

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Product form : Mixture  
 Product name : FORTIX<sup>®</sup> FUNGICIDE  
 Other means of identification : EPA Reg. No. 66330-409

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

Use of the substance/mixture : Fungicide

### 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 (international)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### GHS-US classification

STOT RE 1 H372

Full text of H-statements: see section 16

### 2.2. Label elements

#### GHS-US labelling

Hazard pictograms (GHS-US) :



GHS08

Signal word (GHS-US) : Danger  
 Hazard statements (GHS-US) : H372 - Causes damage to organs through prolonged or repeated exposure  
 Precautionary statements (GHS-US) : P260 - Do not breathe mist, vapours  
 P264 - Wash hands thoroughly after handling  
 P270 - Do not eat, drink or smoke when using this product  
 P314 - Get medical advice/attention if you feel unwell  
 P501 - Dispose of contents/container to an authorised waste collection point

### 2.3. Other hazards

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Not applicable

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### 3.2. Mixture

Name	Product identifier	% (w/w)	GHS-US classification
Flutriafol	(CAS No) 76674-21-0	15 – 25	Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Dermal), H311 Acute Tox. 4 (Inhalation:dust,mist), H332 STOT RE 2, H373 Aquatic Chronic 3, H412
Fluoxastrobin (Main constituent)	(CAS No) 361377-29-9	10 – 20	Acute Tox. 4 (Inhalation:dust,mist), H332 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts	(CAS No) 68425-94-5	1 – 5	Skin Irrit. 2, H315 Eye Irrit. 2A, H319

\*Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

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 skin with mild soap and water. Remove contaminated clothing and shoes.
- 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 : Do NOT induce vomiting. Rinse mouth. Get medical advice/attention.

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

- Symptoms/injuries : Causes damage to organs through prolonged or repeated exposure.

### 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. Water spray.
- Unsuitable extinguishing media : None known.

### 5.2. Special hazards arising from the substance or mixture

- Fire hazard : Not flammable.
- Reactivity : No dangerous reactions known.

### 5.3. Advice for firefighters

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

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Avoid contact with skin and eyes. Avoid creating or spreading dust.

#### 6.1.1. For non-emergency personnel

- Protective equipment : Wear suitable gloves.
- Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

- Protective equipment : Wear suitable gloves.
- Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Do not discharge into drains or the environment.

### 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.

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Methods for cleaning up : Wipe up with absorbent material (for example cloth). 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 : Do not breathe mist, spray, vapours.  
Hygiene measures : Do not eat, drink or smoke when using this product. 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. Store in a dry place.  
Incompatible products : None known.

### 7.3. Specific end use(s)

Fungicide.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

FORTIX® FUNGICIDE		
ACGIH	Not applicable	
OSHA	Not applicable	
Fluoxastrobin (361377-29-9)		
ACGIH	Not applicable	
OSHA	Not applicable	
Flutriafol (76674-21-0)		
ACGIH	Not applicable	
OSHA	Not applicable	
Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts (68425-94-5)		
ACGIH	ACGIH TWA (mg/m³)	5 mg/m³ respirable dust
OSHA	Not applicable	

### 8.2. Exposure controls

Appropriate engineering controls : Avoid dispersal of dust in the air (ie, clearing dust surfaces with compressed air). Ensure good ventilation of the work station.  
Personal protective equipment : Avoid all unnecessary exposure.  
Hand protection : Use rubber gloves.  
Eye protection : In case of splashing or aerosol production: protective goggles.  
Skin and body protection : Wear water impervious or resistant protective clothing and gloves.  
Respiratory protection : In case of inadequate ventilation wear respiratory protection. Use air-purifying respirator equipped with particulate filtering cartridges.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state : Liquid  
Colour : Off-white  
Odour : Mild  
Odour threshold : No data available  
pH : 6.5 - 8 (1% Suspension)  
Melting point : No data available  
Freezing point : No data available  
Boiling point : No data available  
Flash point : > 93 °C  
Relative evaporation rate (butyl acetate=1) : No data available

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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	: 9.44 lb/gal
Solubility	: Water: Solubility in water of component(s) of the mixture : • Fluoxastrobin: 43 mg/l @ 20 °C pH 4; 2.29 mg/l @ 20 °C pH 7; 2.27 mg/l @ 20 °C pH 9
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 - 1200 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 under normal conditions.

### 10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4. Conditions to avoid

None known.

### 10.5. Incompatible materials

None known.

### 10.6. Hazardous decomposition products

Carbon monoxide. Nitrogen oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Likely routes of exposure : Skin and eye contact

Acute toxicity : Not classified

FORTIX <sup>®</sup> FUNGICIDE	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rat	> 5050 mg/kg
LC50 inhalation rat (mg/l)	> 2.12 mg/l/4h
Fluoxastrobin (361377-29-9)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 5000 mg/kg
LC50 inhalation rat (mg/l)	4.9 mg/l/4h
ATE US (vapours)	4.900 mg/l/4h
ATE US (dust,mist)	4.900 mg/l/4h
Flutriafof (76674-21-0)	
LD50 oral rat	1140 mg/kg
LD50 dermal rabbit	1000 mg/kg
LC50 inhalation rat (mg/l)	1.6 mg/l/4h
ATE US (oral)	1140.000 mg/kg bodyweight

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Flutriafol (76674-21-0)	
ATE US (dermal)	1000.000 mg/kg bodyweight
ATE US (vapours)	1.600 mg/l/4h
ATE US (dust,mist)	1.600 mg/l/4h

Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts (68425-94-5)	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg

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	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Causes damage to organs through prolonged or repeated exposure.

Fluoxastrobin (361377-29-9)	
NOAEL (oral, rat, 90 days)	1.5 mg/kg bodyweight/day liver effects

Flutriafol (76674-21-0)	
LOAEL (oral, rat, 90 days)	15 mg/kg bodyweight/day

Aspiration hazard	: Not classified
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## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - water	: Toxic to aquatic life with long lasting effects.
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Fluoxastrobin (361377-29-9)	
LC50 fish 1	0.435 mg/l 96 h Oncorhynchus mykiss
LC50 other aquatic organisms 1	0.053 mg/l 96 h M. bahia
EC50 Daphnia 1	0.48 mg/l 48 h
LC50 fish 2	0.57 mg/l 96 h Cyprinus carpio ; 0.97 mg/l 96 h Lepomis macrochirus

Flutriafol (76674-21-0)	
LC50 fish 1	61 mg/l 96 h Oncorhynchus mykiss
EC50 Daphnia 1	78 mg/l 48 h
LC50 fish 2	77 mg/l 96 h Cyprinus carpio

### 12.2. Persistence and degradability

Fluoxastrobin (361377-29-9)	
Persistence and degradability	Not rapidly degradable.

### 12.3. Bioaccumulative potential

Fluoxastrobin (361377-29-9)	
Bioconcentration factor (BCF REACH)	52.1
Log Pow	2.86 @ 20 °C
Bioaccumulative potential	Does not bioaccumulate significantly.

Flutriafol (76674-21-0)	
Log Kow	2.29

### 12.4. Mobility in soil

Fluoxastrobin (361377-29-9)	
Ecology - soil	Slightly mobile in soil.

### 12.5. Other adverse effects

No additional information available

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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.

### SECTION 14: Transport information

#### Department of Transportation (DOT)

In accordance with DOT

Not considered a dangerous good for transport regulations

#### Additional information

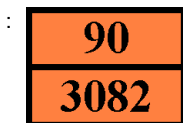
- Other information : No supplementary information available.

#### ADR

- Transport document description : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fluoxastrobin), 9, III, (E)
- Packing group (ADR) : III
- Class (ADR) : 9 - Miscellaneous dangerous substances and articles
- Hazard identification number (Kemler No.) : 90
- Classification code (ADR) : M6
- Danger labels (ADR) : 9 - Miscellaneous dangerous substances and articles



Orange plates



- Tunnel restriction code (ADR) : E
- Limited quantities (ADR) : 5I
- Excepted quantities (ADR) : E1

#### Transport by sea

##### IMDG

- Transport hazard class(es) (IMDG) : 9
- Danger labels (IMDG) : 9

- Marine pollutant : Yes



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

#### Air transport

##### IATA

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

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Hazard labels (IATA) : 9

Marine pollutant : Yes



UN-No. (IATA) : 3082

Proper Shipping Name (IATA) : Environmentally hazardous substance, liquid, n.o.s. (Fluoxastrobin)

Class (IATA) : 9 - Miscellaneous Dangerous Goods

Packing group (IATA) : III - Minor Danger

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Fluoxastrobin (361377-29-9)

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

#### Flutriafol (76674-21-0)

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

#### Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts (68425-94-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

### 15.2. International regulations

#### CANADA

#### Fluoxastrobin (361377-29-9)

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

#### Flutriafol (76674-21-0)

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

#### Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts (68425-94-5)

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

#### EU-Regulations

#### Fluoxastrobin (361377-29-9)

Not listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Flutriafol (76674-21-0)

Not listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Residues (petroleum), catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts (68425-94-5)

Not listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

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

STOT RE 1 H372

Aquatic Chronic 2 H411

Full text of classification categories and H statements : see section 16

#### National regulations

#### Fluoxastrobin (361377-29-9)

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

#### Flutriafol (76674-21-0)

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

### 15.3. US State regulations

No additional information available

### 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.

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Signal word (FIFRA)	: Caution.
Hazard statements (FIFRA)	: Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.
Environmental hazards	: This pesticide is toxic to fish and aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. The active ingredient in this product can be persistent for several months or longer. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark, or other sensitive areas that may be exposed to spray drift. Do not contaminate water when disposing of equipment washwater or rinsate.  Ground Water Advisory: Flutriaol has properties and characteristics associated with chemicals detected in ground water. This chemical may leach into ground water if used in areas where soils are permeable, particularly where the water table is shallow.  Surface Water Advisory: this product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having a high potential for reaching surface water via runoff for several months or more after application.
Physical or Chemical hazards	: None

### SECTION 16: Other information

Indication of changes	: GHS classification information. Transport information.
Revision date	: 09/28/2015
Data sources	: European Chemicals Agency (ECHA) Registered Substances list. Accessed at <a href="http://echa.europa.eu/">http://echa.europa.eu/</a> . Krister Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition. OSHA 29CFR 1910.1200 Hazard Communication Standard. TSCA Chemical Substance Inventory. Accessed at <a href="http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html">http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html</a> .
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. STEL: Short Term Exposure Limits. TSCA: Toxic Substances Control Act. TWA: Time Weight Average.
Other information	: None.



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### Full text of H-statements:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
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 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
H302	Harmful if swallowed
H311	Toxic in contact with skin
H315	Causes skin irritation
H319	Causes serious eye irritation
H332	Harmful if inhaled
H372	Causes damage to organs through prolonged or repeated exposure
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
H412	Harmful to aquatic life with long lasting effects

NFPA health hazard

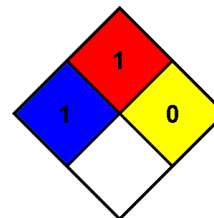
: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

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.



Redstone SDS US GHS for Arysta

### SDS Prepared by:

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*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*