

MONSANTO COMPANY
Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifier

FALLOW MASTER® BroadSpectrum Herbicide

1.1.1. Chemical name

Not applicable.

1.1.2. Synonyms

None.

1.1.3. EPA Reg. No.

524-507

1.2. Product use

Herbicide

1.3. 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

1.4. 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

2.1. Classification

OSHA Hazard Communication Standard, 29 CFR 1910.1200 (2012)

Acute toxicity, oral - Category 4

Acute toxicity, inhalation - Category 3

Eye damage/irritation - Category 1

STOT RE - Category 2

2.2. Label elements

2.2.1. Signal word

DANGER!

2.2.2. Hazard pictogram/pictograms



2.2.3. Hazard statement/statements

Harmful if swallowed.

Toxic if inhaled.

Causes serious eye damage.

May cause damage to kidney, liver or bladder through prolonged or repeated exposure.

2.2.4. Precautionary statement/statements

Do not breathe mist/vapours/spray.
Wear protective eye/face protection.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
Rinse mouth.
If exposed or concerned: get medical advice/attention
Wash thoroughly after handling.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of contents/container in accordance with local, regional, national and international regulations.

2.3. Appearance and odour (colour/form/odour)

Amber /Liquid / Slight

2.4. OSHA Status

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

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient

Isopropylamine salt of N-(phosphonomethyl)glycine; {Isopropylamine salt of glyphosate}
Isopropylamine salt of 3,6-dichloro-O-anisic acid; {Isopropylamine salt of dicamba}

Composition

COMPONENT	CAS No.	% by weight (approximate)
Isopropylamine salt of glyphosate	38641-94-0	23.3
Isopropylamine salt of dicamba		4.1
Surfactant(s)		18
Water	7732-18-5	54.6

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.

4.1. Description of first aid measures

4.1.1. 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.

4.1.2. 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.

4.1.3. 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.

4.1.4. Ingestion: Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison center or doctor. Do not give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

4.2.1. Eye contact, short term: Risk of serious damage to eyes.

4.2.2. Skin contact, short term: Not expected to produce significant adverse effects when recommended use instructions are followed.

4.2.3. Inhalation, short term: Harmful by inhalation.

4.2.4. Single ingestion: Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

4.3.1. Advice to doctors: This product is not an inhibitor of cholinesterase.

4.3.2. Antidote: Treatment with atropine and oximes is not indicated.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

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

5.2. Special hazards

5.2.1. Unusual fire and explosion hazards

Minimise use of water to prevent environmental contamination.

Environmental precautions: see section 6.

5.2.2. Hazardous products of combustion

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

5.3. Fire fighting equipment: Self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

5.4. Flash point

Does not flash.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions

Avoid all direct contact.

Use personal protection recommended in section 8.

6.2. 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.

6.3. Methods for cleaning up

Absorb in earth, sand or absorbent material.

Dig up heavily contaminated soil.

Collect in containers for disposal.

Refer to section 7 for types of containers.

Flush spill area with water.

Minimise use of water to prevent environmental contamination.

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.

7.1. Precautions for safe handling

Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Minimise dust. When using do not eat, drink or smoke. Wash hands thoroughly after handling or contact. Wash contaminated clothing before re-use. Refer to section 13 of the safety data sheet for disposal of rinse water.

7.2. Conditions for safe storage

Minimum storage temperature: > 40 °F

Compatible materials for storage: stainless steel, aluminium, fibreglass, plastic, glass lining

Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.

Keep out of reach of children.

Keep away from food, drink and animal feed.

Keep only in the original container.

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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Airborne exposure limits

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.
Isopropylamine salt of dicamba	No specific occupational exposure limit has been established.
Surfactant(s)	No specific occupational exposure limit has been established.
Water	No specific occupational exposure limit has been established.

8.2. Engineering controls: Provide local exhaust ventilation. Have eye wash facilities immediately available at locations where eye contact can occur.

8.3. Recommendations for personal protective equipment

8.3.1. Eye protection: Wear chemical goggles.

8.3.2. Skin protection: No special requirement when used as recommended.

8.3.3. 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:	Amber
Odour:	Slight
Form:	Liquid
Physical form changes (melting, boiling, etc.):	
Melting point:	Not available.
Flash point:	Does not flash.
Explosive properties:	No data.
Auto ignition temperature:	No data.
Self-accelerating decomposition temperature (SADT):	No data.
Oxidizing properties:	No data.
Specific gravity:	1.124 15.6 - 20 °C
Vapour pressure:	Not applicable.
Vapour density:	Not applicable.
Evaporation rate:	No data.
Dynamic viscosity:	Not available.
Kinematic viscosity:	Not available.
Density:	Not available.
Solubility:	Completely miscible.
pH:	4.4 - 4.8 @ 50 g/l
Partition coefficient:	log Pow: -3.2 @ 25 °C (glyphosate)
Partition coefficient:	log Pow: 0.54 (dicamba - ionized)
Partition coefficient:	log Pow: 2.21 (dicamba - unionized)

10. STABILITY AND REACTIVITY

10.1. Reactivity

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

10.2. Stability

Stable under normal conditions of handling and storage.

10.3. Possibility of hazardous reactions

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

Hazardous polymerization: Does not occur.

10.4. Incompatible materials

galvanised steel; unlined mild steel; see section 10.;

Compatible materials for storage: see section 7.2.

10.5. Hazardous decomposition

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

11. TOXICOLOGICAL INFORMATION

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

Likely routes of exposure: eye contact, inhalation, ingestion, Skin contact

Potential health effects

Eye contact, short term: Risk of serious damage to eyes.

Skin contact, short term: Not expected to produce significant adverse effects when recommended use instructions are followed.

Inhalation, short term: Harmful by inhalation.

Single ingestion: Harmful if swallowed.

Data obtained on product and components are summarized below.

Acute oral toxicity

Rat, LD50: 4,078 mg/kg body weight

Slightly toxic.

Acute dermal toxicity

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

Practically non-toxic. No mortality.

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol: 0.95 mg/L

Other effects: breathing difficulty

Slightly toxic.

Skin irritation

Rabbit, 6 animals, OECD 404 test:

Days to heal: 10

Primary Irritation Index (PII): 0.6/8.0

Slight irritation.

Eye irritation

Rabbit, 6 animals, OECD 405 test:

Days to heal: > 21

Other effects: vascularisation

Eye corrosion.

Skin sensitization

Guinea pig, 3-induction Buehler test:

Positive incidence: 0 %

Negative.

N-(phosphonomethyl)glycine; { glyphosate acid}

Genotoxicity

Not genotoxic.

Carcinogenicity

Not carcinogenic in rats or mice.

Reproductive/Developmental Toxicity

Developmental effects in rats and rabbits only in the presence of significant maternal toxicity.

Reproductive effects in rats only in the presence of significant maternal toxicity.

3,6-Dichloro-O-anisic acid; (dicamba)

Genotoxicity

Not genotoxic on the basis of weight of evidence analysis.

Carcinogenicity

Not carcinogenic in rats or mice.

Reproductive/Developmental Toxicity

No reproductive effects in rats.

Decreased pup weights in rats.
No developmental effects in rabbits.

Ethoxylated tallowamine

Data obtained on product are summarized below. **Genotoxicity**
Not mutagenic.

Repeated dose toxicity

none

Reproductive/Developmental Toxicity

Effects on offspring only observed with maternal toxicity.

12. ECOLOGICAL INFORMATION

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

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

Similar glyphosate/surfactant mixture

Aquatic toxicity, fish

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity, 96 hours, flowthrough, LC50: 5.8 mg/L
Moderately toxic.

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, flowthrough, LC50: 8.2 mg/L
Moderately toxic.

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours, static, EC50: 11 mg/L
Slightly toxic.

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 96 hours, static, EC50: 2.6 mg/L
Moderately toxic.

Avian toxicity

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*):

Oral, 48 hours, LD50: > 395 µg/bee
Practically non-toxic.

Honey bee (*Apis mellifera*):

Contact, 48 hours, LD50: > 338 µg/bee
Practically non-toxic.

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity, 14 days, LC50: > 5,000 mg/kg dry soil
Practically non-toxic.

3,6-Dichloro-O-anisic acid; (dicamba)

Aquatic toxicity, fish

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity, 96 hours, static, LC50: 135.3 mg/L
Practically non-toxic.

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, static, LC50: 28 - 135.4 mg/L
No more than slightly toxic.

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours, static, EC50: 110.7 mg/L
Practically non-toxic.

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 120 hours, static, EC50: > 3.7 mg/L
Moderately toxic.

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Dietary toxicity, 5 days, LC50: > 10,000 mg/kg diet
Practically non-toxic.

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity, 5 days, LC50: > 10,000 mg/kg diet
Practically non-toxic.

Mallard duck (*Anas platyrhynchos*):

Acute oral toxicity, single dose, LD50: 1,373 mg/kg body weight
Slightly toxic.

Bobwhite quail (*Colinus virginianus*):

Acute oral toxicity, single dose, LD50: 216 mg/kg body weight
Moderately toxic.

Arthropod toxicity

Honey bee (*Apis mellifera*):

Contact, 48 hours, LD50: > 90.65 µg/bee

Bioaccumulation

No significant bioaccumulation is expected.

N-(phosphonomethyl)glycine; { glyphosate acid}

Aquatic toxicity, fish

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity, 96 hours, static, LC50: 120 mg/L
Practically non-toxic.

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity, 96 hours, static, LC50: 86 mg/L
Slightly toxic.

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity, 48 hours, static, EC50: 780 mg/L
Practically non-toxic.

Aquatic toxicity, algae/aquatic plants

Green algae (*Pseudokirchneriella subcapitata*):

Acute toxicity, 96 hours, static, EbC50 (biomass): 17 mg/L
Slightly toxic.

Diatom (*Skeletonema costatum*):

Acute toxicity, 96 hours, static, EbC50 (biomass): 11 mg/L
Slightly toxic.

Duckweed (*Lemna gibba*):

Acute toxicity, 14 days, static, EC50 (frond number): 25.5 mg/L

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Dietary toxicity, 5 days, LC50: > 4,640 mg/kg diet
No more than slightly toxic.

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity, 5 days, LC50: > 4,640 mg/kg diet
No more than slightly toxic.

Bobwhite quail (*Colinus virginianus*):

Acute oral toxicity, single dose, LD50: > 3,851 mg/kg body weight
Practically non-toxic.

Arthropod toxicity

Honey bee (*Apis mellifera*):

Oral, 48 hours, LD50: 100 µg/bee

Honey bee (*Apis mellifera*):

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

Bioaccumulation

Bluegill sunfish (*Lepomis macrochirus*):

Whole fish: BCF: < 1
No significant bioaccumulation is expected.

Dissipation

Soil, field:

Half life: 2 - 174 days
Koc: 884 - 60,000 L/kg
Adsorbs strongly to soil.

Water, aerobic:

Half life: < 7 days

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

13.1.1. Product

Keep out of drains, sewers, ditches and water ways. Recycle if appropriate facilities/equipment available. Burn in proper incinerator. Burn in special, controlled high temperature incinerator. Follow all local/regional/national/international regulations.

13.1.2. Container

See the individual container label for disposal information. Empty packaging completely. Triple or pressure rinse empty containers. Do NOT contaminate water when disposing of rinse waters. Ensure packaging cannot be reused. Do NOT re-use containers. Store for collection by approved waste disposal service. Recycle if appropriate facilities/equipment available. Emptied packages retain product residue and dust. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. 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.

14.1. US Dept. of Transportation (DOT) Hazardous Materials Regulations (49 CFR Parts 105-180)

UN No.:	UN3082
Proper Shipping Name (Technical Name if	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (dicamba acid)

required):	
Class:	9
Packing Group:	III

14.1.1. Note

Applies ONLY to packages which contain an RQ.

14.1.2. US DOT Reportable quantity

RQ Component	RQ	Minimum package size containing RQ
dicamba acid	1,000 lb	24,390 lb

14.2. IMDG Code

UN No.:	UN3082
Packing Group:	III

14.2.1. Note

See US DOT

14.3. IATA/ICAO

UN No.:	UN3082
Packing Group:	III

14.3.1. Note

See US DOT

15. REGULATORY INFORMATION

15.1. Environmental Protection Agency

15.1.1. TSCA Inventory

All components are on the US EPA's TSCA Inventory

15.1.2. SARA Title III Rules

Section 311/312 Hazard Categories: Immediate

Section 302 Extremely Hazardous Substances: Not applicable.

Section 313 Toxic Chemical(s): Dicamba acid

15.1.3. CERCLA Reportable quantity

RQ Component	RQ	Minimum package size containing RQ
dicamba acid	1,000 lb	24,390 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).

15.1.4. Federal Insecticide, Fungicide, Rodenticide Act (FIFRA)

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

DANGER!

CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE, HARMFUL IF SWALLOWED, HARMFUL IF INHALED

Acute oral toxicity: FIFRA category III.

Acute dermal toxicity: FIFRA category IV.
Acute inhalation toxicity: FIFRA category III.
Skin irritation: FIFRA category IV.
Eye irritation: FIFRA category I.

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.

|| Significant changes versus previous edition.

	Health	Flammability	Instability	Additional Markings
NFPA	3	1	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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