

## MATERIAL SAFETY DATA SHEET

DATE OF ISSUE:

### SECTION 1: IDENTIFICATION

**1.1 Product name:**

Biolevel MaizeNP Glycerin-Based Liquid Seed Coating

**1.2 Relevant identified uses and uses advised against:**

For use as a seed coat by physically mixing with seed. Not for oral consumption. Not for direct contact with food or beverages.

**1.3 Details of supplier of safety data sheet:**

Manufactured for and quality guarantee by Biolevel Ltd. Registered in England No. 10079494.

**1.4 Emergency telephone number(s):**

+44 7807 097946

### SECTION 2: HAZARDS IDENTIFICATION

**2.1 Classification of the mixture:**

According to Regulation (EC) No. 1272/2008: Not classified.

**2.2 Label elements:**

**Hazard pictogram:** None

**Signal word:** None

**Hazard statement(s):** None

**2.3 Other hazards.**

The mixture does not fulfil the criteria for PBT or vPvB substance. The preparation contains microorganisms belonging to hazard group 1 as defined by the Advisory Committee on Dangerous Pathogens (ACDP) as unlikely to cause human disease. However, it should not be assumed that infection can never occur. People who are immunocompromised should not work with this product.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substance:

Glycerin

### 3.2 Chemical identity:

C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>

### 3.3 Common name/synonyms:

1,2,3-Propanetriol, Glycerol, Glycerine

### 3.4 Other ingredients:

Pseudomonas putida

Bacillus subtilis

Bacillus licheniformis

Bacillus amyloliquefaciens

Bacillus megaterium

Bacillus pumilus

Paenibacillus polymyxa

Azospirillum brasilense

## SECTION 4: FIRST AID MEASURES

### 4.1 General Advice:

Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). Take care to self-protect by avoiding becoming contaminated.

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

#### 4.2.1 Symptoms/injuries after inhalation:

ON HEATING: Irritation of the respiratory tract. Irritation of the nasal mucous membranes.

#### 4.2.2 Symptoms/injuries after skin contact:

n/a

#### 4.2.3 Symptoms/injuries after eye contact:

Redness of the eye tissue. Lacrimation.

#### 4.2.4 Symptoms/injuries after ingestion:

Nausea. Vomiting. Diarrhea. AFTER ABSORPTION OF HIGH QUANTITIES: Headache. Dehydration. Disturbances of heart rate. Change in the aerogramme/blood composition. Decreased renal function.

#### **4.3 Description of first aid measures:**

##### **4.3.1 First aid measures after inhalation:**

Remove the victim into fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration as needed.

##### **4.3.2 First aid measures after skin contact:**

Wash immediately with lots of water (15 minutes)/shower. Soap may be used. Remove clothing before washing.

##### **4.3.3 First aid measures after eye contact:**

Rinse immediately with plenty of water for 15 minutes. Take victim to an ophthalmologist if irritation persists.

##### **4.3.4 First aid measures after ingestion:**

DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual. Ingestion of large quantities: immediately to hospital.

#### **4.4 Indication of any immediate medical attention and special treatment needed:**

If medical advice is needed, have product container or label at hand. All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

## **SECTION 5: FIRE FIGHTING MEASURES**

### **5.1 Extinguishing media:**

#### **5.1.1 Suitable extinguishing media:**

Use dry powder, foam, carbon dioxide or water for extinguishing. For larger fires use water spray or alcohol resistant foam.

#### **5.1.2 Unsuitable extinguishing media:**

No data found.

### **5.2 Special hazards arising from the substance or mixture:**

#### **5.2.1 Fire hazard:**

DIRECT FIRE HAZARD. Combustible, keep away from open flame, no smoking. INDIRECT FIRE HAZARD. Temperature above flashpoint: higher fire/explosion hazard.

**5.2.2 Explosion hazard:**

No direct explosion hazards.

**5.2.3 Reactivity:**

Decomposes on exposure to temperature rise: release of toxic/corrosive/combustible gases/vapors (acrolein). Upon combustion CO and CO<sub>2</sub> are formed. May polymerize on exposure to temperature rise. Reacts violently with (strong) oxidizers: (increased) risk of fire/explosion. Reacts with (some) acids: (increased) risk of fire/explosion.

**5.3 Advice for firefighters:**

**5.3.1 Firefighting instructions:**

Exercise caution when fighting any chemical fire.

**5.3.2 Protection during firefighting:**

Firefighters should wear full protective gear. Use self-contained breathing equipment if in confined place. Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions, protective equipment, and emergency procedures:**

**6.1.1 General Measures:**

Mark the danger area. Exposure to heat: have neighborhood close doors and windows. Exposure to fire/heat: consider evacuation. Wash contaminated clothes. Use gloves, face shield.

**6.2 For non-emergency personnel:**

**6.2.1 Protective equipment:**

Use appropriate personal protection equipment (PPE).

**6.2.2 Emergency procedures:**

Evacuate unnecessary personnel.

**6.3 For emergency responders:**

**6.3.1 Protective equipment:**

Equip cleanup crew with proper protection. Use appropriate personal protection Equipment (PPE).

**6.3.2 Emergency procedures:**

Ventilate area.

**6.4 Environmental precautions:**

Do not allow to flow into drainage system.

**6.5 Methods and material for containment and cleanup:**

**6.5.1 For containment:**

Collect leakage in sealable containers, soak up with sand or other inert absorbent and remove to safe place. Flush away remainder with water.

**6.5.2 Methods for cleaning up:**

Clear up spills immediately and dispose of waste safely.

## **SECTION 7: HANDLING AND STORAGE**

**7.1 Precautions for safe handling:**

**7.1.1 Prevention of user exposure:**

Put on appropriate personal protective equipment. Use gloves and wear goggles when handling. Avoid breathing mist.

**7.1.2 Prevention of fire and explosion:**

Handling temperature  $\geq 10$  °C above melting point.

**7.1.3 Precautions while moving the product:**

Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous.

**7.1.4 Hygiene measures:**

Handlers should wash hands and face before eating, drinking, and smoking.

**7.2 Conditions for safe storage, including any incompatibilities:**

**7.2.1 Storage precautions:**

Keep in a cool and dry place. Keep separate from oxidants. Avoid extreme heat and cold. Avoid direct fire. Store in clean, dry, and preferably stainless steel or HDPE vessels. In

bulk, store at ambient temperature. Temperature higher than necessary degrades quality at rate dependent on time and temperature of exposure. Exposure to ultraviolet light, especially sunlight, must be minimized to prevent quality loss.

**7.2.2 Incompatible products:**

KEEP SUBSTANCE AWAY FROM: heat sources, oxidizing agents, (strong) acids, (strong) bases.

**7.2.3 Packaging materials:**

Packaging should be closable, dry, clean, correctly labelled, and meet the legal requirements. Secure fragile packaging in solid containers. Suitable storage includes steel, aluminum, iron, synthetic material, glass.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control Parameters:**

**8.1.1 Occupational exposure controls:**

n/a

**8.1.2 Technical measures:**

n/a

**8.1.3 Occupational exposure limits:**

Glycerin components:

Source	Type	Value	Note
US (OSHA)	TWA	15mg/m <sup>3</sup>	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants
US (ACGIH)	TWA	10mg/m <sup>3</sup>	ACGIH Threshold Limit Value

**8.2 Appropriate engineering controls:**

**8.2.1 Recommended monitoring procedures:**

Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure all national/local regulations are observed.

**8.3 Individual protection measures:**

**8.3.1 Personal protective equipment:**

Gloves. Safety glasses. Protective clothing. Mist formation: aerosol mask with filter type P1. On heating: gas mask with filter type A.

**8.3.2 Materials for protective clothing:**

GIVE GOOD RESISTANCE: natural rubber, neoprene, PVC Viton.

GIVE LESS RESISTANCE: styrene-butadiene rubber.

GIVE POOR RESISTANCE: polyurethane.

**8.3.3 Eye protection:**

Use protective goggles and/or a full-face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU). Maintain eye wash fountain and quick-drench facilities in work area.

**8.3.4 Hand protection:**

Suitable protective gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**8.3.5 Skin and body protection:**

Suitable protective clothing.

**8.3.6 Environmental exposure controls:**

If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

**8.3.7 Other information:**

When using, do not eat, drink, or smoke.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES****9.1 General information:**

Appearance:	Opaque liquid
Odour:	Mild
Odour threshold:	n/a
pH:	Neutral
Melting point/freezing point:	n/a
Boiling point:	n/a
Flash point:	n/a
Evaporation rate:	n/a
Flammability:	n/a
Vapour pressure:	n/a
Vapour density:	n/a
Relative density:	1.1-1.2 g/cm <sup>3</sup>

Solubility in water:	100%
Partition coefficient:	n/a
Auto-ignition temperature:	n/a
Decomposition temperature:	n/a
Viscosity:	n/a
Explosive properties:	n/a
Oxidising properties:	n/a

## 9.2 Other information:

None

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 Reactivity:

Vapour mixes readily with air. Decomposes on exposure to temperature rise: release of toxic, corrosive combustible gases/vapours (acrolein). Upon combustion CO and CO<sub>2</sub> are formed. May polymerise on exposure to temperature rise. Reacts violently with (strong) oxidisers: (increased) risk of fire/explosion. Reacts with (some) acids: (increased) risk of fire/explosion.

### 10.2 Chemical stability:

Hygroscopic. Able to polymerize above 149° C. Decomposes when heated above 290° C.

### 10.3 Possibility of hazardous reactions:

None known.

### 10.4 Conditions to avoid:

None known.

### 10.5 Incompatible materials:

Reacts violently with strong oxidants. Avoid biocides.

### 10.6 Hazardous decomposition products:

Low toxicity in the original state and not considered hazardous to human beings. On heating/burning: release of toxic/combustible gases/vapors (acrolein).

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 Acute toxicity by oral route, inhalation, and dermal route:

Not classified.

Product	Test	Species	Dose
	LD50, Oral	Rat	12,600 mg/kg



Glycerin	LC50, Inhalation	Rat	>570 mg/m <sup>3</sup> /hr
	LC50, Dermal	Rabbit	>10,000 mg/kg

**11.2 Skin irritation/corrosion:**

Can be irritating to skin.

**11.3 Eye irritation:**

Can be irritating to the eyes.

**11.4 Skin sensitization:**

Can be harmful if absorbed through skin.

**11.5 Respiratory irritation:**

Can be harmful if inhaled. Can be irritating to the respiratory tract. Avoid exposure to mist.

**11.6 CMR effects:**

**11.6.1 Mutagenicity:**

Not mutagenic (Ames test)

**11.6.2 Carcinogenicity:**

n/a

**11.6.3 Reproductive toxicity:**

n/a

**11.6.4 Developmental toxicity:**

n/a

**11.6.5 Repeated dose toxicity – oral route:**

n/a

**11.6.6 Toxicokinetic:**

n/a

**11.6.7 Chronic/other effects:**

n/a

## SECTION 12: ECOLOGICAL INFORMATION

**12.1 Ecotoxicity (aquatic and terrestrial, where available):**

**12.1.1 Ecology – general:**

No supplementary information available.

**12.1.2 Ecology – air:**

TA-Luft Klasse 5.2.5

**12.1.3 Ecology – water:**

Mild water pollutant (surface water)

Not harmful to fishes (LC<sub>50</sub> (96h) >1,000 mg/l)

Not harmful to aquatic organisms (EC<sub>50</sub> >1,000 mg/l)

Not harmful to algae

Not harmful to bacteria

Bioaccumulation: n/a

Sludge digestion is inhibited at >1,000mg/l 50%

Readily biodegradable in water (OECD 301D: 82%; 20 days)

Organism/Biotic Test	Toxicity
LC <sub>50</sub> fishes 1	54,000 mg/l (96h, SALMO GAIRDNERI/ONCORHYNCHUS MYKISS)
LC <sub>50</sub> other aquatic organisms 1	>1,000 mg/l (96h)
LC <sub>50</sub> other aquatic organisms 1	>1,000 mg/l (BACTERIA, ACTIVATED SLUDGE)
LC <sub>50</sub> fish 2	>1,000 mg/l (96h, PISCES)
EC <sub>50</sub> Daphnia 2	>10,000 mg/l(24h, DAPNIA MAGNA, LOCOMOTOR EFFECT)
TLM fish 1	>1,000 ppm (96h, PISCES)
TLM other aquatic organisms 1	>1,000 ppm (96h)
Threshold limit other aquatic organisms 1	2,900 mg/l (192h, MICROCYSTIS AERUGINOSA, TOXICITY TEST)
Threshold limit other aquatic organisms 2	>10,000 mg/l (16h, PSEUDOMONAS PUTIDA, TOXICITY TEST)
Threshold limit algae 1	>10,000 mg/l (168h, SCENEDESMUS QUADRICAUDA, TOXICITY TEST)

**12.2 Persistence and degradability:**

Readily biodegradable, OECD 301

Biochemical oxygen demand (BOD): 0.87g O<sub>2</sub>/g substance

Chemical oxygen demand (COD): 1.16g O<sub>2</sub>/g substance (ISO 15705)

ThOD: 1.217 g O<sub>2</sub>/g substance

BOD: (% of ThOD) 71% ThOD

**12.3 Bio-accumulative potential:**

Log P octanol/water = -1.76/2.6

**12.4 Mobility in the soil:**

Surface tension 0.063 n/m (20° C)

Ecology – biodegradability in soil: no data available.

**12.5 Other adverse effects:**  
No adverse effects available.

## **SECTION 13: DISPOSAL CONSIDERATIONS**

### **13.1 Methods of disposal of waste residue:**

Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite, or powdered limestone. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Wash down leftovers with plenty of water. Wash clothing and equipment after handling. Do not discharge into surface water.

### **13.2 Disposal of contaminated packaging:**

Waste incineration with the approval of the responsible local authority.

## **SECTION 14: TRANSPORT INFORMATION**

**14.1 UN number:** not regulated as a hazardous material.

### **14.2 UN proper shipping name:**

**14.2.1 ADR/RID:** Not dangerous goods

**14.2.2 IMDG:** Not dangerous goods

**14.2.3 IATA:** Not dangerous goods

**14.3 Transport hazard class(es):** Not hazardous according to RID/ADR, GGVS/GGVE, ADNR, IMDG, ICAO-TI/IATA-DGR.

**14.4 Packing group:** n/a

**14.5 Environmental hazards (e.g.: Marine pollutant (Yes/No)):** No

**14.6 Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** n/a

**14.7 Special precautions:** n/a

## SECTION 15: REGULATORY INFORMATION

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

#### 15.1.1 EU Regulations:

No REACH Annex XVII restrictions

EU Regulation 10/2011 (Annex I): FCM 103 – (CAS 0000056-81-5) glycerol

#### 15.1.2 National regulations:

Chemical inventories: Listed on AICS, DSL, ECL, ECST, ENCS, IECSC, NZIoC, PICCS, SWISS, TSCA, EC inventories Swiss Ordinance (RS 817.023.21) Annex 6: List of additives (part A), List of binders (part A), List of solvents (part A) WGK class: 1 (weak water endangering).

#### 15.1.3 US Regulations:

None

### 15.2 Chemical safety assessment:

#### 15.2.1 SARA 302 Components:

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### 15.2.2 SARA 313 Components:

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### 15.2.3 SARA 311/312 Hazards:

Chronic health hazard.

#### 15.2.4 CERCLA:

No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA.

#### 15.2.5 Massachusetts Right to Know Components:

Glycerin CAS-No. 56-81-5 Revision Date 2007-03-01

#### 15.2.6 Pennsylvania Right to Know Components:

Glycerin CAS-No. 56-81-5 Revision Date 2007-03-01

#### 15.2.6 New Jersey Right to Know Components:

Glycerin CAS-No. 56-81-5 Revision Date 2007-03-01

**California Prop 65 Components:**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**SECTION 16: OTHER INFORMATION****16.1 Training advice:**

Before using/handling the product, one must read carefully the present SDS and product label. Always work safely around open hatches on bulk tanks.

**16.2 Revision date:**

Revision: 0

**Disclaimer:**

*To the best of our knowledge the information contained herein is accurate. However, neither Biolevel Ltd. nor any of its subsidiaries assume any liability whatsoever for the accuracy or completeness of the information contained herein. The final determination of the suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.*