



## Material Safety Data Sheet

### TRIBUTE™ TOTAL

MSDS Number: 102000025052

MSDS Version 1.0

Revision Date: 01/27/2012

Print Date: 03/22/2012

## SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

<b>Product name</b>	TRIBUTE™ TOTAL
<b>MSDS Number</b>	102000025052
<b>Product code (UVP)</b>	80192401
<b>EPA Registration No.</b>	432-1519
<b>Product Use</b>	Herbicide

Bayer Environmental Science  
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: 1-800-331-2867

## SECTION 2. HAZARDS IDENTIFICATION

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

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

**Physical State** water-dispersible granules

**Odor** characteristic

**Appearance** beige

**Exposure routes** Ingestion, Eye contact, Skin contact

### Immediate Effects

**Eye** Moderate eye irritation. Avoid contact with eyes.

**skin** Causes skin irritation. Avoid contact with skin and clothing.

**Ingestion** Harmful if swallowed. Do not take internally.

### Potential Environmental Effect

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. This product may cause adverse effects on non-target plants.



**Material Safety Data Sheet**

**TRIBUTE™ TOTAL**

MSDS Number: 102000025052  
MSDS Version 1.0

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Halosulfuron-Methyl	100784-20-1	30.80
Foramsulfuron	173159-57-4	19.80
Thien carbazon-methyl	317815-83-1	9.91
Sulphonated aromatic polymer, sodium salt		8.80
Anionic tenside		4.00

**SECTION 4. FIRST AID MEASURES**

<b>General</b>	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
<b>Eye</b>	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.
<b>skin</b>	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
<b>Ingestion</b>	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. Do not leave victim unattended.
<b>Notes to physician Treatment</b>	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

**SECTION 5. FIRE FIGHTING MEASURES**

<b>Flash point</b>	not applicable
<b>Autoignition temperature</b>	not applicable
<b>Lower Flammability Limit</b>	not applicable
<b>Upper Flammability Limit</b>	not applicable



## Material Safety Data Sheet

MSDS Number: 102000025052  
MSDS Version 1.0

### TRIBUTE™ TOTAL

<b>Fire and Explosion Hazards</b>	In the event of fire the following may be released: Hydrogen chloride (HCl) Hydrogen cyanide (hydrocyanic acid) Carbon monoxide (CO) Nitrogen oxides (NOx) Sulphur oxides
<b>Suitable extinguishing media</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<b>Unsuitable extinguishing media</b>	High volume water jet
<b>Fire Fighting Instructions</b>	Whenever possible, contain fire-fighting water by diking area with sand or earth. Do not allow run-off from fire fighting to enter drains or water courses.  Keep out of smoke. Fight fire from upwind position.  In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.
<b>Methods for cleaning up</b>	Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.
<b>Additional advice</b>	Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.

## SECTION 7. HANDLING AND STORAGE

<b>Handling procedures</b>	Use only in area provided with appropriate exhaust ventilation.  No special precautions required.
<b>Storing Procedures</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Store in original container. Store in a place accessible by authorized persons only.  Keep away from food, drink and animal feedingstuffs.
<b>Work/Hygienic Procedures</b>	Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.



## Material Safety Data Sheet

### TRIBUTE™ TOTAL

MSDS Number: 102000025052  
MSDS Version 1.0

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.

## SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**General Protection** 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.

Follow all label instructions. Train employees in safe use of the product.

**Eye/Face Protection** 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

Foramsulfuron	173159-57-4	OES BCS*	TWA	10 mg/m <sup>3</sup>
	Kaolin	1332-58-7	ACGIH	TWA
		NIOSH	REL	5 mg/m <sup>3</sup>
		NIOSH	REL	10 mg/m <sup>3</sup>
		US CA OEL	TWA PEL	2 mg/m <sup>3</sup>
		TX ESL	ST ESL	20 ug/m <sup>3</sup>
		TX ESL	AN ESL	2 ug/m <sup>3</sup>
		TX ESL	ST ESL	20 ug/m <sup>3</sup>
		TX ESL	AN ESL	2 ug/m <sup>3</sup>
		TWA	10 mg/m <sup>3</sup>	
		TWA	5 mg/m <sup>3</sup>	

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

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance** beige

**Physical State** water-dispersible granules

**Odor** characteristic



## Material Safety Data Sheet

### TRIBUTE™ TOTAL

MSDS Number: 102000025052  
MSDS Version 1.0

<b>pH</b>	4.5 - 5.5 (10 %) at 23 °C
<b>Vapor Pressure</b>	not applicable
<b>Vapor Density (Air = 1)</b>	not applicable
<b>Bulk density</b>	587 - 688 kg/m <sup>3</sup>
<b>Evaporation rate</b>	no data available
<b>Boiling Point</b>	not applicable
<b>Melting / Freezing Point</b>	not applicable
<b>Water solubility</b>	dispersible
<b>Minimum Ignition Energy</b>	no data available
<b>Decomposition temperature</b>	no data available
<b>Partition coefficient: n-octanol/water</b>	no data available
<b>Viscosity</b>	not applicable

## SECTION 10. STABILITY AND REACTIVITY

<b>Conditions to avoid</b>	no data available
<b>Incompatibility</b>	no data available
<b>Hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Chemical Stability</b>	Stable under normal 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, foramsulfuron and thiencarbazon-methyl.

<b>Acute oral toxicity</b>	rat: LD50: 3,129 mg/kg
<b>Acute dermal toxicity</b>	rat: LD50: > 5,000 mg/kg



## Material Safety Data Sheet

MSDS Number: 102000025052  
MSDS Version 1.0

### TRIBUTE™ TOTAL

**Acute inhalation toxicity** rat: LC50: > 2.02 mg/l  
Exposure time: 4 h  
Determined in the form of a respirable aerosol.

**Skin irritation** rabbit: Slight irritation

**Eye irritation** rabbit: Slight irritation

**Sensitisation** guinea pig: Non-sensitizing.

**Chronic toxicity** Foramsulfuron was non-toxic at doses of ~1000 mg/kg/day in chronic studies in rats, mice and dogs.

**Chronic toxicity** Thiencarbazon-methyl caused urinary tract irritation in long term studies in mice, rats and dogs.

### Assessment Carcinogenicity

Foramsulfuron was not carcinogenic in lifetime feeding studies in rats and mice.

Thiencarbazon-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. Thiencarbazon-methyl was considered not to be directly carcinogenic in mice.

#### ACGIH

None.

#### NTP

None.

#### IARC

None.

#### OSHA

None.

**Reproductive toxicity** REPRODUCTION:  
Foramsulfuron was not a reproductive toxicant in a two-generation study in rats.

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

#### DEVELOPMENTAL TOXICITY:

Foramsulfuron was not a developmental toxicant in rats and rabbits.

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

**Assessment** Foramsulfuron did not demonstrate the potential to cause neurotoxicity in



## Material Safety Data Sheet

### TRIBUTE™ TOTAL

MSDS Number: 102000025052  
MSDS Version 1.0

**neurotoxicity** standard toxicity studies using laboratory animals.

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

**Mutagenicity**

Foramsulfuron does not possess significant genotoxicity activity based on the overall weight of evidence from a battery of in vitro and in vivo tests.

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

## SECTION 12. ECOLOGICAL INFORMATION

**Toxicity to fish**

Rainbow trout (*Oncorhynchus mykiss*)

LC50: > 100 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient foramsulfuron.

Rainbow trout (*Oncorhynchus mykiss*)

LC50: > 104 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient thiencarbazone-methyl.

Rainbow trout (*Oncorhynchus mykiss*)

LC50: > 131 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient halosulfuron-methyl.

**Toxicity to aquatic plants**

*Pseudokirchneriella subcapitata*

EC50: 75 mg/l

Exposure time: 72 h

The value mentioned relates to the active ingredient foramsulfuron.

*Pseudokirchneriella subcapitata*

Growth rate

IC50: 1.017 mg/l

Exposure time: 72 h

The value mentioned relates to the active ingredient thiencarbazone-methyl.

*Lemna gibba* (duckweed)

Growth rate

IC50: 0.00131 mg/l

Exposure time: 7 d

The value mentioned relates to the active ingredient thiencarbazone-methyl.

*Lemna gibba* (duckweed)

Growth rate

EC50: 0.000217 mg/l

Exposure time: 7 d



## Material Safety Data Sheet

MSDS Number: 102000025052  
MSDS Version 1.0

### TRIBUTE™ TOTAL

The value mentioned relates to the active ingredient halosulfuron-methyl.

#### Acute Toxicity to Aquatic Invertebrates

Daphnia  
LC50: > 100 mg/l  
Exposure time: 48 h  
The value mentioned relates to the active ingredient foramsulfuron.

Water flea (Daphnia magna)  
EC50: > 98.6 mg/l  
Exposure time: 48 h  
The value mentioned relates to the active ingredient thiencazone-methyl.

Water flea (Daphnia magna)  
EC50: > 107 mg/l  
Exposure time: 48 h  
The value mentioned relates to the active ingredient halosulfuron-methyl.

#### 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

Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.

#### Container Disposal

Do not re-use empty containers. 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. Follow advice on product label and/or leaflet.

#### RCRA Information

Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

## SECTION 14. TRANSPORT INFORMATION

#### 49CFR

Not dangerous goods / not hazardous material

#### IMDG

UN-Number

3077

Class

9

Packaging group

III





## Material Safety Data Sheet

MSDS Number: 102000025052  
MSDS Version 1.0

### TRIBUTE™ TOTAL

Marine pollutant YES  
Description of the goods ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(THIENCARBAZONE-METHYL, HALOSULFURON-METHYL MIXTURE)

#### IATA

UN-Number 3077  
Class 9  
Packaging group III  
Environm. Hazardous Mark YES  
Description of the goods ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(THIENCARBAZONE-METHYL, HALOSULFURON-METHYL MIXTURE )

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

## SECTION 15. REGULATORY INFORMATION

EPA Registration No. 432-1519

### US Federal Regulations

#### TSCA list

Sulphonated aromatic polymer, sodium salt

#### 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

None.

### Canadian Regulations

#### Canadian Domestic Substance List

Sulphonated aromatic polymer, sodium salt

### Environmental

#### CERCLA

None.

#### Clean Water Section 307 Priority Pollutants

None.

#### Safe Drinking Water Act Maximum Contaminant Levels



**Material Safety Data Sheet**

**TRIBUTE™ TOTAL**

MSDS Number: 102000025052  
MSDS Version 1.0

None.

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**SECTION 16. OTHER INFORMATION**

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NFPA 704 (National Fire Protection Association):

Health - 2      Flammability - 1      Instability - 1      Others - none

HMS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1      Flammability - 1      Physical Hazard - 1      PPE -

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

Reason for Revision: New Material Safety Data Sheet.

Revision Date: 01/27/2012

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