

Product name: HARVISTA™ AF-701

Issue Date: 06/21/2018

AGROFRESH INC. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

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### 1. IDENTIFICATION

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Product name: HARVISTA™ AF-701

**Recommended use of the chemical and restrictions on use**

**Identified uses:** Plant growth regulator.

**COMPANY IDENTIFICATION**

AGROFRESH INC.  
ONE WASHINGTON SQUARE  
510-530 WALNUT STREET, SUITE 1350  
PHILADELPHIA PA 19106-3622  
UNITED STATES

**Customer Information Number:**

+01 866 206 1001  
FGLAGFR@AgroFresh.com

**EMERGENCY TELEPHONE NUMBER**

**24-Hour Emergency Contact:** +1 866 519 4752 ACCESS CODE 334767

**Local Emergency Contact:** +1 866 519 4752

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### 2. HAZARDS IDENTIFICATION

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**Hazard classification**

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

**Other hazards**

No data available

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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**Chemical nature:** Aqueous solution of organic compounds

This product is a mixture.

**Component**

**CASRN**

**Concentration**

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Water	7732-18-5	40.0 - 45.0 %
Magnesium sulfate, heptahydrate	10034-99-8	30.0 - 35.0 %
alpha-Cyclodextrin	10016-20-3	25.0 - 35.0 %
1-Methylcyclopropene	3100-04-7	1.0 - 2.0 %

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## 4. FIRST AID MEASURES

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### Description of first aid measures

**Inhalation:** Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

**Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Suitable emergency safety shower facility should be available in work area.

**Eye contact:** Hold eyes 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 eyes. Call a poison control center or doctor for treatment advice.

**Ingestion:** No emergency medical treatment necessary.

**Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

### Indication of any immediate medical attention and special treatment needed

**Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

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## 5. FIREFIGHTING MEASURES

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**Suitable extinguishing media:** Use the following extinguishing media when fighting fires involving this material: Water spray Dry powder Foam Carbon dioxide (CO<sub>2</sub>)

**Unsuitable extinguishing media:** No data available

### Special hazards arising from the substance or mixture

**Hazardous combustion products:** No data available

**Unusual Fire and Explosion Hazards:** Dried product can burn. Combustion generates toxic fumes of the following: Carbon oxides Nitrogen oxides (NO<sub>x</sub>)

### Advice for firefighters

**Fire Fighting Procedures:** Remain upwind. Avoid breathing smoke. Cool closed containers exposed to fire with water spray.

**Special protective equipment for firefighters:** Wear self-contained breathing apparatus and protective suit.

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## 6. ACCIDENTAL RELEASE MEASURES

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**Personal precautions, protective equipment and emergency procedures:** Appropriate protective equipment must be worn when handling a spill of this material. See SECTION 8, Exposure Controls/Personal Protection, for recommendations. If exposed to material during clean-up operations, IMMEDIATELY remove all contaminated clothing and wash exposed skin areas with soap and water. See SECTION 4, First Aid Measures, for further information.

**Environmental precautions:** CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

**Methods and materials for containment and cleaning up:** Keep spectators away. Ventilate the area. Floor may be slippery; use care to avoid falling. Contain spills immediately with inert materials (e.g., sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

**Dust Control:** Not applicable

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Wash after handling and shower at end of work period. Wear personal protective equipment. May cause sensitisation of susceptible persons by skin contact.

**Conditions for safe storage:** Keep from freezing - product stability may be affected. Keep container tightly closed in a dry and well-ventilated place.  
Keep from freezing - product stability may be affected. STIR WELL BEFORE USE.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
1-Methylcyclopropene	IHG	TWA	0.3 ppm
	IHG	C	1 ppm

### Exposure controls

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

### Individual protection measures

**Eye/face protection:** Use safety glasses (with side shields).

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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<b>Appearance</b>	
Physical state	liquid milky
Color	white
Odor	No data available
Odor Threshold	No data available
pH	7.5 - 9.0
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	Noncombustible
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not Applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	No data available
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	No data available

<b>Explosive properties</b>	No data available
<b>Oxidizing properties</b>	No data available
<b>Molecular weight</b>	No data available
<b>Percent volatility</b>	50.0 - 60.0 %

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No data available

**Chemical stability:** No data available

**Possibility of hazardous reactions:** None known.  
Product will not undergo polymerization.  
Stable

**Conditions to avoid:** No data available

**Incompatible materials:** Oxidizing agents Strong bases

**Hazardous decomposition products:** No data available

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information appears in this section when such data is available.*

### Acute toxicity

#### Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product:

LD50, Rat, female, > 5,000 mg/kg

#### Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, Rat, male and female, > 5,000 mg/kg

#### Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Based on the available data, respiratory irritation was not observed.

As product:

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.31 mg/l No deaths occurred at this concentration.

**Skin corrosion/irritation**

Brief contact may cause slight skin irritation with local redness.

**Serious eye damage/eye irritation**

May cause slight eye irritation.  
Corneal injury is unlikely.

**Sensitization**

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:  
No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Based on information for component(s):  
Serious systemic effects may develop when ingested in medicinal use, especially in individuals with impaired renal function. Such effects would not result from normal industrial handling.  
Signs and symptoms of excessive exposure may include:  
May cause nausea and vomiting.  
May cause abdominal discomfort or diarrhea.

**Carcinogenicity**

No relevant data found.

**Teratogenicity**

Based on information for component(s): Medical use of magnesium sulfate via parenteral route during late pregnancy may be toxic to the fetus. However, exposure to small amounts by routes of exposure relevant to the workplace is not expected to pose a hazard.

**Reproductive toxicity**

For the component(s) tested: In animal studies, did not interfere with reproduction.

**Mutagenicity**

Based on information for component(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**

Based on physical properties, not likely to be an aspiration hazard.

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**12. ECOLOGICAL INFORMATION**

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*Ecotoxicological information appears in this section when such data is available.*

**Toxicity**

**Magnesium sulfate, heptahydrate**

**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
LC50, Lepomis macrochirus (Bluegill sunfish), static test, 24 Hour, 3,800 mg/l, OECD Test Guideline 203 or Equivalent  
LC50, Gambusia affinis (Mosquito fish), static test, 96 Hour, 3,100 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**

LC50, Daphnia magna (Water flea), static test, 48 Hour, 1,860 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

EbC50, alga Scenedesmus sp., static test, 72 Hour, Biomass, 2,700 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**

EC50, activated sludge, > 1,000 mg/l

**alpha-Cyclodextrin**

**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).  
LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 100 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l

**1-Methylcyclopropene**

**Acute toxicity to fish**

No relevant data found.

**Persistence and degradability**

**Magnesium sulfate, heptahydrate**

**Biodegradability:** Inorganic salt which ionizes in water.

**alpha-Cyclodextrin**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

**Biodegradation:** 80 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301F or Equivalent

**1-Methylcyclopropene**

**Biodegradability:** No relevant data found.

**Bioaccumulative potential**

**Magnesium sulfate, heptahydrate**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** -0.17 Estimated.

**alpha-Cyclodextrin**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient: n-octanol/water(log Pow):** <= 3

#### **1-Methylcyclopropene**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** Pow: 2.03 estimated

#### **Mobility in soil**

#### **Magnesium sulfate, heptahydrate**

No data available.

#### **alpha-Cyclodextrin**

No relevant data found.

#### **1-Methylcyclopropene**

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient (Koc):** 35 - 60 Estimated.

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### **13. DISPOSAL CONSIDERATIONS**

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**Disposal methods:** For disposal, incinerate this material at a facility that complies with local, state, and federal regulations.

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### **14. TRANSPORT INFORMATION**

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#### **DOT**

Not regulated for transport

#### **Classification for SEA transport (IMO-IMDG):**

**Transport in bulk  
according to Annex I or II  
of MARPOL 73/78 and the  
IBC or IGC Code**

Not regulated for transport

Consult IMO regulations before transporting ocean bulk

#### **Classification for AIR transport (IATA/ICAO):**

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.



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**15. REGULATORY INFORMATION**

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**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**

This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313**

This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

**Pennsylvania**

Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

**California (Proposition 65)**

This product contains trace levels of a component or components known to the state of California to cause cancer:

<b>Components</b>	<b>CASRN</b>
Dimethylvinyl chloride	513-37-1
Chloro-2-methylpropene	563-47-3

**United States TSCA Inventory (TSCA)**

This product contains chemical substance(s) exempt from U.S. EPA TSCA Inventory requirements. It is regulated as a pesticide subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.

**Federal Insecticide, Fungicide and Rodenticide Act**

EPA Registration Number: 71297-17

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 as required on the pesticide label:

**CAUTION**

Causes moderate eye irritation  
Harmful if absorbed through skin  
Harmful if inhaled  
Harmful if swallowed

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## 16. OTHER INFORMATION

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### Other information

The Material Safety Data Sheet (MSDS) augments the label and should not be used in place of regulatory approved product labels which are attached to or accompanying the product container. This MSDS provides important health, safety and environmental information for personnel that are manufacturing, distributing, transporting and storing the product, including emergency responders and other product handlers. The label provides information specifically for product users.

### Hazard Rating System

#### HMIS

Health	Flammability	Physical Hazard
1	0	0

### Revision

Identification Number: 101293864 / A456 / Issue Date: 10/11/2016 / Version: 6.2

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

### Legend

C	Ceiling limit
TWA	Time Weighted Average (TWA):

### Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

AGROFRESH INC. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.