

MATERIAL SAFETY DATA SHEET

In compliance with Regulation (EC) No. 1907/2006 (REACH)
as amended by Regulation (EU) No. 453/2010

Met52[®] granular

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Version 9

Date: 2013-05-29

Supersedes the version from 2012-04-29

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1 Product identifier:** Met52[®] granular
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**
Granular formulation of living fungi (*Metarhizium anisopliae* var. *anisopliae* strain F52) for use as bio insecticide.
- 1.3 Details of the supplier of the safety data sheet:** NOVOZYMES BIOLOGICALS FRANCE
Parc des Grillons - Bâtiment 6
60 Route de Sartrouville
78230 LE PECQ - FRANCE
Tel /Fax: +33 (0)1 30 15 28 40/ +33 (0)1 30 15 15 45
ordersnzb@novozymes.com
- 1.4 Emergency telephone number:** +33 (0)1 30 15 28 40 (work hours)
UK National Poisons Information Service :
0844 892 0111

2. HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture**
Classification according to the classification rules laid down in Directive 1999/45/EC:
The preparation is not classified as dangerous for human health or the environment.
- 2.2 Label elements:**
- Symbol(s):** None.
- Indication(s) of danger:** None
- Risk phrase(s):** None.
- Safety advice(s):**
- S2 Keep out of reach of children
 - S13 Keep away from food, drink and animal feeding stuffs
 - S22 Do not breathe dust.
 - S24 Avoid contact with skin
 - S37 Wear suitable gloves
 - S46 If swallowed, seek medical advice immediately and show this container or label
 - S57 Use appropriate container to avoid environmental contamination
- Other applicable labels elements:**
Contains *Metarhizium anisopliae* var. *anisopliae* strain F52. Micro-organisms may have the potential to provoke sensitising reactions.
To avoid risk to man and the environment, comply with the instructions for use.
This material and its container must be disposed of in a safe way

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2.3 Other hazards:

None identified.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Classification of the ingredients according to Directive 67/548/EEC:

None of the ingredients are hazardous or are present at levels < thresholds set in Directive 1999/45/EC.

3.2 Classification of the ingredients according to Regulation (EC) No. 1272/2008:

None of the ingredients are hazardous or are present at levels < thresholds set in Regulation (EC) No. 1272/2008.

4. FIRST-AID MEASURES

4.1 Description of first aid measures:

Exposure by inhalation: Remove victim to fresh air and keep at rest. If symptoms of irritation and/or sensitisation occur (shortness of breath, wheezing or laboured coughing) seek medical advice/attention.

Exposure by skin: Wash with plenty of soap and water. If skin irritation occurs, seek medical advice/attention.

Exposure by eye contact: Rinse cautiously with water for several minutes. If irritation occurs, seek medical advice/attention.

Exposure by ingestion: Rinse mouth. Do not induce vomiting.

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

Contact with eyes, skin and respiratory tract may cause irritation.

Organisms used are non-pathogenic to human but can cause infection when in contact with open wounds.

4.3 Indication of any immediate medical attention and special treatment needed:

Treat symptomatically.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media: Water spray, dry chemical, foam or carbon dioxide extinguishers may be used.

5.2 Special hazards arising from substance or mixture: None.

5.3 Advice for firefighters: Full protective clothing and self-contained breathing apparatus should be worn.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

Evacuate personnel from immediate vicinity. Wear appropriate protective equipment. Avoid formation of dust, splashing and formation of aerosols. Refer to section 8.

6.2 Environmental precautions:

It is not anticipated to be hazardous for environment. If accidentally spilled isolate the spill area and sweep the spilled material into a properly labelled container. Wash

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the contaminated surface with water and detergent. Do not contaminate water with product waste.

6.3 Methods and material for containment and cleaning-up:

Isolate the spill area and sweep the spilled material into a properly labelled container. Wash the contaminated surface with water and detergent. Do not contaminate water with product waste. Dispose of waste material in accordance with local or national regulations.

6.4 Reference to other sections:

For personal protective equipment, refer to section 8.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling:

Precautions: The substance should be handled under conditions of good industrial hygiene and in conformity with any local regulations in order to avoid unnecessary exposure. The product is formulated using a microorganism specially selected from the natural environment and that is known to be non-pathogenic to humans, animals or plants. It is advised to cover open wounds when in use.

Technical measures: Appropriate protective equipment should be worn (vinyl, latex, polyethylene or other type of gloves, goggles, a half filtering mask type FFP1) to reduce exposure to the preparation.

Specific requirements: None.

7.2 Conditions for safe storage, including any incompatibilities:

Specific design for storage rooms or vessels: None.

Incompatible materials: Strong acids and alkali compounds, and strong oxidising agents may inactivate biological cultures.

Conditions of storage: Store in a cool, dry, well-ventilated area. Protect from sunlight. Ideally, store at approximately 4°C to retain maximum viability. Avoid freezing temperatures and above 30°C.

Quantity limits: None.

7.3 Specific end use(s):

No information available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters:

Limit value – 8 hr dust: TLV ACGIH = 15 mg/m³ and TWA = 5 mg/m³

8.2 Exposure control:

8.2.1 Appropriate engineering controls:

None

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8.2.2 Individual protection measures, such as personal protective equipment:

The user as part of a formal exposure risk assessment should decide upon the provision of personal protective equipment and the need to provide engineering control measures. Based upon the available toxicological information the protective measures described below should be regarded as a minimum.

Eye/face protection: Avoid contact with eyes. Eye protection should be used when handling the preparation.

The protection should be capable of giving chemical protection as classified in BS2092 or EN166.

Skin protection: Avoid contact with skin. Direct handling of the material should be avoided by wearing type 5 protective clothing suitable as classified by Standard EN ISO 13982-1.

Respiratory protection:

A vapour mask to a minimum standard of EN405 with filters compliant with standard EN143 norm (type FFP1) should be used when handling the preparation.

Hand protection: Avoid prolonged or frequent repeated skin contact, especially with broken skin. Chemical protective gloves to a standard EN374 should be provided. Usage periods should not exceed the breakthrough times for the chemical stated by the manufacturer of the glove.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance:	Olive green granules
Odour:	no discernible odor
pH:	7 for 1% aqueous dispersion
Boiling point/boiling range:	Not applicable.
Melting point/melting range:	Not determined.
Flash point:	Not determined.
Flammability (solid, gas):	Predicted not flammable.
Autoflammability:	Predicted not autoflammable.
Explosive properties:	Predicted not explosive based on ingredient properties.
Oxidising properties:	Predicted not oxidising based on ingredients properties.
Vapour pressure:	Not applicable.
Relative density:	0,555 g/mL at 20+/- 2°C.
Solubility	– Water solubility: Not soluble in water.
	– Fat solubility: Not determined.
Partition coefficient n-octanol/water:	Not determined.

9.2 Other information: None available.

10. STABILITY AND REACTIVITY

10.1 Reactivity: Not reactive.

10.2 Chemical stability: Not applicable.

10.3 Possibility of hazardous reactions:
None anticipated.

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- 10.4 Conditions to avoid:** Excessive temperature variations, below 0 °C or above 30 °C.
- 10.5 Incompatible materials:** Strong acids, alkali compounds, strong oxidising agents, disinfectants and biocides may inactivate biological cultures.
- 10.6 Hazardous decomposition products:**
None anticipated.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

Acute toxicity:

Ingestion, LD50 Rat oral (cfu/animal): >1x10⁸ *

Inhalation, LC50 Rat inhalation (cfu/animal):>1x10⁸ *

Skin, LD50 Rat intraperitoneal (cfu/animal) :>1x10⁷ *

* Results extrapolated from studies performed with *Metarhizium anisopliae* var. *anisopliae* strain F52.

Irritation:

Eye irritation: Not irritating

Skin irritation: Not irritating

Sensitisation:

Has the potential to provoke sensitizing reactions.

12. ECOLOGICAL INFORMATION

- 12.1 Toxicity:** The preparation is not anticipated to pose any environmental hazard. Specific toxicity studies done on birds, aquatic organisms, earthworms, bees and non-target arthropods showed lack of adverse effects.
- 12.2 Persistence and degradability:**
Metarhizium anisopliae is widely distributed in insects and soil. Numbers of CFU of *M. anisopliae* var. *anisopliae* strain F52 will gradually decline in time and fall down to natural background levels. The length of this process will depend on the occurrence of suitable hosts for multiplication. Due to the rapid degradation of Destruxins in insect cadavers it is not likely that these compounds contaminate the soil or groundwater
- 12.3 Bioaccumulative potential:** Not anticipated to bioaccumulate.
- 12.4 Mobility in soil :** Cells of *Metarhizium anisopliae* are not motile. There may be indirect movement in soil because of water movement or transfer by insects.
- 12.5 Results of PBT and vPvB assessment**
No information available
- 12.6 Other adverse effects:** There is no ozone depletion, photochemical ozone creation or global warming potential. Adverse effects in the sewage treatment plant are not anticipated.

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13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods: Dispose of by incineration or landfill in accordance with local regulations.

14. TRANSPORT INFORMATION

- 14.1 UN number:** None.
- 14.2 UN proper shipping name:** None.
- 14.3 Transport hazard class(es):** Not applicable.
- 14.4 Packing group:** Not applicable.
- 14.5 Environmental hazards:** None.
- 14.6 Special precautions for user:** None.
- 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:**
Not applicable.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Microbial classification:

The preparation is not deemed 'hazardous' according to the requirements of Council Directive 2000/54/EEC. Fungi contained in this preparation belong exclusively to the genus *Metarhizium* species *anisopliae*. All are designated group 1 according to all recognized classification systems for micro-organisms.

15.2 Chemical safety assessment:

No chemical safety assessment has been carried out yet for this mixture.

16. OTHER INFORMATION

Sources:

Detailed composition.

SDS of ingredients.

ESIS website: <http://esis.jrc.ec.europa.eu/>

GESTIS-Substance Database: <http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp#>

Safety/classification: http://www.dsmz.de/microorganisms/bacterial_nomenclature.php
<http://www.biosafety.be/GB/WPPProcGB.html>

Occupational exposure: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:338:0087:0089:EN:PDF>
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:038:0036:0039:EN:PDF>
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2000L0039:20060301:EN:PDF>
http://bgia-online.hvbg.de/LIMITVALUE/WebForm_gw.aspx

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The above information is based on the present state of our knowledge at the time of publication. It is given in good faith, no warranty is implied with respect to quality or specification of product. The user must satisfy himself that the product is entirely suitable.