MONSANTO COMPANY

Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

Product name
HARNESS® 20G Granular Herbicide

EPA Reg. No.
524-487
Product use
Herbicide
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: TS-SAFETYDATASHEET@DOMINO.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 - Brown / Granules / Mothball

CAUTION!
CAUSES MODERATE EYE IRRITATION

Potential health effects
Likely routes of exposure
Skin contact, eye contact, inhalation
Eye contact, short term
May cause temporary eye irritation.
Skin contact, short term
May cause allergic skin reaction.
Inhalation, short term
Not expected to produce significant adverse effects when recommended use instructions are followed.

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-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl) acetamide; {Acetochlor}

Composition

COMPONENT	CAS No.	% by weight (approximate)
Acetochlor	34256-82-1	20
Clay	1302-87-0	>=70 - <=80
Quartz	14808-60-7	<=2
Minor formulating ingredients		<=10

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
Immediately flush with plenty of water.
If easy to do, remove contact lenses.
If there are persistent symptoms, obtain medical advice.

Skin contact
Immediately wash affected skin with plenty of water.
Take off contaminated clothing, wristwatch, jewellery.
Use soap if available.
Get medical advice from a poison control center or doctor.
Wash clothes and clean shoes before re-use.

Inhalation
Remove to fresh air.

Ingestion
Rinse mouth thoroughly with water.
Remove particles from mouth.
Immediately offer water to drink.
Never give anything by mouth to an unconscious person.
Do NOT induce vomiting unless directed by medical personnel.

5. FIRE-FIGHTING MEASURES

Flash point
Does not flash.

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), nitrogen oxides (NOx), hydrogen chloride (HCl), sulphur oxides (SOx), oxides of silica

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protection recommended in section 8.

Environmental precautions
Minimise spread.
Keep out of drains, sewers, ditches and water ways.

Methods for cleaning up
SMALL QUANTITIES:
Collect in containers for disposal.
LARGE QUANTITIES:
Dig up heavily contaminated soil.
Collect in containers for reclamation or disposal.
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.

Handling
Avoid contact with eyes, skin and clothing.
Avoid prolonged or repeated contact with skin.
Wash hands thoroughly after handling or contact.
Wash contaminated clothing before re-use.
Thoroughly clean equipment after use.
Emptied packages retain product residue and dust.
FOLLOW LABELLED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

Storage
Keep out of reach of children.
Keep away from food, drink and animal feed.
Minimum shelf life: 2 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
Acetochlor	No specific occupational exposure limit has been established.
Clay	TLV (ACGIH): 10 mg/m3: inhalable fraction, PNOS (Particulates [insoluble or poorly soluble] Not Otherwise Specified) TLV (ACGIH): 3 mg/m3: respirable fraction, PNOS (Particulates [insoluble or poorly soluble] Not Otherwise Specified) PEL (OSHA): 15 mg/m3: total dust, PNOR (Particulates Not Otherwise Regulated) PEL (OSHA): 5 mg/m3: respirable fraction, PNOR (Particulates Not Otherwise Regulated)
Quartz	TLV (ACGIH): 0.025 mg/m3 (TWA): respirable fraction PEL (OSHA): 30 mg/m3 / % SiO2 + 2: total dust, OSHA listed carcinogen PEL (OSHA): 10 mg/m3 / % SiO2 + 2: respirable fraction, OSHA listed carcinogen

Minor formulating ingredients	No specific occupational exposure limit has been established.

Engineering controls
Provide adequate ventilation to keep airborne concentration below exposure limits.

Eye protection
If there is significant potential for contact:
Wear dust goggles.

Skin protection
If repeated or prolonged contact:
Wear chemical resistant gloves.

Respiratory protection
No special requirement when used as recommended.
If airborne exposure is excessive:
Wear respirator.
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 - Brown
Odour:	Mothball
Form:	Granules
Physical form changes (melting, boiling, etc.):	
Boiling point:	Not applicable.
Flash point:	Does not flash.
Explosive properties:	No explosive properties
Auto ignition temperature:	Not applicable.
Specific gravity:	Not applicable.
Vapour pressure:	Not applicable.
Vapour density:	Not applicable.
Evaporation rate:	Not applicable.
Dynamic viscosity:	Not applicable.
Kinematic viscosity:	Not applicable.
Density:	0.752 g/cm3
	47 lb/ft3
Solubility:	Insoluble.
pH:	Not applicable.
Partition coefficient:	log Pow: 4.14 @ 20 °C (acetochlor)

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions of handling and storage.

Oxidizing properties
none

Hazardous decomposition
Thermal decomposition: When heated may give off irritant/corrosive fumes.
Hazardous products of combustion: see section 5.

Self-accelerating decomposition temperature (SADT)
No data.

Hazardous polymerization
Does not occur.

11. TOXICOLOGICAL INFORMATION

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

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

Acute oral toxicity
Rat, LD50: 7,490 mg/kg body weight
Practically non-toxic.
FIFRA category IV.

Acute dermal toxicity
Rat, LD50: > 5,000 mg/kg body weight
Practically non-toxic.
FIFRA category IV.
No mortality.

Acute inhalation toxicity
Rat, LC50, 4 hours, dust: > 2.7 mg/L
Practically non-toxic.
FIFRA category IV.
No mortality.

Skin irritation
Rabbit, 6 animals, OECD 404 test:
Days to heal: 2
Primary Irritation Index (PII): 0.3/8.0
Essentially non irritating.
FIFRA category IV.

Eye irritation
Rabbit, 6 animals, Draize test:
Days to heal: 7
Moderate irritation.
FIFRA category III.

Skin sensitization
Guinea pig, 3-induction Buehler test:
Positive incidence: 20 %
Equivocal response.

Acetochlor

Mutagenicity
In vivo mutagenicity test(s):
Not mutagenic.
In vitro mutagenicity test(s):
Mutagenic/Genotoxic in some assays.

Repeated dose toxicity

Rat, oral, 90 days:
NOAEL toxicity: 18 mg/kg body weight/day
Target organs/systems: none
Other effects: decrease of body weight gain, decrease of food consumption

Rabbit, dermal, 21 days:
NOAEL toxicity: 400 mg/kg body weight/day
Target organs/systems: none
Other effects: increased mortality, decrease of body weight gain

Chronic effects/carcinogenicity

Rat, oral, 2 years:
NOAEL toxicity: 10 mg/kg body weight/day
Target organs/systems: liver, kidneys
Other effects: decrease of body weight gain, organ weight change, blood biochemistry effects
NOEL tumour: 10 mg/kg body weight/day
Tumours: nose, thyroid; Tumours not relevant for man based on mechanistic data.
Tumours: liver; Tumours only above MTD.

Mouse, oral, 18 months:
NOAEL toxicity: 1.1 mg/kg body weight/day
Target organs/systems: kidneys, liver
Other effects: histopathologic effects, haematological effects, decrease of body weight gain
NOEL tumour: 1.1 mg/kg body weight/day
Tumours: lung, histiocytic sarcoma; Tumours probably not related to treatment.
Tumours: liver; Tumours only above MTD.

Toxicity to reproduction/fertility

Rat, oral, 2 generations:
NOAEL toxicity: 21 mg/kg body weight/day
NOAEL reproduction: 66 mg/kg body weight/day
Target organs/systems in parents: liver, kidneys, thyroid
Other effects in parents: decrease of body weight gain, organ weight change, histopathologic effects
Target organs/systems in pups: none
Other effects in pups: decrease of body weight gain, change in sexual maturation landmarks
Effects on offspring only observed with maternal toxicity.

Developmental toxicity/teratogenicity

Rat, oral, 6 - 18 days of gestation:
NOAEL toxicity: 200 mg/kg body weight
NOAEL development: 400 mg/kg body weight
Target organs/systems in mother animal: none
Other effects in mother animal: decrease of body weight gain
No adverse treatment related effects in offspring.

Rabbit, oral, 7 - 19 days of gestation:
NOAEL toxicity: 100 mg/kg body weight/day
NOAEL development: 300 mg/kg body weight/day
Target organs/systems in mother animal: none
Other effects in mother animal: decrease of body weight gain
No adverse treatment related effects in offspring.

Acute neurotoxicity

Rat, oral, single dose, gavage:
NOAEL: 150 mg/kg body weight
Other effects: decreased activity

Repeated dose neurotoxicity

Rat, oral, 13 weeks, dietary:
NOAEL: 52 mg/kg body weight/day
Target organs/systems: none
Other effects: decrease of body weight gain, decrease of food consumption
Not neurotoxic.

EXPERIENCE WITH HUMAN EXPOSURE
Skin contact, short term, occupational:
Skin effects: sensitization in susceptible individuals

Clay

EXPERIENCE WITH HUMAN EXPOSURE
Skin contact, excessive, occupational:
Skin effects: irritation
Eye contact, short term, occupational:
Eye effects: irritation, abrasion of eye (corneal abrasion)
Inhalation, excessive, :
Respiratory effects: cough, irritation

Quartz

Chronic effects/carcinogenicity
Various species, inhalation:
Target organs/systems: lung, fibrosis (silicosis)
Tumours: lung, (adenocarcinoma), (squamous cell carcinoma)

EXPERIENCE WITH HUMAN EXPOSURE
Eye contact, short term, occupational:
Eye effects: irritation, abrasion of eye (corneal abrasion)
Inhalation, repeated, occupational:
Respiratory effects: fibrosis (silicosis), (adenocarcinoma), (squamous cell carcinoma)

12. ECOLOGICAL INFORMATION

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

Data obtained on active ingredient(s) are summarized below.

Acetochlor

Aquatic toxicity, fish
Bluegill sunfish (Lepomis macrochirus):
Acute toxicity, 96 hours, static, LC50: 1.3 mg/L
Moderately toxic.
Rainbow trout (Oncorhynchus mykiss):
Acute toxicity, 96 hours, static, LC50: 0.36 - 1.2 mg/L
Highly toxic.
Aquatic toxicity, invertebrates
Water flea (Daphnia magna):
Acute toxicity, 48 hours, static, EC50: 8.6 - 16 mg/L
Moderately toxic.
Aquatic toxicity, algae/aquatic plants
Green algae (Selenastrum capricornutum):
Acute toxicity, 96 hours, static, EC50: 0.27 - 1.49 µg/L
Very highly toxic.
Avian toxicity
Bobwhite quail (Colinus virginianus):
Acute oral toxicity, single dose, LD50: 928 - 1,560 mg/kg body weight
Mallard duck (Anas platyrhynchos):
Acute oral toxicity, single dose, LD50: > 2,000 mg/kg body weight

Practically non-toxic.

Mallard duck (Anas platyrhynchos):
Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Bobwhite quail (Colinus virginianus):
Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet
Practically non-toxic.

Arthropod toxicity

Honey bee (Apis mellifera):
Oral, 48 hours, LD50: > 100 µg/bee
Practically non-toxic.

Honey bee (Apis mellifera):
Contact, 48 hours, LD50: > 200 µg/bee
Practically non-toxic.

Soil organism toxicity, invertebrates

Earthworm (Eisenia foetida):
Acute toxicity, 14 days, LC50: 211 - 397 mg/kg dry soil
Slightly toxic.

Bioaccumulation

Bluegill sunfish (Lepomis macrochirus):
Whole fish: BCF: 20
Rapid depuration after end of exposure.

Dissipation

Water, aerobic, 20 °C:
Half life: 25.9 - 55.1 days

Soil, aerobic, 20 °C:
Half life: 3.4 - 29 days
Koc: 74 - 422

13. DISPOSAL CONSIDERATIONS

Product

Excess product may be disposed of by agricultural use according to label instructions.
Empty packaging completely.
Bury in approved landfill.
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.
Store for collection by approved waste disposal service.
Ensure packaging cannot be reused.
Do NOT re-use containers.
Recycle if appropriate facilities/equipment available.
Bury in approved landfill.
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.

Not hazardous under the applicable DOT, ICAO/IATA, IMO, TDG and Mexican regulations.

15. REGULATORY INFORMATION

IARC Classification
Category 1 Chemical(s)
Quartz

National Toxicology Program (NTP) Information
Known Carcinogen(s)
Quartz

TSCA Inventory
All components are on the US EPA's TSCA Inventory

OSHA Hazardous Components
Acetochlor
Quartz

SARA Title III Rules
Section 311/312 Hazard Categories
Immediate, Delayed
Section 302 Extremely Hazardous Substances
Not applicable.
Section 313 Toxic Chemical(s)
Not applicable.

CERCLA Reportable quantity
Not applicable.

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
The state of California's Safe Drinking Water and Toxic Enforcement Act of 1986 requires the following label on this product. WARNING! This product contains chemicals known to the state of California to cause cancer.

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	1	1	

0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard

Endnotes:
{a} EU label (manufacturer self-classification)
{b} EU label (Annex I)
{c} National classification

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.