

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Product form : Mixture
Product name. : ADIOS® COTTON DEFOLIANT
Other means of identification : EPA Reg. No. 66330-344

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

Use of the substance/mixture : Defoliant.

1.3. Details of the supplier of the safety data sheet

Arysta LifeScience North America LLC
15401 Weston Parkway, Suite 150
Cary, NC 27513 - USA

1.4. Emergency telephone number

Emergency number : Exposure Calls (PROSAR): +1-866-303-6952 or +1-651-603-3432 (international)
Spill Calls (CHEMTREC) (Contract # CCN1779): +1-800-424-9300 or +1-703-527-3887

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****GHS-US classification**

Carc. 2 H351
Aquatic Chronic 2 H411
Full text of H-phrases: see section 16

2.2. Label elements**GHS-US labelling**

Hazard pictograms (GHS-US) :



GHS08

GHS09

Signal word (GHS-US) : Warning
Hazard statements (GHS-US) : H351 - Suspected of causing cancer
H411 - Toxic to aquatic life with long lasting effects
Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection
P308 + P313 - If exposed or concerned: Get medical advice/attention
P391 - Collect spillage
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local and national regulations

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

2.02 percent of the mixture consists of ingredient(s) of unknown acute toxicity (Oral).
2.05 percent of the mixture consists of ingredient(s) of unknown acute toxicity (Dermal).
2.05 percent of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Dust/Mist)).

SECTION 3: Composition/information on ingredients**3.1. Substances**

Not applicable

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according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Thidiazuron (Main constituent)	(CAS No) 51707-55-2	12.00111	Aquatic Chronic 2, H411
Diuron	(CAS No) 330-54-1	6.0	Acute Tox. 4 (Oral), H302 Carc. 2, H351 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Anionic/nonionic surfactant blend	(CAS No) trade secret	2	Skin Irrit. 2, H315 Eye Irrit. 2A, H319

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
- First-aid measures after inhalation : If inhaled and if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
- First-aid measures after skin contact : Wash with plenty of soap and water.
- First-aid measures after eye contact : If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- First-aid measures after ingestion : Rinse mouth. Immediately call a POISON CENTER or doctor/physician.

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

- Symptoms/injuries : Suspected of causing cancer.

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

All treatments should be based on observed signs and symptoms of distress in the patient.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Carbon dioxide. Dry powder. Foam.
- Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : No particular fire or explosion hazard.
- Reactivity : No dangerous reactions known.

5.3. Advice for firefighters

- Firefighting instructions : Exercise caution when fighting any chemical fire. Do not allow run-off from fire fighting to enter drains or water courses.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Use self-contained breathing apparatus. Wear fire/flame resistant/retardant clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Avoid contact with skin and eyes.

6.1.1. For non-emergency personnel

- Protective equipment : Chemical goggles or safety glasses. Wear suitable gloves resistant to chemical penetration.
- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Chemical goggles or safety glasses. Wear water-proof gloves.
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Prevent dispersion.

6.3. Methods and material for containment and cleaning up

- For containment : Absorb and/or contain spill with inert material, then place in suitable container.
- Methods for cleaning up : Take up in non-combustible absorbent material and shove into container for disposal.

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6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with skin, eyes and clothing.
- Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Do not store near food, foodstuffs, drugs, or potable water supplies. Keep container tightly closed.
- Incompatible products : Strong oxidizing agents.
- Incompatible materials : Direct sunlight.

7.3. Specific end use(s)

Defoliant.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Thidiazuron (51707-55-2)		
ACGIH	Not applicable	
OSHA	Not applicable	
Anionic/nonionic surfactant blend (trade secret)		
ACGIH	Not applicable	
OSHA	Not applicable	
Diuron (330-54-1)		
ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³
ACGIH	Remark (ACGIH)	URT irr
OSHA	Not applicable	

8.2. Exposure controls

- Appropriate engineering controls : Avoid creating mist or spray. Avoid splashing. Either local exhaust or general room ventilation is usually required.
- Personal protective equipment : Avoid all unnecessary exposure.
- Hand protection : Wear water impervious gloves.
- Eye protection : Chemical goggles or safety glasses.
- Skin and body protection : Impervious clothing.
- Respiratory protection : In case of inadequate ventilation wear respiratory protection. Use an approved respirator equipped with oil/mist cartridges.
- Other information : Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Appearance : Viscous liquid.
- Colour : Off-white
- Odour : Faint
- Odour threshold : No data available
- pH : 5 - 6
- Relative evaporation rate (butylacetate=1) : No data available
- Melting point : No data available
- Freezing point : No data available
- Boiling point : No data available

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Flash point	: > 93 °C
Self ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.0735 g/ml @ 25 °C
Solubility	: Water: Solubility in water of component(s) of the mixture : • Thidiazuron: 31 mg/l • Diuron: 29 mg/l
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 800 - 1600 cP
Explosive properties	: No data available
Oxidising properties	: Exothermic reaction when mixed with Potassium Permanganate
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reactions known.

10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Carbon dioxide. Carbon monoxide. Nitrogen oxides. sulfur oxides. Burning produces irritating, toxic and noxious fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

ADIOS® COTTON DEFOLIANT	
LD50 oral rat	> 4000 mg/kg
LD50 dermal rat	> 5000 mg/kg
LC50 inhalation rat (mg/l)	> 2.08 mg/l/4h
Thidiazuron (51707-55-2)	
LD50 oral rat	> 4000 mg/kg
LD50 dermal rat	> 1000 mg/kg
LD50 dermal rabbit	> 4000 mg/kg
LC50 inhalation rat (mg/l)	> 2.3 mg/l/4h
Diuron (330-54-1)	
LD50 oral rat	1017 mg/kg
LD50 dermal rat	> 5000 mg/kg
LC50 inhalation rat (mg/l)	> 5.05 mg/l/4h
ATE US (oral)	1017.000 mg/kg bodyweight

Skin corrosion/irritation : Not classified (Slightly irritating to skin)

Serious eye damage/irritation : Not classified (Slightly irritating to eyes.)

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Respiratory or skin sensitisation	: Not classified (No sensitizing reaction was observed for guinea pigs.)
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Suspected of causing cancer. (calculation method from Diuron)
Reproductive toxicity	: Not classified (THIDIAZURON TECHNICAL NOAEL = 25 mg/kg/day)
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified.
Aspiration hazard	: Not classified
Likely routes of exposure	: Skin and eyes contact.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Toxic to aquatic life with long lasting effects.

Thidiazuron (51707-55-2)	
LC50 fishes 1	> 19 mg/l 96 h Rainbow trout
EC50 Daphnia 1	> 10 mg/l 48 h
LC50 fish 2	> 32 mg/l 96 h Bluegill sunfish

12.2. Persistence and degradability

ADIOS® COTTON DEFOLIANT	
Persistence and degradability	May cause long-term adverse effects in the environment.

Diuron (330-54-1)	
Persistence and degradability	This product is not expected to be biodegradable.
Biodegradation	0 % 28 d

12.3. Bioaccumulative potential

Thidiazuron (51707-55-2)	
Log Kow	1.77
Bioconcentration factor (BCF REACH)	6.8 (estimated, SRC, THIDIAZURON TECHNICAL)

Diuron (330-54-1)	
Bioconcentration factor (BCF REACH)	5.2
Log Pow	2.84

12.4. Mobility in soil

THIDIAZURON TECHNICAL (51707-55-2)	
Intermediate, K _{oc}	61 (estimated, SRC)

12.5. Other adverse effects

Effect on ozone layer : No known ecological damage caused by this product.
Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.
Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Disposal via incineration is recommended.
Ecology - waste materials : Dispose of container in a licensed facility.

SECTION 14: Transport information

In accordance with DOT
Not considered a dangerous good for transport regulations

Additional information

Other information : No supplementary information available.

ADR

Transport document description : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Thidiazuron), 9, III, (E)
Packing group (ADR) : III

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Class (ADR) : 9 - Miscellaneous dangerous substances and articles
Hazard identification number (Kemler No.) : 90
Classification code (ADR) : M6
Danger labels (ADR) : 9 - Miscellaneous dangerous compounds



Orange plates :

Tunnel restriction code (ADR) : E
LQ : 5L
Excepted quantities (ADR) : E1

Transport by sea

UN-No. (IMDG) : 3082
Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Thidiazuron)
Class (IMDG) : 9 - Miscellaneous dangerous substances and articles
Packing group (IMDG) : III - substances presenting low danger
Marine Pollutant : Yes



Air transport

UN-No.(IATA) : 3082
Proper Shipping Name (IATA) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Thidiazuron)
Class (IATA) : 9 - Miscellaneous Dangerous Goods
Packing group (IATA) : III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Thidiazuron (51707-55-2)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

Diuron (330-54-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on SARA Section 313 (Specific toxic chemical listings)

RQ (Reportable quantity, section 304 of EPA's List of Lists) : 100 lb

15.2. International regulations

CANADA

ADIOS® COTTON DEFOLIANT

WHMIS Classification : Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Thidiazuron (51707-55-2)

Not listed on the Canadian DSL (Domestic Substances List) inventory.
Not listed on the Canadian Non-Domestic Substances List (NDSL).

Diuron (330-54-1)

Listed on the Canadian DSL (Domestic Substances List) inventory.

EU-Regulations

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Thidiazuron (51707-55-2)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) substances.

Diuron (330-54-1)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) substances.

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Carc. 2 H351
Aquatic Chronic 2 H411
Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC

Carc.Cat.3; R40
Xn; R20
N; R50/53

15.2.2. National regulations

No additional information

15.3. US State regulations

Diuron (330-54-1)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
Yes	No	No	No	

Diuron (330-54-1)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

15.4. US EPA - FIFRA Regulations

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.

- Signal word (FIFRA) : CAUTION.
- Hazard statements (FIFRA) : Harmful if swallowed.
Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.
- Environmental hazards : Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate. This product may contaminate water through drift of spray in wind. This product has a high potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential for contamination of water from runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.
This chemical has properties and characteristics associated with chemicals detected in ground water. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.
- Physical or Chemical hazards : None.

SECTION 16: Other information

Indication of changes : Original Document.

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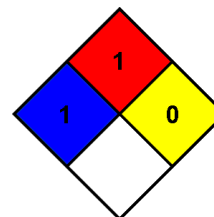
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

- Data sources : European Chemicals Agency (ECHA) C&L Inventory database. Accessed at <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>.
Krister Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition.
National Fire Protection Association; Fire Protection Guide to Hazardous Materials; 10th edition.
OSHA 29CFR 1910.1200 Hazard Communication Standard.
TSCA Chemical Substance Inventory. Accessed at <http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html>.
- Abbreviations and acronyms : ACGIH (American Conference of Government Industrial Hygienists).
ATE: Acute Toxicity Estimate.
CAS (Chemical Abstracts Service) number.
CLP: Classification, Labelling, Packaging.
EC50: Environmental Concentration associated with a response by 50% of the test population.
GHS: Globally Harmonized System (of Classification and Labeling of Chemicals).
LD50: Lethal Dose for 50% of the test population.
OSHA: Occupational Safety & Health Administration.
TSCA: Toxic Substances Control Act.
- Other information : None.

Full text of H-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Carc. 2	Carcinogenicity Category 2
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Skin Irrit. 2	skin corrosion/irritation Category 2
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H351	Suspected of causing cancer
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects

- NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
- NFPA fire hazard : 1 - Must be preheated before ignition can occur.
- NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and not reactive with water.



SDS US (GHS HazCom 2012)

SDS Prepared by: The Redstone Group, LLC.
6397 Emerald Pkwy
Suite 200
Dublin, Ohio, USA 43016
614.923.7472
www.redstonegrp.com

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.