

# MONSANTO

## MATERIAL SAFETY DATA

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: CAMPAIGN® Herbicide DATE: 8/3/2000  
MSDS NUMBER: S00011463 EPA Reg. No.: 524-351

MONSANTO COMPANY, 800 N. LINDBERGH BLVD., ST. LOUIS, MO 63167

FOR CHEMICAL EMERGENCY, SPILL LEAK, FIRE, EXPOSURE, OR ACCIDENT  
Call CHEMTREC - Day or Night - 1-800-424-9300 Toll free in the continental U.S., Hawaii, Puerto Rico, Canada, Alaska, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted)

For additional non-emergency information, call: 800-332-3111

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>COMPONENT</u>	<u>CAS NO.</u>	<u>% BY WEIGHT</u>
ACTIVE INGREDIENTS:		
Glyphosate, isopropylamine salt	38641-94-0	12.9%
2,4-D, isopropylamine salt*	5742-17-6	20.6%
N-Methylpyrrolidone* #	872-50-4	<7%
Surfactant*	+	10-20%
OTHER INGREDIENTS:	+	<u>39.5 -- 49.5</u>
total		100.0

\* Hazardous chemical(s) under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

+ The specific chemical identity is being withheld because it is trade secret information of Monsanto Company.

# - This substance is defined as toxic under and subject to the reporting requirements of SARA §313

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

APPEARANCE AND ODOR: Yellow-brown colored liquid

Keep out of reach of children.

DANGER!

CAUSES EYE BURNS

HARMFUL IF SWALLOWED

MAY CAUSE ALLERGIC SKIN REACTION

REFORMULATION OR REPACKAGING IS PROHIBITED.

#### POTENTIAL HEALTH EFFECTS

LIKELY ROUTES OF EXPOSURE: Skin contact and inhalation

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EYE CONTACT: Causes pain, redness and tearing based on toxicity studies.

SKIN CONTACT: No more than slightly toxic or slightly irritating based on toxicity studies. May cause allergic skin reaction based on toxicity studies.

INHALATION: No more than slightly toxic if inhaled based on toxicity studies.

INGESTION: No more than slightly toxic based on toxicity studies. No significant adverse health effects are expected to develop if only small amounts (less than a mouthful) are swallowed. Ingestion of a related formulation containing the same surfactant found in CAMPAIGN® Herbicide has been reported to produce gastrointestinal discomfort with irritation of the mouth, nausea, vomiting and diarrhea

Refer to Section 11 for toxicological information.

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#### 4. FIRST AID MEASURES

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If In Eyes: Immediately flush with plenty of water for at least 15 minutes. Get medical attention.

If on Skin: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing. As soon as soap is available, wash thoroughly with soap and water. Wash clothing before reuse. Sensitized persons should avoid further contact and reuse of contaminated clothing. Get medical attention.

If Swallowed: Induce vomiting immediately as directed by Medical personnel. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTE: For additional human emergency first aid or treatment guidance, call collect, anytime, day or night (314) 694-4000.

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#### 5. FIRE FIGHTING MEASURES

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Flash Point: none

Method: Tag Closed Cup

Extinguishing Media: Water spray, foam, dry chemical, CO<sub>2</sub>, or other class B extinguishing agent.

Special Fire Fighting Procedures: Firefighters and others that may be exposed to vapors, mists, dusts, or products of combustion should wear full protective clothing and self-contained breathing apparatus. Equipment should be thoroughly cleaned after use.

Unusual Fire or Explosion Hazards: None

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#### 6. ACCIDENTAL RELEASE MEASURES

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Observe all protection and safety precautions when cleaning up spills - See Exposure Controls/Personal Protection, Section 8.

Liquid spills on floor or other impervious surfaces should be contained or diked, and should be absorbed with attapulgate, bentonite or other absorbent clays. Collect contaminated absorbent, place in plastic-lined metal drum and dispose of in accordance with instructions provided under DISPOSAL. Thoroughly scrub floor or other impervious surfaces with a strong industrial type detergent solution and rinse with water. Liquid spills that soak into the ground should be dug up, placed in plastic-lined metal drums and disposed of in accordance with instructions provided under DISPOSAL.

Leaking containers should be separated from non-leakers and either the container or its contents transferred to a drum or other non-leaking container and disposed of in accordance with instructions provided under DISPOSAL. Any recovered spilled liquid should be similarly collected and disposed of.

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Do not contaminate water, foodstuffs, seed or feed by storage or disposal. Do not store near fertilizers, seeds, insecticides or fungicides.

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## 7. HANDLING AND STORAGE

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Handling: Do not get in eyes, on skin or on clothing. When mixing, loading, or applying this product or repairing or cleaning equipment used with this product, wear eye protection (face shield or safety glasses), chemical-resistant gloves, long-sleeved shirt, long pants, socks and shoes. For applicators applying this product from a tractor that has a completely enclosed cab, eye protection is not required.

Wash hands, face and arms with soap and water as soon as possible after mixing, loading, or applying this product. Wash hands, face and arms with soap and water before eating, smoking, or drinking. Wash hands and arms before using toilet. After work, remove all clothing and shower using soap and water. Do not reuse clothing worn during the previous day's mixing and loading or application of this product without cleaning first. Clothing must be kept and washed separately from other household laundry. Remove saturated clothing as soon as possible and shower. Persons engaged in open pouring of this product must also wear coveralls or a chemical resistant apron.

Drift or runoff may adversely affect non-target plants.

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-D have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-D pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the possibility of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

Storage: STORE ABOVE 40°F to keep product in solution. If crystals form, place in a warm room (72° F) allow the product to reach room temperature, roll or shake periodically until crystals have redissolved. Keep container closed to prevent spills and contamination. Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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Personal Protective Equipment:

Eye Protection: Wear chemical safety goggles to prevent eye contact during operations such as mixing or transfer or other activities when there is potential for eye contact. Have eye flushing equipment immediately available with enough fresh water to flush the eyes for at least 15 minutes.

Skin Protection: Wear appropriate protective gloves that provide a barrier and protective clothing to prevent skin contact. Consult glove manufacturer to determine appropriate type glove for given application. Wear a face shield when splashing is likely. Wash contaminated skin promptly. Launder contaminated clothing and clean protective equipment before reuse. Wash thoroughly after handling. Attention! Repeated or prolonged contact may cause allergic skin reaction in some people. *Attention! Repeated or prolonged contact may cause allergic skin reaction in some people.*

Respiratory Protection: *For Handling of the Undiluted Product:* Undiluted CAMPAIGN® Herbicide is not likely to present an airborne exposure concern during normal handling. In the event of an accidental discharge of the material during manufacture or handling which produces a heavy vapor or mist, workers should use NIOSH approved equipment. In work situations where an air purifying respirator is appropriate to be used, use of a full face respirator equipped with purifying elements for protection against organic vapor and dust/mist approved for pesticides is recommended. Use cartridges with NIOSH approval number TC-23C or canister with NIOSH approval number TC-14G. Full facepiece replaces the need for chemical goggles. Observe respirator use limitations specified by the manufacturers. Respiratory protection programs must comply with 29 CFR §1910.134.

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*For Application of Product Diluted in accordance with label instructions:* Respirators are not required for applications of use - dilutions of CAMPAIGN® Herbicide.

Ventilation: Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits (see below). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Exposure Limits	OSHA PEL	ACGIH TLV
Isopropylamine Salt of Glyphosate	None established	None established
N-Methylpyrrolidone*	None established	None established
Surfactant	None established	None established
Isopropylamine salt of 2,4-D**	None established	None established
2,4-Dichlorophenoxyacetic acid (2,4-D)**	10 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>

\* Monsanto has adopted an airborne exposure guideline of 2 ppm (Skin) 8-hour time-weighted average for n-methylpyrrolidone. Skin notation means that skin absorption of this material may add to the overall exposure.

\*\* While the material is not present as the acid an exposure standard does exist for 2,4-Dichlorophenoxyacetic acid (2,4-D) (given above).

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Yellow-brown colored liquid
Specific Gravity:	1.1303 @ 25°/15.6°C
Viscosity:	28 Centipoise @ 73°F
Freezing Point:	14°F (-10°C)
Solubility:	Very soluble in water

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

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## 10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions of warehouse storage. Heated facilities are not required.

Conditions to Avoid: STORE ABOVE 40°F to keep product in solution. Ø See Section 7 for more information.

Incompatibility with Other Materials: Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fiberglass, plastic and plastic-lined steel containers.

**DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.** This product or solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

Hazardous Decomposition Products: None

Hazardous Polymerization: Does not occur

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## 11. TOXICOLOGICAL INFORMATION

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CAMPAIGN® single exposure (acute) studies indicate:

Oral -	Slightly toxic,	(Rat LD <sub>50</sub> - 3,860 mg/kg);	FIFRA Category III
Dermal -	Practically Non-toxic,	(Rabbit LD <sub>50</sub> - >6,366 mg/kg);	FIFRA Category IV
Inhalation -		(Rat 4-hr LC <sub>50</sub> - >1.80 mg/L, the highest atmospheric concentration achievable in this study.)	FIFRA Category IV
		NOT DOT POISONOUS	
Eye Irritation -	Severely irritating,	(Rabbit, 24-hr);	FIFRA Category I
Skin Irritation -	Slightly irritating	(Rabbit, 4-hr);	FIFRA Category III

Prolonged exposure (24-hour) resulted in moderate irritation to rabbit skin. Following repeated skin exposure (3 weeks) to CAMPAIGN® Herbicide, slight to moderate skin irritation was the primary effect in rabbits. A weak skin allergy was observed in guinea pigs following repeated skin exposure.

### COMPONENTS

Data from laboratory studies conducted by Monsanto and from the available literature on the components of CAMPAIGN® Herbicide:

#### *Isopropylamine Salt of 2,4-Dichlorophenoxyacetic Acid (2,4-D Isopropylamine Salt)*

The 2,4-D isopropylamine salt is moderately irritating to the eyes and prolonged skin contact may cause skin irritation. Rare, unsubstantiated cases of peripheral nerve damage resulting from exposure to 2,4-D formulations, characterized by tingling, numbness and weakness, have been reported. Extensive animal studies have not shown 2,4-D causes peripheral nerve damage. Administration of 2,4-D and derivatives to laboratory animals has produced gastrointestinal, liver, kidney and muscular effects. Brain tumors were observed after long-term dosing with 2,4-D in male rats though it is not certain if these were due to treatment; no increase in tumors occurred in long-term studies with female rats or mice. No birth defects were reported in studies with rats. Toxic effects were observed in animals at levels which produced adverse effects on the mother. Weight changes and death in some animals were reported in rats fed 2,4-D in reproduction test. 2,4-D has produced mixed responses in standard tests for genetic changes. For further information on 2,4-D isopropylamine salt, please contact Monsanto for reference to the manufacturer's material safety data sheet.

#### *Isopropylamine Salt of Glyphosate (MON 0139)*

MON 0139 was practically nontoxic orally (rats) or after skin application (rabbits). It was nonirritating to rabbit eyes and practically nonirritating to rabbit skin. In repeat dosing studies (6-month), dogs fed MON 0139 exhibited slight body weight changes. Following repeated skin exposure (3 weeks) to MON 0139, skin irritation was the primary effect in rabbits. Additional toxicity information is available on glyphosate, the active herbicidal ingredient of MON 0139, which has been tested in mutagenicity, teratogenicity, reproductive, acute, subchronic and chronic toxicity studies.

#### *Surfactant*

The surfactant components of CAMPAIGN® Herbicide are reported to cause irritation to the eyes, skin and respiratory tract and may contribute to the irritation potential reported for this herbicide. Prolonged skin contact may cause more severe irritation and discomfort, with related local redness (erythema) and possible swelling (edema). Ingestion may produce gastrointestinal irritation, nausea, vomiting and diarrhea.

Single-dose (acute) toxicity studies indicate that this material is moderately toxic orally (rats) and after skin application (rabbits). It is slightly irritating to rabbit skin and moderately irritating to rabbit eyes.

#### *N-Methylpyrrolidone (NMP)*

N-Methylpyrrolidone (NMP) is considered a mild to severe eye irritant. Human experience indicates that prolonged skin contact with NMP produces severe irritation. In addition, NMP is readily absorbed through the skin. This solvent also possesses narcotic-like properties; Inhalation of very high concentrations of NMP may result in headache, dizziness, incoordination, nausea, loss of appetite and loss of consciousness.

Single-dose (acute) animal studies with NMP indicate that NMP is slightly toxic orally (rat). It is moderately irritating to rabbit eyes and slightly irritating to rabbit skin. Repeated dosing of laboratory animals with NMP has been reported to cause changes in organ weights and blood composition, reduced response to sound, and breathing difficulty at a dosage which produced

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death. No skin allergy was observed in guinea pigs following repeated skin exposure. Long-term inhalation (2-years) of NMP produced no increase in tumors in rats and NMP did not show tumor initiating activity in a mouse skin painting study. Birth defects were reported following dermal application of NMP to rats at amounts which produced adverse effects on the mother and following intraperitoneal injection in two strains of mice. No birth defects were reported in rats exposed to NMP by inhalation. No effects were seen on the ability of rats to reproduce when exposed to NMP for two successive generations, though toxic effects were reported in offspring at levels which produced adverse effects on the mother. NMP has produced no genetic changes in standard tests using animal or bacterial cells.

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## 12. ECOLOGICAL INFORMATION

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Monsanto has not conducted ecological toxicity tests with this product. Toxicity data for components of this material suggest that this product would be slightly toxic to aquatic invertebrates, slightly to moderately toxic to fish, and moderately toxic to algae. This product should be practically nontoxic to the quail and mallard.

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## 13. DISPOSAL CONSIDERATIONS

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Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixtures, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of according to label use instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Product which has been contaminated or is not wanted and will be discarded is classified as hazardous under the Federal Resource Conservation and Recovery Act (RCRA) and related state laws. Specific State and Federal requirements for handling and disposal will apply unless quantities are small and exemptions apply. State regulations may vary and State authorities should be consulted.

Soil, water and other debris contaminated with this product may have to be treated as hazardous under RCRA depending on quantity and whether or not the waste meets the 2,4-D content criteria for hazardous waste. RCRA hazardous waste identification criteria are found in 40 CFR 261. State or Federal authorities should be contacted for appropriate handling and disposal methods.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. (See the individual container label for disposal information.)

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## 14. TRANSPORT INFORMATION

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The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

US DOT basic description and technical name:	Environmentally hazardous substances, liquid, n.o.s. (2,4-D), 9, UN3082, III*
DOT Label:	Class 9*
SPECIAL PROVISIONS:	This material meets the definition of a marine pollutant—
IMDG code:	See US DOT
IATA/ICAO:	Use the shipping description for Aviation regulated liquid, n.o.s.

\* Applies only to bulk packages and packages shipped via water transportation

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## 15. REGULATORY INFORMATION

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### SARA Hazard Notification:

*Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):* Immediate  
*Section 313 Toxic Chemical(s):* N-methylpyrrolidone, CAS Reg. No. 872-50-4, <7% by weight  
Hazardous Chemicals Under OSHA Hazardous Communication Standard (29 CFR §1910.1200):  
Isopropylamine Salt of 2,4-D; N-Methylpyrrolidone; Surfactant; See Section 2 for more information  
TSCA Inventory: All components are on the US EPA's TSCA Inventory List

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## 16. OTHER INFORMATION

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REASON FOR REVISION: Correction for non-emergency phone number. Supersedes MSDS dated : 6/22/99  
CAMPAIGN is a registered trademark of Monsanto Company

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE PRODUCT LABELING (attached to and accompanying the product container). This MSDS 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.

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