



Material group	–	Page 1 of 8
Product name	F4019-3	January 2017
Safety data sheet according to EU Reg. 1907/2006 as amended		

SAFETY DATA SHEET

F4019-3

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1. **Product identifier** **F4019-3**
- 1.2. **Relevant identified uses of the substance or mixture and uses advised against** Can be used as a biostimulant for experimental purposes only.
- 1.3. **Details of the supplier of the safety data sheet** **CHEMINOVA A/S**, a subsidiary of FMC Corporation
Thyborønvej 78
DK-7673 Harboøre
Denmark
SDS.Ronland@fmc.com
- 1.4. **Emergency telephone number** Medical emergencies:
1 800 / 331-3148 (PROSAR - U.S.A. & Canada)
1 651 / 632-6793 (PROSAR - Collect - All other countries)
For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All other countries)

SECTION 2: HAZARDS IDENTIFICATION

- 2.1. **Classification of the substance or mixture** None
- WHO classification Class U (Unlikely to present acute hazard in normal use)
- Health hazards No serious hazards to health are expected. However, the product should always be treated with the usual care of handling chemicals.
- Environmental hazards Not expected to be harmful to aquatic organisms.
- 2.2. **Label elements**
According to EU Reg. 1272/2008 as amended
- Product identifier F4019-3
- Hazard pictograms None
- Signal word None
- Hazard statements None
- Precautionary statements None

Material group	–	Page 2 of 8
Product name	F4019-3	January 2017

Supplementary hazard statements
 EUH210 Safety data sheet available on request.
 EUH401 To avoid risks to human health and the environment, comply with the instructions of use.

2.3. **Other hazards** None of the ingredients in the product meets the criteria for being PBT or vPvB.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances** The product is a mixture, not a substance.
 3.2. **Mixtures** The product contains *Bacillus licheniformis* RTI184 (0.92%), a biologically active material.

<u>Reportable ingredient</u>	Content (% w/w)	CAS no.	EC no. (EINECS no.)	Classification
Glycerol	32	56-81-5	200-289-5	None

SECTION 4: FIRST AID MEASURES

4.1. **Description of first aid measures**
 Inhalation If experiencing any discomfort, immediately remove from exposure. Get medical attention if discomfort does not disappear.
 Skin contact Remove contaminated clothing and footwear. Wash with water and soap. See physician if any symptom develops.
 Eye contact Immediately rinse eyes with much water or eyewash solution, occasionally opening eyelids, until no evidence of chemical remains. Remove contact lenses after a few minutes and rinse again. Get medical attention if irritation persists.
 Ingestion Inducing vomiting is not recommended. Rinse mouth and drink a few glasses of water or milk. If vomiting does occur, rinse mouth and drink fluids again. Consult a physician.

4.2. **Most important symptoms and effects, both acute and delayed** To our knowledge, adverse effects in humans have not been reported.

4.3. **Indication of any immediate medical attention and special treatment needed** Immediate medical attention is required in case of ingestion.
 It may be helpful to show this safety data sheet to physician.

Notes to physician A specific antidote for exposure to this material is not known. Treatment is as for a general chemical. Gastric lavage and/or administration of activated charcoal can be considered. After decontamination, treatment of exposure should be directed at the control of symptoms and the clinical condition.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. **Extinguishing media** Dry chemical or carbon dioxide for small fires, water spray or foam for large fires. Avoid heavy hose streams.

Material group	–	Page 3 of 8
Product name	F4019-3	January 2017

- 5.2. **Special hazards arising from the substance or mixture** The essential breakdown products are sulphur dioxide, carbon monoxide and carbon dioxide.
- 5.3. **Advice for firefighters** Use water spray to keep fire-exposed containers cool. Fight fire from protected location or maximum possible distance. Firemen should wear self-contained breathing apparatus and protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1. **Personal precautions, protective equipment and emergency procedures** Observe all safety precautions when cleaning up spills. Use personal protection equipment depending on the magnitude of the spill.
- 6.2. **Environmental precautions** Do not release to the environment.
- 6.3. **Methods and materials for containment and cleaning up** Minor spills on the floor or other impervious surface should be absorbed onto an absorptive material such as universal binder, hydrated lime, Fuller’s earth or other absorbent clays. Collect the contaminated absorbent in suitable containers. Clean area with detergent and much water. The used containers should be properly closed and labelled.
- 6.4. **Reference to other sections** See subsection 8.2. for personal protection.
See section 13 for disposal.

SECTION 7: HANDLING AND STORAGE
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- 7.1. **Precautions for safe handling** For its use as a pesticide, first look for precautions and personal protection measures on the officially approved label on the packaging or for other official guidance or policy in force. If these are lacking, see section 8.
- Avoid contact with eyes, skin or clothing. Avoid breathing vapour or spray mist. Wash thoroughly with water and soap after handling. Remove contaminated clothing immediately and wash before reuse.
- Do not discharge to the environment. Collect all waste material and remains from cleaning equipment, etc., and dispose of as hazardous waste. See section 13 for disposal.
- 7.2. **Conditions for safe storage, including any incompatibilities** The product is stable under normal conditions of warehouse storage. Protect against heat.
- 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. 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.
- 7.3. **Specific end use(s)** The product is a pesticide under development which may only be used for officially allowed experimental applications.

Material group	–	Page 4 of 8
Product name	F4019-3	January 2017

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Personal exposure limits To our knowledge not established for any other of the ingredients in this product than glycerol:

		Year	
Glycerol	ACGIH (USA) TLV	2015	Not established
	OSHA (USA) PEL	2015	15 mg/m ³ , total dust (mist)
	EU, 2000/39/EC as amended	2009	5 mg/m ³ , respirable fraction
	Germany, MAK	2014	Not established
	HSE (UK) WEL	2011	Not established

Glycerol

DNEL, inhalation	56 mg/m ³
PNEC, freshwater	0.885 mg/l
PNEC, marine water	0.088 mg/l

8.2. Exposure controls

The precautions mentioned below are primarily meant for handling of the undiluted product and for preparing the spray solution, but can be recommended for spraying as well.



Respiratory protection

The product does not automatically present an airborne exposure concern when handled carefully, but in the event of an accidental discharge of the material which produces a heavy vapour or mist, workers must put on officially approved respiratory protection equipment with a universal filter type including particle filter.



Protective gloves

Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber. The breakthrough times of these materials for the product are unknown, but it is expected that they will give adequate protection. It is recommended to limit the work to be done manually.



Eye protection

Wear goggles or safety glasses. It is recommended to have an eye wash fountain immediately available in the workplace when there is a potential for eye contact.



Other skin protection

Wear appropriate chemical resistant clothing to prevent skin contact depending on the extent of exposure.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on physical and chemical properties

Appearance	Liquid
Odour	Fermented
Odour threshold	Not determined
pH	Not determined
Melting point/freezing point	Not determined
Initial boiling point and boiling range	Not determined

Material group	–	Page 5 of 8
Product name	F4019-3	January 2017

Flash point	> 100°C
Evaporation rate	Not determined
Flammability (solid/gas)	Not applicable (liquid)
Upper/lower flammability or explosive limits	Not determined
Vapour pressure	Not determined
Vapour density	Not determined
Relative density	Not determined
Solubility(ies)	Not determined
Partition coefficient n-octanol/water	Not determined
Autoignition temperature	Not determined
Decomposition temperature	Not determined
Viscosity	Not determined
Explosive properties.....	Not explosive
Oxidising properties	Not oxidising

9.2. Other information

Miscibility The product is dispersible in water.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity	To our knowledge, the product has no special reactivities.
10.2. Chemical stability	The product is stable during normal handling and storage at ambient temperatures.
10.3. Possibility of hazardous reactions	None known.
10.4. Conditions to avoid	Heating of the product may evolve harmful and irritant vapours.
10.5. Incompatible materials	None known.
10.6. Hazardous decomposition products	See subsection 5.2.

SECTION 11: TOXICOLOGICAL INFORMATION
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11.1. Information on toxicological effects	* = Based on available data, the classification criteria are not met.
<i>Product</i>	The product contains biologically active material. Hazards to human health which would require classification are not expected, but it is recommended to handle the product with care and to avoid unnecessary exposure.
Acute toxicity	The product is not considered as harmful by single exposures. * The acute toxicity is estimated as:
Route(s) of entry	
- ingestion	LD ₅₀ , oral, rat: > 2000 mg/kg
- skin	LD ₅₀ , dermal, rat: > 2000 mg/kg
- inhalation	LC ₅₀ , inhalation, rat: > 5 mg/l/4 h
Skin corrosion/irritation	Not irritating to skin. *
Serious eye damage/irritation	Not irritating to eyes. *

Material group	–	Page 6 of 8
Product name	F4019-3	January 2017

Respiratory or skin sensitisation ...	Not expected to cause skin sensitisation. *
Germ cell mutagenicity	The product contains no ingredients known to be mutagenic. *
Carcinogenicity	The product contains no ingredients known to be carcinogenic. *
Reproductive toxicity	The product contains no ingredients found to have adverse effects on reproduction. *
STOT – single exposure	To our knowledge, no specific effects have been observed after single exposure. *
STOT – repeated exposure	To our knowledge, no specific effects have been observed after repeated exposure. *
Aspiration hazard	The product does not present an aspiration pneumonia hazard. *
Symptoms and effects, acute and delayed	To our knowledge, adverse effects have not been reported.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity	The product is not expected to be toxic to fish, plants, algae, aquatic invertebrates, birds, mammals, insects and soil micro- and macroorganisms at a level which would require classification.
12.2. Persistence and degradability	The product is expected to be readily biodegradable.
12.3. Bioaccumulative potential	Bioaccumulation is not expected.
12.4. Mobility in soil	The product contains no hazardous ingredients which may be mobile in the environment.
12.5. Results of PBT and vPvB assessment	None of the ingredients meets the criteria for being PBT or vPvB.
12.6. Other adverse effects	Other relevant hazardous effects in the environment are not known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods	Remaining quantities of the material and empty but unclean packaging should be regarded as hazardous waste. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.
	Disposal of waste and packagings must always be in accordance with all applicable local regulations.

SECTION 14: TRANSPORT INFORMATION

ADR/RID/IMDG/IATA/ICAO classification

14.1. UN number	Not classified as hazardous material for transport
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Material group	–	Page 7 of 8
Product name	F4019-3	January 2017

- 14.2. **UN proper shipping name** Not applicable
- 14.3. **Transport hazard class(es)** Not applicable
- 14.4. **Packing group** Not applicable
- 14.5. **Environmental hazards** The substance may be harmful in the aquatic environment.
- 14.6. **Special precautions for user** Avoid any unnecessary contact with the product. Do not discharge to the environment.
- 14.7. **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code** The product is not transported in bulk by ship.

SECTION 15: REGULATORY INFORMATION

- 15.1. **Safety, health and environmental regulations/legislation specific for the substance or mixture** To our knowledge, no specific regulations apply.
- 15.2. **Chemical safety assessment** A chemical safety assessment is not required to be included for this product.

SECTION 16: OTHER INFORMATION

List of abbreviations	ACGIH	American Conference of Governmental Industrial Hygienists
	Dir.	Directive
	DNEL	Derived No Effect Level
	EC	European Community
	EINECS	European INventory of Existing Commercial Chemical Substances
	GHS	Globally Harmonized classification and labelling System of chemicals, Fifth revised edition 2013
	HSE	Health & Safety Executive, UK
	IBC	International Bulk Chemical code
	IUPAC	International Union of Pure and Applied Chemistry
	LC ₅₀	50% Lethal Concentration
	LD ₅₀	50% Lethal Dose
	MAK	Maximale Arbeitsplatz-Konzentration
	MARPOL	Set of rules from the International Maritime Organisation (IMO) for prevention of sea pollution
	OSHA	Occupational Safety and Health Administration
	PBT	Persistent, Bioaccumulative, Toxic
	PEL	Personal Exposure Limit
	PNEC	Predicted No Effect Concentration
	Reg.	Regulation
	STOT	Specific Target Organ Toxicity
	TLV	Threshold Limit Value
	vPvB	very Persistent, very Bioaccumulative
	WEL	Workplace Exposure Limit
	WHO	World Health Organisation

Material group	–	Page 8 of 8
Product name	F4019-3	January 2017

Method for classification Calculation method

Used hazard statements EUH210 Safety data sheet available on request.
 EUH401 To avoid risks to human health and the environment,
 comply with the instructions of use.

Advice on training This material should only be used by persons who are made aware of
 its hazardous properties and have been instructed in the required
 safety precautions.

The information provided in this safety data sheet is believed to be accurate and reliable, but uses of the product vary and situations unforeseen by FMC Corporation may exist. The user has to check the validity of the information under local circumstances.

Prepared by: FMC Corporation / Cheminova A/S / GHB