

**SAFETY DATA SHEET**  
**AROLIST™ Biological Fungicide**

**SDS # :** FO004361-A  
**Revision date:** 2020-10-05  
**Format:** NA  
**Version** 1



**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Identifier**

**Product Name** AROLIST™ Biological Fungicide

**Other means of identification**

**Product Code(s)** FO004361-A

**Legacy Product Code** F4007-9

**Active Ingredient(s)** Bacillus velezensis, strain RTI301

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

**Recommended Use:** Biological fungicide seed treatment

**Restrictions on Use:** Use as recommended by the label.

**Supplier Address**

FMC Corporation  
2929 Walnut Street  
Philadelphia, PA 19104  
(215) 299-6000 (General Information)  
SDS-Info@fmc.com (E-Mail General Information)

**Emergency telephone number**

Medical Emergencies :  
1 800 / 331-3148 (U.S.A. & Canada)  
1 651 / 632-6793 (All Other Countries - Collect)

For leak, fire, spill or accident emergencies, call:  
1 800 / 424-9300 (CHEMTREC - U.S.A.)  
1 703 / 741-5970 (CHEMTREC - International)  
1 703 / 527-3887 (CHEMTREC - Alternate)

**2. HAZARDS IDENTIFICATION**

**Classification**

**OSHA Regulatory Status**

This material is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

**GHS Label elements, including precautionary statements**

**EMERGENCY OVERVIEW**

**Signal Word: None, Not classified****Hazard Statements**

None

**Precautionary Statements - Prevention**

No serious hazards to health are expected. However, the product should always be treated with the usual care of handling chemicals.

**Precautionary Statements - Response**

None

**Hazards not otherwise classified (HNOC)**

Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

**Other Information**

No information available.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical name	CAS-No	Weight %
Glycerin	56-81-5	40 - 60

The product contains *Bacillus velezensis* strain RTI301 (~5.5%) which is a biologically active material.

**4. FIRST AID MEASURES**

<b>Eye Contact</b>	Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.
<b>Skin Contact</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.
<b>Inhalation</b>	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 poison control center or doctor for further treatment advice.
<b>Ingestion</b>	Clean mouth with water and afterwards drink plenty of water. Do not induce vomiting unless told to do so by a poison control center or doctor. Have person sip a glass of water if able to swallow. If vomiting does occur, rinse mouth and drink fluids again. Do not give anything by mouth to an unconscious person. Call a physician or poison control center immediately.
<b>Most important symptoms and effects, both acute and delayed</b>	None known.
<b>Indication of immediate medical attention and special treatment needed, if necessary</b>	Immediate medical attention is required in cases of ingestion.  Notes to physician: A specific antidote for exposure to this material is not known. Gastric lavage and/or the administration of activated charcoal can be considered. After decontamination, treatment should be directed at the control of symptoms and the clinical condition.

**5. FIRE-FIGHTING MEASURES**

**Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the

	surrounding environment.
<b>Small Fire</b>	Dry chemical, Carbon dioxide (CO <sub>2</sub> ).
<b>Large Fire</b>	Water spray, Foam.
<b>Unsuitable extinguishing media</b>	Avoid heavy hose streams.
<b>Specific Hazards Arising from the Chemical</b>	The essential breakdown products are volatile, toxic, irritant and inflammable compounds such as nitrogen oxides, sulphur dioxide, carbon monoxide and carbon dioxide.
<b>Explosion data</b>	
<b>Sensitivity to Mechanical Impact</b>	No information available.
<b>Sensitivity to Static Discharge</b>	No information available.
<b>Protective equipment and precautions for firefighters</b>	As in any fire, wear self-contained breathing apparatus and full protective gear. Isolate fire area. Evaluate upwind.

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions</b>	Observe all safety precautions when cleaning up spills. Use personal protective equipment.
<b>Other</b>	For further clean-up instructions, call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.
<b>Environmental Precautions</b>	Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains. Keep out of waterways.
<b>Methods for Containment</b>	Nearby surface water drains should be covered. Minor spills on the floor or other impervious surface should immediately be swept up or preferably vacuumed up using equipment with high efficiency final filter. Transfer to suitable containers. Clean area with detergent and water. Do not let wash liquid enter drains or waterways. Absorb wash liquid with an inert absorbent such as universal binder, Fuller's earth, bentonite or other absorbent clay and collect in suitable containers. The used containers should be properly closed and labelled.
<b>Methods for cleaning up</b>	Pick up and transfer to properly labeled containers.

## 7. HANDLING AND STORAGE

<b>Handling</b>	Handle in accordance with good industrial hygiene and safety practice. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal. Wash hands before eating, drinking, chewing gum, using tobacco, or using toilet. Remove and wash contaminated clothing before re-use.
<b>Storage</b>	Store in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. A warning sign reading "POISON" is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present. A hand wash station should be available.
<b>Incompatible products</b>	None known

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Glycerin (56-81-5)	-	TWA: 15 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	-	Mexico: TWA 10 mg/m <sup>3</sup>
Chemical name	British Columbia	Quebec	Ontario TWA EV	Alberta

Glycerin (56-81-5)	TWA: 10 mg/m <sup>3</sup> TWA: 3 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	-	TWA: 10 mg/m <sup>3</sup>
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**Appropriate engineering controls**

**Engineering measures** Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

**Individual protection measures, such as personal protective equipment**

**Eye/Face Protection** For dust, splash, mist or spray exposure, wear chemical protective goggles.

**Skin and Body Protection** Wear long-sleeved shirt, long pants, socks, and shoes.

**Hand Protection** Use protective gloves made of chemical materials such as nitrile or neoprene. Wash the outside of gloves with soap and water before reuse. Check regularly for leaks.

**Respiratory Protection** Applicators and other handlers must wear a NIOSH-approved particulate respirator with any N, R, or P filter with NIOSH approval number prefix TC-84A; or a NIOSH-approved powered air purifying respirator with an HE filter with NIOSH approval number prefix TC-21C. (Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.).

**Hygiene measures** Clean water should be available for washing in case of eye or skin contamination. Remove and wash contaminated clothing before re-use. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Launder work clothing separately from regular household laundry.

**General information** If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Information on basic physical and chemical properties**

<b>Appearance</b>	Liquid
<b>Physical State</b>	Liquid Suspension
<b>Color</b>	Brown to beige
<b>Odor</b>	Slightly sweet and musty
<b>Odor threshold</b>	No information available
<b>pH</b>	6 - 8
<b>Melting point/freezing point</b>	No information available
<b>Boiling Point/Range</b>	No information available
<b>Flash point</b>	No information available
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid, gas)</b>	No information available
<b>Flammability Limit in Air</b>	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
<b>Vapor pressure</b>	No information available
<b>Vapor density</b>	No information available
<b>Relative density</b>	1.14 g/mL
<b>Specific gravity</b>	1.14 @ 20.5°C
<b>Water solubility</b>	Soluble in water
<b>Solubility in other solvents</b>	No information available
<b>Partition coefficient</b>	No information available
<b>Autoignition temperature</b>	No information available
<b>Decomposition temperature</b>	No information available
<b>Viscosity, kinematic</b>	No information available
<b>Viscosity, dynamic</b>	408.6 - 609.6 mPa @20°C 414.8 - 625.7 mPa @40°C
<b>Explosive properties</b>	Not explosive
<b>Oxidizing properties</b>	Non-oxidizing

Molecular weight No information available  
Bulk density No information available

## 10. STABILITY AND REACTIVITY

**Reactivity** To our knowledge, the product has no special reactivities.

**Chemical Stability** Stable under recommended storage conditions.

**Possibility of Hazardous Reactions** None under normal processing.

**Hazardous polymerization** Hazardous polymerization does not occur.

**Conditions to avoid** Heating of the product will produce harmful and irritant vapors.

**Incompatible materials** None known.

**Hazardous Decomposition Products** See Section 5 for more information.

## 11. TOXICOLOGICAL INFORMATION

### Product Information

**LD50 Oral** > 1.0 x 10<sup>9</sup> colony forming units/kg (rat)  
**LD50 Dermal** > 5000 mg/kg (rat)  
**LC50 Inhalation (dust)** Based on available data, the classification criteria are not met

**Serious eye damage/eye irritation** Minimally irritating (rabbit).  
**Skin corrosion/irritation** Slightly irritating (rabbit).  
**Sensitization** Non-sensitizing

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation (vapor)
Glycerin (56-81-5)	= 12600 mg/kg ( Rat )	> 10 g/kg ( Rabbit )	> 570 mg/m <sup>3</sup> ( Rat ) 1 h

### Information on toxicological effects

**Symptoms** None known.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Mutagenicity** The product contains no ingredients known to be mutagenic  
  
Not classified (Based on available data, the classification criteria are not met)

**Carcinogenicity** There are no known carcinogenic chemicals in this product

**Neurological effects** None known  
Not classified (Based on available data, the classification criteria are not met)

**Reproductive toxicity** This product does not contain any known or suspected reproductive hazards.  
Not classified (Based on available data, the classification criteria are not met)

**Developmental toxicity** Contains no known teratogenic components.  
Not classified (Based on available data, the classification criteria are not met)

**STOT - single exposure** No specific effects after single exposure have been observed.  
Not classified (Based on available data, the classification criteria are not met)

**STOT - repeated exposure** No toxicologically significant effects were found.  
Not classified (Based on available data, the classification criteria are not met)

<b>Target organ effects</b>	None known
<b>Neurological effects</b>	None known Not classified (Based on available data, the classification criteria are not met)
<b>Aspiration hazard</b>	The product does not present an aspiration pneumonia hazard. Not classified (Based on available data, the classification criteria are not met)

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

No significant environmental effects are expected. Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Glyoxal 107-22-2	96 h EC50: ≤ 348.59 mg/L (Pseudokirchneriella subcapitata) static 72 h EC50: > 500 mg/L (Desmodesmus subspicatus) 96 h EC50: > 500 mg/L (Desmodesmus subspicatus)	96 h LC50: 460 - 680 mg/L (Leuciscus idus) static 96 h LC50: = 215 mg/L (Pimephales promelas) static	48 h EC50: = 404 mg/L (Daphnia magna)
bentonite 1302-78-9		96 h LC50: 8.0 - 19.0 g/L (Salmo gairdneri) 96 h LC50: = 19000 mg/L (Oncorhynchus mykiss) static	
potassium sorbate 24634-61-5		96 h LC50: = 1250 mg/L (Brachydanio rerio) static	48 h EC50: = 750 mg/L (Daphnia magna)
Glycerin 56-81-5		96 h LC50: 51 - 57 mL/L (Oncorhynchus mykiss) static	24 h EC50: > 500 mg/L (Daphnia magna)
Sodium lignosulfonate 8061-51-6		48 h LC50: = 7300 mg/L (Oncorhynchus mykiss)	

<b>Persistence and degradability</b>	Readily biodegradable.
<b>Bioaccumulation</b>	Bioaccumulation is not expected.
<b>Mobility</b>	The product is not expected to be mobile in the soil.
<b>Other Adverse Effects</b>	None known.

## 13. DISPOSAL CONSIDERATIONS

<b>Waste disposal methods</b>	Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance. Proper personal protective equipment, as described in Sections 7 and 8, must be worn while handling materials for waste disposal.
<b>Contaminated containers and packages</b>	Containers must be disposed of in accordance with local regulations. Refer to the product label for container disposal instructions.

## 14. TRANSPORT INFORMATION

<b>DOT</b>	NOT REGULATED
<b>TDG</b>	NOT REGULATED
<b>ICAO/IATA</b>	NOT REGULATED
<b>IMDG/IMO</b>	NOT REGULATED

**15. REGULATORY INFORMATION****U.S. Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

**SARA 311/312 Hazard Categories**

<b>Acute health hazard</b>	Yes
<b>Chronic health hazard</b>	Yes
<b>Fire hazard</b>	No
<b>Sudden release of pressure hazard</b>	No
<b>Reactive Hazard</b>	No

**Clean Water Act**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

**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 as required on the pesticide label:

NO SIGNAL WORD REQUIRED

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

**US State Regulations****California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

<b>Chemical name</b>	<b>New Jersey</b>	<b>Massachusetts</b>	<b>Pennsylvania</b>
Glycerin 56-81-5	X	X	X

**International Inventories**

<b>Chemical name</b>	<b>TSCA (United States)</b>	<b>DSL (Canada)</b>	<b>EINECS/ELINC S (Europe)</b>	<b>ENCS (Japan)</b>	<b>China (IECSC)</b>	<b>KECL (Korea)</b>	<b>PICCS (Philippines)</b>	<b>AICS (Australia)</b>
Glycerin 56-81-5	X	X	X	X	X	X	X	X

**CANADA**

Not applicable

**16. OTHER INFORMATION**

<b>NFPA</b>	<b>Health Hazards</b> 1	<b>Flammability</b> 0	<b>Instability</b> 0	<b>Special Hazards</b> -
<b>HMIS</b>	<b>Health Hazards</b> 1*	<b>Flammability</b> 0	<b>Physical hazard</b> 0	<b>Personal Protection</b> X

*\*Indicates a chronic health hazard.***NFPA/HMIS Ratings Legend**

Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0

**Revision date:** 2020-10-05  
**Reason for revision:** Initial Release**Disclaimer**

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**End of Safety Data Sheet**