



GINSTAR® EC COTTON DEFOLIANT

Version 4.1 / USA
102000003984

1/12
Revision Date: 04/06/2015
Print Date: 04/08/2015

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

Product identifier

Trade name GINSTAR® EC COTTON DEFOLIANT

Product code (UVP) 05950392

SDS Number 102000003984

EPA Registration No. 264-634

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

Use Herbicide, Growth regulator

Restrictions on use See product label for restrictions.

Information on manufacturer

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

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577

Product Information Telephone Number 1-866-99BAYER (1-866-992-2937)

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

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200

Serious eye damage : Category 1

Skin sensitisation : Category 1

Skin irritation : Category 2

Acute toxicity (Inhalation): Category 4



Signal word: Danger

Hazard statements

Causes serious eye damage.

May cause an allergic skin reaction.

Causes skin irritation.



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Harmful if inhaled.

Precautionary statements

Wear eye protection/face protection.

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

Contaminated work clothing should not be allowed out of the workplace.

Wash face, hands and any exposed skin thoroughly after handling.

Wear protective gloves.

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/doctor/physician.

IF ON SKIN: Wash with plenty of water/soap.

If skin irritation or rash occurs: Get medical advice/attention.

Specific treatment (see supplemental first aid instructions on this label).

Wash contaminated clothing before reuse.

Take off contaminated clothing and wash before reuse.

Call a POISON CENTER/doctor/physician if you feel unwell.

Dispose of contents/container in accordance with local regulation.

Other hazards

No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Thidiazuron	51707-55-2	12.0
Diuron	330-54-1	6.0
N-Octyl-2-pyrrolidinone	2687-94-7	10.0
n-(n-Dodecyl)-2-pyrrolidon	2687-96-9	67.0

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



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	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	Gastrointestinal discomfort, Skin, eye and mucous membrane irritation, Erythema, Sensitisation, Cyanosis
Indication of any immediate medical attention and special treatment needed	
Risks	Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.
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	Water spray, Alcohol-resistant foam, Dry chemical, Carbon dioxide (CO ₂)
Unsuitable	None known.

Special hazards arising from the substance or mixture	In the event of fire the following may be released: Nitrogen oxides (NO _x), Carbon monoxide (CO), Sulphur oxides
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Advice for firefighters

Special protective equipment for fire-fighters	Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.
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Further information	Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.
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Flash point	143.5 °C
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Explosivity	not applicable



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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Avoid contact with spilled product or contaminated surfaces. Keep unauthorized people away. Isolate hazard area. Do not breathe vapour.

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). Collect and transfer the product into a properly labelled and tightly closed container. Wash spill area with water containing a strong detergent. Clean contaminated floors and objects thoroughly, observing environmental regulations. Contaminated soil may have to be removed and disposed.

Additional advice Use personal protective equipment. Do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.

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

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.

Advice on protection against fire and explosion Keep away from heat and sources of ignition.

Hygiene measures Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
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.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers 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. Store in original container and out of the reach of children, preferably in a locked storage area. Keep away from direct sunlight. Protect from freezing.

Advice on common storage Keep away from food, drink and animal feedingstuffs.



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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Thidiazuron	51707-55-2	1.1 mg/m ³ (TWA)		OES BCS*
Diuron	330-54-1	10 mg/m ³ (TWA)	02 2012	ACGIH
Diuron	330-54-1	10 mg/m ³ (REL)	2010	NIOSH
Diuron	330-54-1	10 mg/m ³ (TWA)	1989	OSHA Z1A
Diuron	330-54-1	10 mg/m ³ (TWA)	06 2008	TN OEL
Diuron	330-54-1	50ug/m ³ (ST ESL)	07 2011	TX ESL
Diuron	330-54-1	5ug/m ³ (AN ESL)	07 2011	TX ESL
Diuron	330-54-1	10 mg/m ³ (TWA PEL)	08 2010	US CA OEL
Diuron	330-54-1	0.6 mg/m ³ (TWA)		OES BCS*
N-Octyl-2-pyrrolidinone	2687-94-7	100ug/m ³ (ST ESL)	07 2011	TX ESL
N-Octyl-2-pyrrolidinone	2687-94-7	10ug/m ³ (AN ESL)	07 2011	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.

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

Tightly fitting safety goggles

Skin and body protection

Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures

Remove contaminated clothing immediately and dispose of safely. 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.



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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	beige to brown
Physical State	Liquid clear
Odor	characteristic
Odour Threshold	no data available
pH	7.0 - 8.0 at 10 % (23 °C) (deionized water)
Vapor Pressure	no data available
Vapor Density (Air = 1)	no data available
Density	0.97 g/cm ³ at 20 °C
Evaporation rate	no data available
Boiling Point	no data available
Melting / Freezing Point	no data available
Water solubility	emulsifiable slightly soluble
Minimum Ignition Energy	not applicable
Decomposition temperature	not applicable
Partition coefficient: n-octanol/water	no data available
Viscosity	242 mPa.s at 20 °C
Flash point	143.5 °C
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 hazardous reactions known.



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Conditions to avoid	Heat, flames and sparks.
Incompatible materials	no data available
Hazardous decomposition products	Nitrogen oxides (NOx) Sulphur oxides Carbon oxides Aldehydes

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Mist inhalation, Skin contact, Eye contact, Ingestion
Immediate Effects	
Eye	Corrosive - causes irreversible eye damage.
Skin	Causes skin irritation. Harmful if absorbed through skin.
Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled.
Information on toxicological effects	
Acute oral toxicity	LD50 (male/female combined rat) > 5,000 mg/kg
Acute inhalation toxicity	LC50 (male/female combined rat) 2.0 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. (actual) LC50 (male/female combined rat) 8.0 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50. (actual)
Acute dermal toxicity	LD50 (male/female combined rat) > 4,000 mg/kg
Skin irritation	Mild skin irritation. (rabbit)
Eye irritation	corrosive (rabbit) Irritating to eyes. (rabbit)
Sensitisation	Sensitising (guinea pig) OECD Test Guideline 406, Buehler test May cause sensitisation by skin contact.

Assessment repeated dose toxicity

Thidiazuron did not cause specific target organ toxicity in experimental animal studies.
Diuron caused haemolytic anaemia in animal studies.

Assessment mutagenicity

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



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and in vivo tests.

Assessment carcinogenicity

Thidiazuron was not carcinogenic in lifetime feeding studies in rats and mice.
Diuron caused at high dose levels an increased incidence of tumours in the following organ(s): urinary bladder, Mammary gland. The mechanism that triggers tumours in rodents is not relevant for the low exposures encountered under normal use conditions.

ACGIH

Diuron 330-54-1 Group A4

NTP

None.

IARC

None.

OSHA

None.

Assessment toxicity to reproduction

Thidiazuron did not cause reproductive toxicity in a two-generation study in rats.
Diuron did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Thidiazuron caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Thidiazuron are related to maternal toxicity.
Diuron did not cause developmental toxicity in rats and rabbits.

Further information

Only acute toxicity studies have been performed on the formulated product.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 14.7 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient diuron.
Toxicity to aquatic invertebrates	(Daphnia magna (Water flea)) 1.4 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient diuron.
Toxicity to aquatic plants	IC50 (Desmodemus subspicatus) 0.022 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient diuron.
Biodegradability	Not readily biodegradable. The value mentioned relates to the active ingredient diuron.



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Biodegradability	Thidiazuron: ; not rapidly biodegradable Diuron: ; not rapidly biodegradable
Koc	Thidiazuron: Koc: 769 Diuron: Koc: 468 - 1666
Bioaccumulation	Thidiazuron: ; Does not bioaccumulate. Diuron: Bioconcentration factor (BCF) 15 - 340; Does not bioaccumulate.
Mobility in soil	Thidiazuron: Slightly mobile in soils Diuron: Slightly mobile in soils
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

Waste treatment methods

Product	Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.
Contaminated packaging	Do not re-use empty containers. Triple rinse containers. Completely empty container into application equipment, then dispose of empty container in a sanitary landfill, by incineration or by other procedures approved by state/provincial and local authorities. 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

UN number	3082
Class	9
Packaging group	III



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Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID,
N.O.S.
(N-(N-DODECYL)-2-PYRROLIDONE, DIURON)
RQ Reportable Quantity is reached with 1,666 lb of product.

IMDG

UN number **3082**
Class 9
Packaging group III
Marine pollutant YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(N-(N-DODECYL)-2-PYRROLIDONE)

IATA

UN number **3082**
Class 9
Packaging group III
Environm. Hazardous Mark YES
Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S.
(N-(N-DODECYL)-2-PYRROLIDONE)

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.

Freight Classification: DEFOLIANTS, PLANT, N.O.I.

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 264-634

US Federal Regulations

TSCA list

Diuron 330-54-1
N-Octyl-2-pyrrolidinone 2687-94-7
n-(n-Dodecyl)-2-pyrrolidon 2687-96-9

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

Diuron 330-54-1 1.0%

US States Regulatory Reporting

CA Prop65

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

Diuron 330-54-1



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US State Right-To-Know Ingredients

Diuron 330-54-1 CA, CT, IL, MN, NJ, RI

Canadian Regulations

Canadian Domestic Substance List

None.

Environmental

CERCLA

Diuron 330-54-1 100 lbs

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

Diuron 330-54-1

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: Danger!

Hazard statements: Corrosive - causes irreversible eye damage.
Causes skin irritation.
Harmful if inhaled or absorbed through skin.
Avoid contact with skin, eyes and clothing.
Avoid breathing spray mist.
Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

SECTION 16: OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 3 Flammability - 1 Instability - 0 Others - none

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

Health - 3 Flammability - 1 Physical Hazard - 0 PPE -

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

Reason for Revision: Revised according to the current OSHA Hazard Communication Standard (29CFR1910.1200) The following sections have been revised: Section 2: Hazards Identification. Section 8: Exposure Controls / Personal Protection. Section 12. Ecological information.



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