

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is very high (Koc between 0 and 50).

DEGRADATION & PERSISTENCE

Material is not readily biodegradable according to OECD/EEC guidelines.

Data for Component: **Kaolin**

MOVEMENT & PARTITIONING

Partitioning from water to n-octanol is not applicable.

DEGRADATION & PERSISTENCE

Biodegradation is not applicable.

ECOTOXICITY

Data for Component: **Tebuthiuron**

Material is practically non-toxic to fish on an acute basis (LC50 >100 mg/L). Material is slightly toxic to aquatic invertebrates on an acute basis (LC50/EC50 between 10 and 100 mg/L). Material is very toxic to aquatic organisms (LC50/EC50 below 1 mg/L in the most sensitive species).

Fish Acute & Prolonged Toxicity

LC50, bluegill (*Lepomis macrochirus*), static, 96 h: 106 mg/l
LC50, rainbow trout (*Oncorhynchus mykiss*), static, 96 h: 143 mg/l
LC50, fathead minnow (*Pimephales promelas*), static, 96 h: > 180 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, static renewal, 24 h, immobilization: 297 mg/l
EC50, pink shrimp (*Penaeus duorarum*), static, 48 h, immobilization: 62 mg/l

Aquatic Plant Toxicity

EbC50, diatom *Navicula* sp., biomass growth inhibition: 0.081 mg/l
EbC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), biomass growth inhibition: 0.050 mg/l
EbC50, diatom *Skeletonema costatum*, biomass growth inhibition: 0.050 mg/l
EbC50, blue-green alga *Anabaena flos-aquae*, biomass growth inhibition: 4.06 mg/l
EC50, duckweed *Lemna* sp., biomass growth inhibition, 14 h: 0.135 - 0.235 mg/l
ErC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), Growth inhibition (cell density reduction), 14 d: 0.307 mg/l
ErC50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), Growth rate inhibition, 96 h: 0.102 mg/l

Toxicity to Above Ground Organisms

dietary LC50, mallard (*Anas platyrhynchos*): > 5,093 ppm
dietary LC50, bobwhite (*Colinus virginianus*): > 5,113 ppm
oral LD50, mallard (*Anas platyrhynchos*): > 2,000 mg/kg
dietary LC50, mallard (*Anas platyrhynchos*): > 2,500 mg/kg
oral LD50, bobwhite (*Colinus virginianus*): > 500 mg/kg

Data for Component: **Kaolin**

Not expected to be acutely toxic to aquatic organisms.

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Do not contaminate food, feed, or water by storage or disposal. Wastes are toxic. Improper disposal or excess waste, spray mixture, or rinsate is a violation of federal law. If wastes resulting from the use of this product cannot be disposed of according to label instructions, dispose of these wastes at an approved facility. Contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

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14. TRANSPORT INFORMATION:

DOT Non-Bulk
NOT REGULATED

DOT Bulk
NOT REGULATED

IMDG

Proper Shipping Name: ENVIRONMENTALLY
HAZARDOUS SUBSTANCES, SOLID, NOS

Technical Name: Tebuthiuron

Hazard Class: 9 **ID Number:** UN3077

Packing Group: PG III

EMS Number: f-a,s-f

Marine pollutant.: Yes

ICAO/IATA

Proper Shipping Name: ENVIRONMENTALLY
HAZARDOUS SUBSTANCES, SOLID, N.O.S.

Technical Name: Tebuthiuron

Hazard Class: 9 **ID Number:** UN3077

Packing Group: PG III

Cargo Packing Instruction: 911

Passenger Packing Instruction: 911

Additional Information

MARINE POLLUTANT

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented 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 from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

| <u>CHEMICAL NAME</u> | <u>CAS NUMBER</u> | <u>CONCENTRATION</u> |
|----------------------|-------------------|----------------------|
| Tebuthiuron | 034014-18-1 | 20% |

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

| <u>CHEMICAL NAME</u> | <u>CAS NUMBER</u> | <u>LIST</u> |
|----------------------|-------------------|-------------|
| KAOLIN | 001332-58-7 | PA1 |

PA1=Pennsylvania Hazardous Substance (present at > or = to 1.0%).

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

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

| <u>CATEGORY</u> | <u>RATING</u> |
|-----------------|---------------|
| Health | 2 |
| Flammability | 1 |
| Reactivity | 0 |

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**COMPREHENSIVE ENVIRONMENTAL RESPONSE
COMPENSATION AND LIABILITY ACT (CERCLA, or
SUPERFUND):** To the best of our knowledge, this product
contains no chemical subject to reporting under CERCLA.

16. OTHER INFORMATION:

MSDS STATUS: Revised Sections 11 & 14
Reference: DR-0334-5902
Replaces MSDS Dated: 09-Mar-10

The Information Herein Is Given In Good Faith, But No
Warranty, Express or Implied, Is Made. Consult Dow
AgroSciences for Further Information.

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