



Material Safety Data Sheet

CORVUS™ HERBICIDE

MSDS Number: 102000013459

MSDS Version 1.2

Revision Date: 01/06/2009

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name CORVUS™ HERBICIDE
MSDS Number 102000013459

Bayer CropScience
 2 T.W. Alexander Drive
 Research Triangle PK, NC 27709
 USA

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
 For Product Information call: 1-866-99BAYER (1-866-992-2937)

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Thiencarbazone-methyl	317815-83-1	7.60
Isoxaflutole	141112-29-0	19.00
Cyprosulfamide	221667-31-8	
1,2-Propanediol	57-55-6	

SECTION 3. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview Caution! Harmful if swallowed or absorbed through skin. Moderate eye irritation. Avoid contact with skin, eyes and clothing. Wash thoroughly with soap and water after handling.

Physical State liquid suspension

Odor weak characteristic

Appearance almost white

Routes of Exposure Eye contact, Inhalation, Skin contact, Ingestion

Immediate Effects

Eye May cause mild irritation to eyes. Do not get in eyes.

Skin Harmful if absorbed through skin. Do not get on skin or clothing. Did not cause sensitization on laboratory animals.



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Ingestion Harmful if swallowed. Do not take internally.

Chronic or Delayed Long-Term This product or its components may have long term (chronic) health effects.

SECTION 4. FIRST AID MEASURES

General	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Eye	Hold eye 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 eye. Call a physician or poison control center immediately.
Skin	Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Notes to Physician Signs and Symptoms	Local: To date no symptoms are known. Systemic: To date no symptoms are known.
Treatment	There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

SECTION 5. FIRE FIGHTING MEASURES

Flash point	> 100 °C / 212 °F
Explosiveness	Not explosive.
Fire and Explosion Hazards	Dangerous gases are evolved in the event of a fire.



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Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media High volume water jet

Fire Fighting Instructions Keep out of smoke. Fight fire from upwind position. Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Do not allow run-off from fire fighting to enter drains or water courses.

Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional Advice Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal.

SECTION 7. HANDLING AND STORAGE

Handling Procedures Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation. For personal protection see section 8.

Storing Procedures Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

Work/Hygienic Procedures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.



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SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection	Follow all label instructions. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.
Eye/Face Protection	Tightly fitting safety goggles
Hand protection	Chemical resistant nitrile rubber gloves
Body Protection	Wear long-sleeved shirt and long pants and shoes plus socks.
Respiratory Protection	When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Exposure Limits

Isoxaflutole	141112-29-0	OES BCS*		1.4 mg/m3
1,2-Propanediol	57-55-6	WEEL	TWA	10 mg/m3
		TX ESL	ST ESL	20 ug/m3
		TX ESL	ST ESL	500 ppm
		TX ESL	AN ESL	2 ug/m3
		TX ESL	AN ESL	50 ppm

*OES BCS: Internal Bayer CropScience "Occupational Exposure Standard"

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	almost white
Physical State	liquid suspension
Odor	weak characteristic
pH	2.5 - 4 (1 %) at 23 °C
Density	1.18 g/cm³ at 20 °C
Water solubility	miscible
Viscosity	125 - 250 mPa.s at 20 °C Velocity gradient 20 /s
	40 - 100 mPa.s at 20 °C Velocity gradient 100 /s



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SECTION 10. STABILITY AND REACTIVITY

Conditions to Avoid	Extremes of temperature and direct sunlight.
Hazardous Reactions	No hazardous reactions when stored and handled according to prescribed instructions. Stable under recommended storage conditions.

SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the technical-grade active ingredients, Isoxaflutole and Thien carbazone-methyl, as well as, the herbicide safener, Cyprosulfamide.

Acute Oral Toxicity	female rat: LD50: > 2,000 mg/kg
Acute Dermal Toxicity	rat: LD50: > 2,000 mg/kg
Acute Inhalation Toxicity	rat: LC50: > 2.6 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. Highest attainable concentration. No deaths
	rat: LC50: > 10.4 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
Skin Irritation	rabbit: No skin irritation.
Eye Irritation	rabbit: Mild eye irritation.
Sensitization	mouse: Non-sensitizing.
Chronic Toxicity	Isoxaflutole caused liver and/or thyroid effects in chronic studies in rats and mice. Thien carbazone-methyl caused urinary tract irritation in long term studies in mice, rats and dogs. Cyprosulfamide caused formation of stones producing secondary irritation in the kidney and/or urinary bladder in chronic studies in rats, mice and dogs.

Assessment Carcinogenicity

Isoxaflutole caused liver and/or thyroid tumors in lifetime feeding studies in rats and mice. These effects were only seen at the highest dose tested (the Maximum Tolerated Dose) which was far higher than any exposure that could be envisaged for humans. Thus, isoxaflutole presents negligible, if any, increased



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cancer risk for humans.

Thiencarbazone-methyl was not carcinogenic in a lifetime feeding study in rats. In a lifetime feeding study in mice, there was a low incidence of urinary bladder tumors at high doses secondary to the chronic irritation due to the presence of bladder stones. Thiencarbazone-methyl was considered not to be directly carcinogenic in mice.

Cyprosulfamide caused a low incidence of tumors in the kidney and/or urinary bladder in lifetime feeding studies in rats and mice. These tumors were considered to be secondary from the chronic irritation due to the presence of stones. Cyprosulfamide was considered not to be directly carcinogenic in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Reproductive & Developmental Toxicity

REPRODUCTION:

Isoxaflutole was not a reproductive toxicant in multi-generation studies in rats.

Thiencarbazone-methyl was not a reproductive toxicant in a two-generation study in rats. Thiencarbazone-methyl caused toxicity in offspring at doses producing systemic toxicity in adult rats.

Cyprosulfamide was not a reproductive toxicant at non-maternally toxic dose levels in a two-generation study in rats.

DEVELOPMENTAL TOXICITY:

Isoxaflutole was not a developmental toxicant in laboratory animals.

Thiencarbazone-methyl was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed but were considered secondary to maternal toxicity.

Cyprosulfamide was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed in rabbits but were considered secondary to maternal toxicity.

Neurotoxicity

Isoxaflutole was not a neurotoxicant in acute, subchronic or developmental neurotoxicity screening studies in rats.

Thiencarbazone-methyl was not a neurotoxicant in acute and subchronic neurotoxicity screening studies in rats.

Cyprosulfamide was not a neurotoxicant in acute and subchronic neurotoxicity screening studies in rats.



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Mutagenicity Isoxaflutole was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Thiencarbazone-methyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Cyprosulfamide was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity to Fish Oncorhynchus mykiss (rainbow trout)
LC50: > 100 mg/l
Exposure time: 96 h

Toxicity to Aquatic Plants Pseudokirchneriella subcapitata
EC50: 25.3 mg/l
Exposure time: 72 h

Lemna gibba (duckweed)
0.0165 mg/l
Exposure time: 168 h

Acute Toxicity to Aquatic Invertebrates Water flea (Daphnia magna)
EC50: > 100 mg/l
Exposure time: 48 h

Environmental Precautions Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.

Do not apply when weather conditions favor runoff or drift. Drift or runoff from treated areas may adversely affect non-target plants. Apply this product as specified on the label.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance It is best to use all of the product in accordance with label directions. If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines. Never place unused product down any indoor or outdoor drain.

Container Disposal Follow advice on product label and/or leaflet. Triple rinse containers. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke.



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SECTION 14. TRANSPORT INFORMATION

DOT CLASSIFICATION:

Not regulated for Domestic Surface Shipment

FREIGHT CLASSIFICATION:

Compounds, Tree or Weedkilling, N.O.I., other than poison, having a density of 20 LBS or greater per cubic foot

SECTION 15. REGULATORY INFORMATION

US Federal Regulations

TSCA list

1,2-Propanediol 57-55-6

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

None.

SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

None.

US States Regulatory Reporting

CA Prop65

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

1,2-Propanediol 57-55-6 MN, RI

Canadian Regulations

Canadian Domestic Substance List

1,2-Propanediol 57-55-6

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.



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SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 1 Reactivity - 1 Others - none

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason to Revise: Updated Section 1: EPA Registration No.

Revision Date: 01/06/2009

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