

SECTION 1: Identification

1.1. Identification

Product form : Mixture
 Product name : ADIOS®
 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
 Restrictions on use : No additional information available

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
 T 1-866-761-9397

1.4. Emergency telephone number

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

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 hazard classes and H-statements : see section 16

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



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/face protection.
 P308+P313 - If exposed or concerned: Get medical advice/attention.
 P391 - Collect spillage.
 P405 - Store locked up.
 P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

2% of the mixture consists of ingredient(s) of unknown acute toxicity (Oral)
 2% of the mixture consists of ingredient(s) of unknown acute toxicity (Dermal)
 2% 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

3.2. Mixtures

| Name | Product identifier | % (w/w) | GHS-US classification |
|-----------------------------------|------------------------|---------|---|
| Thidiazuron (Main constituent) | (CAS-No.) 51707-55-2 | 12 | Aquatic Chronic 2, H411 |
| Diuron | (CAS-No.) 330-54-1 | 6 | 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-statements: 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 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/doctor.

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

- Symptoms/effects : 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.

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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.

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)

Herbicide.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| ADIOS® | | |
|--|--------------------------------|----------------------|
| ACGIH | Not applicable | |
| OSHA | Not applicable | |
| 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

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| | |
|--|------------------------------|
| Odour | : Faint |
| Odour threshold | : No data available |
| pH | : 5 - 7 |
| Melting point | : No data available |
| Freezing point | : No data available |
| Boiling point | : No data available |
| Flash point | : > 93 °C |
| Relative evaporation rate (butylacetate=1) | : No data available |
| Flammability (solid, gas) | : No data available |
| Explosive limits | : No data available |
| Explosive properties | : No data available |
| Oxidising properties | : No data available |
| Vapour pressure | : No data available |
| Relative density | : No data available |
| Relative vapour density at 20 °C | : No data available |
| Density | : 1.062 - 1.086 g/ml @ 25 °C |
| Solubility | : No data available |
| Log Pow | : No data available |
| Log Kow | : No data available |
| Auto-ignition temperature | : No data available |
| Decomposition temperature | : No data available |
| Viscosity | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : 800 - 1600 cP @ 25 °C |

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

| | |
|---------------------------|------------------------|
| Likely routes of exposure | : Skin and eye contact |
| Acute toxicity | : Not classified |

| ADIOS® | |
|----------------------------|----------------|
| 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 |

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| Thidiazuron (51707-55-2) | |
|----------------------------|---------------|
| 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 mg/kg bodyweight |

| | |
|-----------------------------------|--|
| Skin corrosion/irritation | : Not classified (Slightly irritating to skin) |
| Serious eye damage/irritation | : Not classified (Slightly irritating to eyes.) |
| Respiratory or skin sensitisation | : Not classified (No sensitizing reaction was observed for guinea pigs) |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Suspected of causing cancer. |
| Reproductive toxicity | : Not classified |
| STOT-single exposure | : Not classified |
| STOT-repeated exposure | : Not classified. |
| Aspiration hazard | : Not classified |

SECTION 12: Ecological information

12.1. Toxicity

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

| Thidiazuron (51707-55-2) | |
|--------------------------|---------------------------------|
| LC50 fish 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® | |
|-------------------------------|---|
| 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

| ADIOS® | |
|-------------------------------------|-----------------|
| Bioconcentration factor (BCF REACH) | 6.8 (estimated) |

| Thidiazuron (51707-55-2) | |
|--------------------------|------|
| Log Kow | 1.77 |

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

12.4. Mobility in soil

12.5. Other adverse effects

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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

Department of Transportation (DOT)

In accordance with DOT

- Transport document description : UN3082 Environmentally hazardous substances, liquid, n.o.s. (Thidiazuron), 9, III
- UN-No.(DOT) : UN3082
- Proper Shipping Name (DOT) : Environmentally hazardous substances, liquid, n.o.s. (Thidiazuron)
- Packing group (DOT) : III - Minor Danger
- Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



- Dangerous for the environment : Yes
- Marine pollutant : Yes



Additional information

- Emergency Response Guide (ERG) Number : 171
- Other information : Non-bulk (<= 119 gallons / 450 Liters) Not Regulated; Bulk (> 119 gallons / 450 Liters) Regulated as stated.; Bulk (> 186 gallons / 704 liters) RQ (DIURON)

Transport by sea

IMDG

- Transport hazard class(es) (IMDG) : 9
- Marine pollutant : Yes
- UN-No. (IMDG) : 3082
- Transport document description (IMDG) : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Thidiazuron), 9, III, MARINE POLLUTANT
- Class (IMDG) : 9 - Miscellaneous dangerous substances and articles
- Packing group (IMDG) : III - substances presenting low danger
- EmS-No. (Fire) : F-A
- EmS-No. (Spillage) : S-F

Air transport

IATA

- Transport hazard class(es) (IATA) : 9

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| | |
|---------------------------------------|---|
| Marine pollutant | : Yes |
| UN-No. (IATA) | : 3082 |
| Transport document description (IATA) | : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Thidiazuron), 9, III |
| Class (IATA) | : 9 - Miscellaneous Dangerous Goods |
| Packing group (IATA) | : III - Minor Danger |

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

| | | |
|--------|------------------|----|
| Diuron | CAS-No. 330-54-1 | 6% |
|--------|------------------|----|

Thidiazuron (51707-55-2)

EPA TSCA Regulatory Flag Exempt from TSCA Regulation under FIFRA Section 3 (2)(B)(ii) when used as a pesticide.

Diuron (330-54-1)

CERCLA RQ 100 lb

FIFRA Labelling

EPA Registration Number 66330-344

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..

FIFRA Signal Word **Caution**

FIFRA Human Health Hazards Harmful if swallowed.

FIFRA First Aid Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

FIFRA 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.

15.2. International regulations

CANADA

Thidiazuron (51707-55-2)

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

Diuron (330-54-1)

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

15.3. US State regulations



WARNING

This product can expose you to Diuron, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

| 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 significant risk level (NSRL) | Maximum allowable dose level (MADL) |
| Yes | No | No | No | | |

| Diuron (330-54-1) |
|--|
| U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Washington - Permissible Exposure Limits - TWAs |

SECTION 16: Other information

| | |
|-------------------|---|
| Revision date | : 05/14/2018 |
| 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 . |
| Other information | : None. |

Full text of H-statements:

| | |
|---------------------|--|
| 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. |

Abbreviations and acronyms:

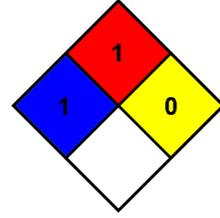
| | |
|--|---|
| | ACGIH (American Conference of Government Industrial Hygienists) |
| | ATE: Acute Toxicity Estimate |
| | CAS (Chemical Abstracts Service) number |
| | CLP: Classification, Labelling, Packaging. |
| | EC50: Environmental Concentration associated with a response by 50% of the test population. |
| | 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 |

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- NFPA health hazard : 1 - Materials that, under emergency conditions, can cause significant irritation.
- NFPA fire hazard : 1 - Materials that must be preheated before ignition can occur.
- NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and not reactive with water.



Indication of changes:

Transport information. General information.

SDS Prepared by: The Redstone Group, LLC.
6077 Frantz Rd
Suite 206
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