

<p style="text-align: center;">MONSANTO COMPANY Safety Data Sheet Commercial Product</p>

1. PRODUCT AND COMPANY IDENTIFICATION

Product name

Lariat® Flowable Herbicide

EPA Reg. No.

524-329

Chemical name

Not applicable.

Synonyms

None.

Company

MONSANTO COMPANY, 800 N. Lindbergh Blvd., St. Louis, MO, 63167

Telephone: 800-332-3111, **Fax:** 314-694-5557

E-mail: safety.datasheet@monsanto.com

Emergency numbers

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., Puerto Rico, Canada, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted).

FOR MEDICAL EMERGENCY - Day or Night: +1 (314) 694-4000 (collect calls accepted).

2. HAZARDS IDENTIFICATION

Emergency overview

Appearance and odour (colour/form/odour): White - Whitish / Liquid / Solvent, Slight

RESTRICTED USE PESTICIDE due to ground and surface water concerns.

WARNING!

HARMFUL IF SWALLOWED

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY

CAUSES SKIN IRRITATION

MAY CAUSE ALLERGIC SKIN REACTION

MAY CAUSE RESPIRATORY TRACT IRRITATION

COMBUSTIBLE LIQUID

Potential health effects

Likely routes of exposure

Skin contact, eye contact, ingestion

Eye contact, short term

May cause severe eye irritation.

Skin contact, short term

May cause skin irritation.

May cause allergic skin reaction.

Prolonged or repeated skin contact may result in irritant dermatitis.

Single ingestion

Harmful if swallowed.

Refer to section 11 for toxicological and section 12 for environmental information.

OSHA Status

This product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient

2-chloro-2',6'-diethyl-N-(methoxymethyl)acetanilide; { Alachlor }
6-chloro-N-ethyl-N'-(1-methylethyl)-1,3,5-triazine-2,4-diamine; { Atrazine }
Related atrazine compounds; { Related atrazine compounds }

Composition

COMPONENT	CAS No.	% by weight (approximate)
Alachlor	15972-60-8	27.2
Atrazine	1912-24-9	16
Related atrazine compounds		0.3
Monochlorobenzene	108-90-7	<=20
Emulsifier		<=10
Ethylene glycol	107-21-1	<=3
Water and minor formulating ingredients		>=20 - <=35

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

4. FIRST AID MEASURES

Use personal protection recommended in section 8.

Eye contact

If in eyes, hold eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.
Immediately flush with plenty of water.

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. Sensitized persons should avoid further contact and reuse of contaminated clothing.
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

If inhaled, move person to fresh air. If person is not breathing, call emergency number or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
Remove to fresh air.

Ingestion

Call a poison control center or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

Advice to doctors

This product may pose an aspiration pneumonia hazard. Contains petroleum distillates.
Probable mucosal damage may contra-indicate gastric lavage.

5. FIRE-FIGHTING MEASURES

Flash point

104 °F

Method: closed cup

Extinguishing media

Recommended: Water, foam, dry chemical, carbon dioxide (CO₂)

Unusual fire and explosion hazards

Minimise use of water to prevent environmental contamination.

Environmental precautions: see section 6.

Hazardous products of combustion

Carbon monoxide (CO), hydrogen chloride (HCl), nitrogen oxides (NO_x)

Fire fighting equipment

Self-contained breathing apparatus.

Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Environmental precautions

Minimise spread.

Contain spillage with sand bags or other means.

Keep out of drains, sewers, ditches and water ways.

Do NOT contaminate water when disposing of rinse waters.

Methods for cleaning up

Absorb in earth, sand or absorbent material.

Collect in containers for disposal.

Dig up heavily contaminated soil.

Wash spill area with detergent and water.

Minimise use of water to prevent environmental contamination.

Refer to section 7 for types of containers.

Refer to section 13 for disposal of spilled material.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

Handling

Avoid contact with eyes, skin and clothing.

Wash hands thoroughly after handling or contact.

Wash contaminated clothing before re-use.

When using do not eat, drink or smoke.

Thoroughly clean equipment after use.

Do not contaminate drains, sewers and water ways when disposing of equipment rinse water.

Refer to section 13 of the safety data sheet for disposal of rinse water.

DO NOT CUT, DRILL, GRIND OR WELD ON OR NEAR THIS CONTAINER.

Emptied containers retain vapour and product residue.

FOLLOW LABELLED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

Storage

Minimum storage temperature: 40 °F

Compatible materials for storage: stainless steel, Heresite[™]-lined steel, high-density polyethylene (HDPE), polypropylene (PP), Teflon[™]

Incompatible materials for storage: unlined mild steel, polyvinyl chloride (PVC), Contact with mild steel may cause color change and reduce product's ability to emulsify with water.
 Keep away from food, drink and animal feed.
 Keep away from heat and flame.
 Keep container tightly closed in a cool, well-ventilated place.
 Partial crystallization may occur on prolonged storage below the minimum storage temperature.
 If frozen, place in warm room and shake frequently to put back into solution.
 Minimum shelf life: 4 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
Alachlor	MWPEG (Monsanto Workplace Permissible Exposure Limit): 0.11 mg/m ³ (TWA): 10 ppb (TWA) TLV (ACGIH): 1 mg/m ³ (TWA) PEL (OSHA): No specific occupational exposure limit has been established.
Atrazine	TLV (ACGIH): 5 mg/m ³ (TWA) PEL (OSHA): No specific occupational exposure limit has been established.
Related atrazine compounds	No specific occupational exposure limit has been established.
Monochlorobenzene	TLV (ACGIH): 10 ppm (TWA) PEL (OSHA): 75 ppm (TWA)
Emulsifier	No specific occupational exposure limit has been established.
Ethylene glycol	TLV (ACGIH): 100 mg/m ³ (ceiling): The exposure limit is for aerosol only.
Water and minor formulating ingredients	No specific occupational exposure limit has been established.

Engineering controls

Provide local exhaust ventilation.
 Have eye wash facilities immediately available at locations where eye contact can occur.
 Have safety shower available at locations where skin contact can occur.

Eye protection

If there is potential for contact:
 Wear chemical goggles.
 Applicators and other handlers must wear eye protection.

Skin protection

Wear chemical resistant gloves.
 If there is potential for contact:
 Wear face shield.
 Wear chemical resistant clothing/footwear.

Respiratory protection

If airborne exposure is excessive:
 Wear respirator.
 Full facepiece/hood/helmet respirator replaces need for chemical goggles.
 Respiratory protection programs must comply with all local/regional/national regulations.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

9. PHYSICAL AND CHEMICAL PROPERTIES

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.

Colour/colour range:	White - Whitish
Odour:	Solvent, Slight
Form:	Liquid
Physical form changes (melting, boiling, etc.):	
Melting point:	No data.
Boiling point:	No data.
Flash point:	104 °F Method: closed cup
Explosive properties:	No data.
Auto ignition temperature:	No data.
Specific gravity:	1.1030 20 °C / 15.6 °C
Vapour pressure:	No data.
Vapour density:	Not applicable.
Evaporation rate:	No data.
Dynamic viscosity:	225 Pa.s @ 20 °C; Method: Haake
Kinematic viscosity:	Not applicable.
Density:	1.1030 g/cm ³ @ 20 °C
Solubility:	Water: Emulsifies.
pH:	No data.
Partition coefficient:	log Pow: 3.3 (alachlor)
Partition coefficient:	log Pow: 2.7 (atrazine)

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions of handling and storage.

Oxidizing properties

No data.

Hazardous decomposition

Thermal decomposition: Hazardous products of combustion: see section 5.

Self-accelerating decomposition temperature (SADT)

No data.

11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

Data obtained on product, similar products and on components are summarized below.

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol: > 4.7 mg/L

Other effects: local effects, breathing difficulty

FIFRA category IV.

Practically non-toxic.
Maximum attainable concentration. Not hazardous for transportation.

Eye irritation

Rabbit, 6 animals, OECD 405 test:

Days to heal: 14
FIFRA category II.

Mutagenicity

Ames test(s):

Not mutagenic with and without metabolic activation.

Micronucleus test(s):

Not mutagenic.

Similar formulation

Acute oral toxicity

Rat, LD50: 4,400 mg/kg body weight

FIFRA category III.
Slightly toxic.

Acute dermal toxicity

Rabbit, LD50 (limit test): > 5,000 mg/kg body weight

Other effects: local effects
Practically non-toxic.
FIFRA category IV.

Skin irritation

Rat, 6 animals, OECD 404 test:

Days to heal: > 14
Primary Irritation Index (PII): 4.1/8.0
Severe irritation.
FIFRA category II.

Alachlor

Mutagenicity

In vitro and in vivo mutagenicity test(s):

Not mutagenic on the basis of weight-of-evidence analysis.

Repeated dose toxicity

Rabbit, dermal, 21 days:

NOAEL toxicity: 50 mg/kg body weight/day
Target organs/systems: pituitary
Other effects: organ weight change, haematological effects, blood biochemistry effects

Chronic effects/carcinogenicity

Rat, oral, 25 months:

NOAEL toxicity: 2.5 mg/kg body weight/day
Target organs/systems: nose, eyes, liver
Other effects: histopathologic effects, blood biochemistry effects
NOEL tumour: 0.5 mg/kg body weight/day
Tumours: nose
Tumours: stomach
Tumours: thyroid
Tumours not relevant for man based on mechanistic data.

Mouse, oral, 18 months:

NOAEL toxicity: 20 mg/kg body weight/day
Target organs/systems: bone marrow, kidneys, liver
Other effects: decrease of body weight gain, organ weight change, histopathologic effects
NOEL tumour: 331 mg/kg body weight/day
No tumours.

Dog, oral, 12 months:

NOAEL toxicity: 1 mg/kg body weight/day
Target organs/systems: liver
Other effects: weight loss, organ weight change, haematological effects

Toxicity to reproduction/fertility

Rat, oral, 3 generations:

NOAEL toxicity: 10 mg/kg body weight/day
NOAEL reproduction: 30 mg/kg body weight
Target organs/systems in parents: kidneys
Other effects in parents: organ weight change
Other effects in pups: none

Developmental toxicity/teratogenicity

Rat, oral, 6 - 19 days of gestation:

NOEL toxicity: 150 mg/kg body weight
NOEL development: 150 mg/kg body weight
Other effects in mother animal: decrease of body weight gain, decrease of survival
Developmental effects: weight loss, post-implantation loss
Effects on offspring only observed with maternal toxicity.

Rabbit, oral, 7 - 19 days of gestation:

NOEL toxicity: 100 mg/kg body weight
NOEL development: 150 mg/kg body weight
Other effects in mother animal: weight loss, decrease of food consumption
Developmental effects: none

EXPERIENCE WITH HUMAN EXPOSURE

Eye contact, short term, occupational:

Eye effects: irritation

Skin contact, repeated, :

Skin effects: sensitization in susceptible individuals

Atrazine

Mutagenicity

Ames test(s):

Not mutagenic without metabolic activation.

In vivo chromosomal aberration test(s):

Not mutagenic.

In vitro DNA-repair test(s):

Not mutagenic.

Dominant lethal test(s):

Not mutagenic.

Repeated dose toxicity

Rat, oral, 90 days:

NOAEL toxicity: 3.3 mg/kg body weight/day
Target organs/systems: none
Other effects: decrease of body weight gain

Rabbit, dermal, 25 days:

NOAEL toxicity: 10 mg/kg body weight/day
Target organs/systems: spleen
Other effects: decrease of food consumption, weight loss, organ weight change, haematological effects, histopathologic effects, blood biochemistry effects

Chronic effects/carcinogenicity

Rat, oral, 24 months:

NOAEL toxicity: 3.5 mg/kg body weight/day
Target organs/systems: eyes, kidneys, liver, mammary gland, prostate, skeletal muscle
Other effects: decrease of food consumption, weight loss, organ weight change, haematological effects, histopathologic effects, blood biochemistry effects
NOEL tumour: 0.45 mg/kg body weight/day

Tumours: mammary gland, (adenocarcinoma)

Tumours only at or above MTD. Tumours not relevant for man based on mechanistic data.

Mouse, oral, 91 weeks:

NOAEL toxicity: 43 mg/kg body weight/day

Target organs/systems: heart

Other effects: decrease of food consumption, weight loss, organ weight change, histopathologic effects

NOEL tumour: ~ 400 mg/kg body weight/day

Tumours not related to treatment.

Toxicity to reproduction/fertility

Rat, oral, 2 generations:

NOAEL toxicity: 50 mg/kg diet

NOAEL reproduction: 500 mg/kg diet

Target organs/systems in parents: none

Other effects in parents: decrease of body weight gain

Target organs/systems in pups: none

Other effects in pups: none

Developmental toxicity/teratogenicity

Rat, oral, 6 - 15 days of gestation:

NOAEL toxicity: 10 mg/kg body weight

NOAEL development: 10 mg/kg body weight

Other effects in mother animal: weight loss, decrease of body weight gain, decrease of survival

Developmental effects: weight loss, delayed ossification

Effects on offspring only observed with maternal toxicity.

Rabbit, oral, 7 - 19 days of gestation:

NOAEL toxicity: < 1 mg/kg body weight

NOAEL development: 1 mg/kg body weight

Other effects in mother animal: weight loss, decrease of survival

Developmental effects: weight loss, post-implantation loss, delayed ossification

Effects on offspring only observed with maternal toxicity.

Monochlorobenzene

Mutagenicity

In vivo mutagenicity test(s):

Not mutagenic.

Repeated dose toxicity

Rat, inhalation, 120 days:

NOAEL toxicity: < 75 ppm

Target organs/systems: liver

Other effects: histopathologic effects, blood biochemistry effects

Chronic effects/carcinogenicity

Rat, oral, 103 weeks:

NOAEL toxicity: 60 mg/kg body weight/day

Target organs/systems: liver

NOEL tumour: 60 mg/kg body weight/day

Tumours: liver, (neoplasia)

Mouse, oral, 103 weeks:

NOAEL toxicity: 120 mg/kg body weight/day

Target organs/systems: none

NOEL tumour: > 120 mg/kg body weight/day

No tumours.

Toxicity to reproduction/fertility

Rat, inhalation, 2 generations:

NOAEL toxicity: 50 ppm

NOAEL reproduction: 450 ppm

Target organs/systems in parents: liver, kidneys

Other effects in parents: histopathologic effects

Target organs/systems in pups: none

Other effects in pups: none

Developmental toxicity/teratogenicity

Rabbit, inhalation, 6 - 18 days of gestation:

LOAEL toxicity: 590 ppm

NOAEL development: 590 ppm

Target organs/systems in mother animal: liver

Other effects in mother animal: organ weight change

Developmental effects: none

EXPERIENCE WITH HUMAN EXPOSURE

Skin contact, repeated, non occupational, occupational:

Skin effects: irritation

Eye contact, , non occupational, occupational:

Eye effects: irritation

Inhalation, excessive, non occupational, occupational:

Gastro-intestinal effects: nausea/vomiting

General/systemic effects: fatigue

Neurological effects: headache, confusion, incoordination, drowsiness, vertigo/dizziness, disturbance of level of consciousness, convulsions

Ingestion, short term, intentional misuse, accidental misuse:

Respiratory effects: pneumonitis (aspiration)

Gastro-intestinal effects: abdominal pain, diarrhoea

Note: May cause effects similar to those described under Inhalation.

Ethylene glycol

EXPERIENCE WITH HUMAN EXPOSURE

Ingestion, excessive, intentional misuse:

Urological/renal effects: renal insufficiency (kidney failure), blood in urine (haematuria)

Cardiovascular effects: decreased blood pressure (hypotension)

General/systemic effects: disturbances of fluid and electrolyte regulation

Neurological effects: disturbance of level of consciousness

Laboratory effects - blood chemistry: acid-base disturbance (severe metabolic acidosis)

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on product and components are summarized below.

Aquatic toxicity, fish

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, static, LC50: 5.4 mg/L

Moderately toxic.

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity, 96 hours, static, LC50: 13 mg/L

Slightly toxic.

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours², static, EC50: 34 mg/L

Slightly toxic.

Alachlor

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 96 hours, static, EC50: 2.9 µg/L
Algistatic effect observed. Effect reversible.
Very highly toxic.

Diatom (*Skeletonema costatum*):

Acute toxicity, 120 hours, static, EC50: 0.21 mg/L
Highly toxic.

Duckweed (*Lemna gibba*):

Acute toxicity, 14 days, static, EC50: 2.3 µg/L
Very highly toxic.

Blue-green algae (*Anabaena* sp.):

Acute toxicity, 120 hours, static, EC50: > 19 mg/L
No more than slightly toxic.

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Acute oral toxicity, single dose, LD50: 1,536 mg/kg body weight
Slightly toxic.

Bobwhite quail (*Colinus virginianus*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Arthropod toxicity

Honey bee (*Apis mellifera*):

Contact, 48 hours, LD50: > 100 µg/bee
Practically non-toxic.

Honey bee (*Apis mellifera*):

Oral, 48 hours, LD50: > 94 µg/bee

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity, 14 days, LC50: 387 mg/kg dry soil
Slightly toxic.

Bioaccumulation

Bluegill sunfish (*Lepomis macrochirus*):

Whole fish: BCF: 50

Hydrolysis

25.00 °C, pH 6:

0 % within 30 days

Photochemical degradation

Soil:

Half life: 144.4 days

Dissipation

Soil, aerobic:

Half life: 8 - 17 days

Koc: 101 - 192

Water, aerobic:

Half life: 23 days

Atrazine

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 96 hours, static, EC50: 4 - 130 µg/L
Very highly toxic.

Duckweed (*Lemna gibba*):

Acute toxicity, 5 days, EC50: 170 µg/L

Highly toxic.

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Dietary toxicity, 5 days, LC50: > 5,000 mg/kg diet
Practically non-toxic.

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity, 5 days, LC50: > 5,000 mg/kg diet
Practically non-toxic.

Mallard duck (*Anas platyrhynchos*):

Acute oral toxicity, single dose, LD50: > 2,000 mg/kg body weight
Practically non-toxic.

Arthropod toxicity

Honey bee (*Apis mellifera*):

Contact, 48 hours, LD50: > 97 µg/bee

Bioaccumulation

Bluegill sunfish (*Lepomis macrochirus*):

Edible portion: BCF: 8
Rapid depuration after end of exposure.

Bluegill sunfish (*Lepomis macrochirus*):

Whole fish: BCF: 15
Rapid depuration after end of exposure.

13. DISPOSAL CONSIDERATIONS

Product

Excess product may be disposed of by agricultural use according to label instructions.
Keep out of drains, sewers, ditches and water ways.
Recycle if appropriate facilities/equipment available.
For other disposal, this product is classified as hazardous by the Resource Conservation and Recovery Act (RCRA), 40 CFR 261, due to its toxicity and ignitability characteristics.
Burn in a RCRA approved incinerator.
Follow all local/regional/national/international regulations.

Container

See the individual container label for disposal information.
Emptied containers retain vapour and product residue.
Observe all labelled safeguards until container is cleaned, reconditioned or destroyed.
Empty packaging completely.
Triple or pressure rinse empty containers.
Do NOT contaminate water when disposing of rinse waters.
Rinsate may be disposed of by agricultural use according to label instructions.
Burn in proper incinerator.
Ensure packaging cannot be reused.
Store for collection by approved waste disposal service.
Recycle if appropriate facilities/equipment available.
Follow all local/regional/national/international regulations.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

14. TRANSPORT INFORMATION

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

NA1993, COMPOUND, WEED KILLING, LIQUID (chlorobenzene), COMBUSTIBLE LIQUID, III

Note

Applies to all bulk packages and to non-bulk packages which contain an RQ.

US DOT Reportable quantity

RQ Component	RQ	Minimum package size containing RQ
chlorobenzene	100 lb	500 lb

IMDG Code

Use description for chlorobenzene solution.

IATA/ICAO

Use description for chlorobenzene solution.

15. REGULATORY INFORMATION

TSCA Inventory

All components are on the US EPA's TSCA Inventory

OSHA Hazardous Components

- Alachlor
- Atrazine
- Related atrazine compounds
- Monochlorobenzene
- Emulsifier
- Ethylene glycol

SARA Title III Rules

- Section 311/312 Hazard Categories
Immediate, Delayed, Fire
- Section 302 Extremely Hazardous Substances
Not applicable.
- Section 313 Toxic Chemical(s)
Alachlor, Atrazine, chlorobenzene, Ethylene glycol

CERCLA Reportable quantity

RQ Component	RQ	Minimum package size containing RQ
chlorobenzene	100 lb	500 lb

Release of more than any reportable quantity to the environment in a 24 hour period requires notification to the National Response Center (800-424-8802 or 202-426-2675).

16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.
Follow all local/regional/national/international regulations.
Please consult supplier if further information is needed.
In this document the British spelling was applied.

	Health	Flammability	Instability	Additional Markings
NFPA	2	2	1	
0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard				

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED 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. 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-approved label.

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