



RONSTAR® FLO HERBICIDE

Version 1 / USA
102000028077

1/11
Revision Date: 09/13/2013
Print Date: 10/28/2013

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name	RONSTAR® FLO HERBICIDE
Product code (UVP)	80533683
SDS Number	102000028077
EPA Registration No.	432-1465

Relevant identified uses of the substance or mixture and uses advised against

Use	Herbicide
Restrictions on use	See product label for restrictions.

Information on manufacturer

Bayer Environmental Science
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
United States

Emergency telephone no.

All Emergencies, 24hr/ 7 days 1-800-334-7577 (24 hours/day)

Product Information	1-800-331-2867
Telephone No.	

SDS Information or Request SDSINFO.BCS-NA@bayer.com

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200

Eye irritation : Category 2B

Signal word: Warning

Hazard statements

Causes eye irritation.

Precautionary statements

Wash thoroughly after handling.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

Other hazards

No other hazards known.



RONSTAR® FLO HERBICIDE

Version 1 / USA
102000028077

2/11
Revision Date: 09/13/2013
Print Date: 10/28/2013

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Average % by Weight
Oxadiazon	19666-30-9	34.10
1,2-Propanediol	57-55-6	3.00

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	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.
Eye contact	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.
Ingestion	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.

Most important symptoms and effects, both acute and delayed

Symptoms	To date no symptoms are known.
-----------------	--------------------------------

Indication of any immediate medical attention and special treatment needed

Treatment	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.
------------------	---

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable	High volume water jet



RONSTAR® FLO HERBICIDE

Version 1 / USA
102000028077

3/11
Revision Date: 09/13/2013
Print Date: 10/28/2013

Special hazards arising from the substance or mixture

Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for fire-fighters

Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information

Evacuate personnel to safe areas. Keep out of smoke. Fight fire from upwind position. Avoid contact with spilled product or contaminated surfaces. Cool closed containers exposed to fire with water spray.

Do not allow run-off from fire fighting to enter drains or water courses.

Flash point

no data available

Autoignition temperature

no data available

Lower explosion limit

no data available

Upper explosion limit

no data available

Explosivity

not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions

Isolate hazard area. Keep unauthorized people away. Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment.

Methods and materials for containment and cleaning up

Methods for cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations. Decontaminate tools and equipment following cleanup.

Additional advice

Do not allow to enter soil, waterways or waste water canal.

Reference to other sections

Information regarding safe handling, see section 7.
Information regarding personal protective equipment, see section 8.
Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE



RONSTAR® FLO HERBICIDE

Version 1 / USA
102000028077

4/11
Revision Date: 09/13/2013
Print Date: 10/28/2013

Precautions for safe handling

Advice on safe handling Handle and open container in a manner as to prevent spillage. Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

Hygiene measures Handle in accordance with good industrial hygiene and safety practice. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Smoking, eating and drinking should be prohibited in the application area. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in original container. Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Protect from freezing.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Oxadiazon	19666-30-9	0.28 mg/m3 (TWA)		OES BCS*
Oxadiazon	19666-30-9	5 ug/m3 (AN ESL)	07 2011	TX ESL
Oxadiazon	19666-30-9	50 ug/m3 (ST ESL)	07 2011	TX ESL
1,2-Propanediol (Aerosol.)	57-55-6	10 mg/m3 (TWA)	2010	WEEL
1,2-Propanediol	57-55-6	1000 ug/m3 (ST ESL)	03 2012	TX ESL
1,2-Propanediol	57-55-6	50 ug/m3 (ST ESL)	03 2012	TX ESL
1,2-Propanediol	57-55-6	100 ug/m3 (AN ESL)	03 2012	TX ESL
1,2-Propanediol	57-55-6	50 ppb (AN ESL)	03 2012	TX ESL
1,2-Propanediol	57-55-6	500 ppb (ST ESL)	03 2012	TX ESL
1,2-Propanediol	57-55-6	5 ug/m3 (AN ESL)	03 2012	TX ESL

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

Exposure controls

Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.



RONSTAR® FLO HERBICIDE

Version 1 / USA
102000028077

5/11
Revision Date: 09/13/2013
Print Date: 10/28/2013

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.
Hand protection	Chemical resistant nitrile rubber gloves
Eye protection	Chemical resistant goggles must be worn.
Skin and body protection	Wear long-sleeved shirt and long pants and shoes plus socks.
General protective measures	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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	beige
Physical State	suspension
Odor	amine-like
Odour Threshold	no data available
pH	3.5 - 5.5 (100 %) at 23 °C
Vapor Pressure	no data available
Vapor Density (Air = 1)	no data available
Density	1.09 g/cm ³ at 20 °C
Evapouration rate	no data available
Boiling Point	no data available
Melting / Freezing Point	no data available
Water solubility	dispersible
Solubility in other solvents	no data available
Minimum Ignition Energy	not applicable



RONSTAR® FLO HERBICIDE

Version 1 / USA
102000028077

6/11
Revision Date: 09/13/2013
Print Date: 10/28/2013

Decomposition temperature	not applicable
Partition coefficient: n-octanol/water	no data available
Viscosity	220 - 400 mPa.s at 20 °C Velocity gradient 20 /s 100 - 200 mPa.s at 20 °C Velocity gradient 100 /s
Flash point	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Explosivity	not applicable

SECTION 10: STABILITY AND REACTIVITY

Reactivity	
Thermal decomposition	not applicable
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	freezing
Incompatible materials	no data available
Hazardous decomposition products	no data available

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Skin contact, Ingestion, Inhalation
Immediate Effects	



RONSTAR® FLO HERBICIDE

Version 1 / USA
102000028077

7/11
Revision Date: 09/13/2013
Print Date: 10/28/2013

Eye	Moderate eye irritation.
Skin	May cause slight irritation. Harmful if absorbed through skin.
Ingestion	Harmful if swallowed.
Inhalation	May cause irritation of the mucous membranes.

Information on toxicological effects

Acute oral toxicity	LD50 (female rat) > 2,000 mg/kg
Acute inhalation toxicity	LC50 (rat) > 2.31 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. highest concentration tested No deaths LC50 (rat) > 9.24 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
Acute dermal toxicity	LD50 (rat) > 2,000 mg/kg
Skin irritation	Slight irritation (rabbit)
Eye irritation	Mild eye irritation. (rabbit)
Sensitisation	Non-sensitizing. (guinea pig)

Assessment repeated dose toxicity

Oxadiazon caused specific target organ toxicity in experimental animal studies in the following organ(s): liver, blood. The observed effects do not appear to be relevant for humans.

Assessment Mutagenicity

Oxadiazon was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Assessment Carcinogenicity

Oxadiazon caused at high dose levels an increased incidence of tumours in in the following organ(s): liver. The mechanism that triggers tumours in rodents and the type of tumours observed are not relevant to humans.

ACGIH

None.

NTP

None.

IARC

None.



RONSTAR® FLO HERBICIDE

Version 1 / USA
102000028077

8/11
Revision Date: 09/13/2013
Print Date: 10/28/2013

OSHA

None.

Assessment toxicity to reproduction

Oxadiazon caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Oxadiazon is related to parental toxicity.

Assessment developmental toxicity

Oxadiazon caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Oxadiazon are related to maternal toxicity.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 1.2 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient oxadiazon.
Toxicity to aquatic invertebrates	EC50 (Water flea (Daphnia magna)) > 2.4 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient oxadiazon.
Toxicity to aquatic plants	EC50 (Scenedesmus subspicatus) 0.00423 mg/l Growth rate; Exposure time: 72 h The value mentioned relates to the active ingredient oxadiazon.
Bioaccumulation	Lepomis macrochirus (Bluegill sunfish) Bioconcentration factor (BCF): 243 The value mentioned relates to the active ingredient oxadiazon. Does not bioaccumulate.
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. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product

It is best to use all of the product in accordance with label directions.
If it is necessary to dispose of unused product, please follow container label instructions and applicable local guidelines.
Never place unused product down any indoor or outdoor drain.



RONSTAR® FLO HERBICIDE

Version 1 / USA
102000028077

9/11
Revision Date: 09/13/2013
Print Date: 10/28/2013

Contaminated packaging

Do not re-use empty containers.
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	3082
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (OXADIAZON SOLUTION)

IATA

UN number	3082
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (OXADIAZON SOLUTION)

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. 432-1465

US Federal Regulations

TSCA list

1,2-Propanediol 57-55-6

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

Oxadiazon 19666-30-9

25,000lbs

US States Regulatory Reporting



RONSTAR® FLO HERBICIDE

Version 1 / USA
102000028077

10/11
Revision Date: 09/13/2013
Print Date: 10/28/2013

CA Prop65

This product contains a chemical known to the State of California to cause cancer.

Oxadiazon 19666-30-9

This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Oxadiazon 19666-30-9 Developmental toxin.

US State Right-To-Know Ingredients

Oxadiazon 19666-30-9 NJ
1,2-Propanediol 57-55-6 MN, RI

Canadian Regulations

Canadian Domestic Substance List

1,2-Propanediol 57-55-6

Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

International Regulations

European Inventory of Existing Commercial Substances (EINECS)

Oxadiazon 19666-30-9
1,2-Propanediol 57-55-6

EPA/FIFRA Information:

This chemical is a pesticide product registered by the 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, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

Signal word: Caution!

Hazard statements: Harmful if swallowed or absorbed through skin.
Moderate eye irritation.
Avoid contact with skin, eyes and clothing.

SECTION 16: OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 1 Instability - 0 Others - none

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

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

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

Bayer Environmental Science

SAFETY DATA SHEET



RONSTAR® FLO HERBICIDE

Version 1 / USA
102000028077

11/11

Revision Date: 09/13/2013
Print Date: 10/28/2013

Reason for Revision: New Safety Data Sheet.

Revision Date: 09/13/2013

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.