

## Material Safety Data Sheet

# Basilisk Self-healing Repair Mortar (MR3)

EU safety data sheet according to 91/155/EWG

### SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name:</b>	Basilisk Self-healing Repair Mortar – MR3.
<b>CAS No:</b>	N/A
<b>Product Use:</b>	MR3 is a ready-mix repair mortar with self-healing capacities for durable and structural repair of cracks and leakage spots in concrete structures.
<b>MSDS Information:</b>	This product is classified as non-hazardous, according to EU directive 2000/54/EC
<b>Product Code:</b>	N/A
<b>Chemical Family:</b>	N/A
<b>Chemical Name/Synonyms:</b>	N/A
<b>Formula:</b>	This product in powder form consists of Portland cement, limestone powder (calcium carbonate), fly ash, biodegradable polymeric mineral precursor compound and bio-based enzymatic catalyst. Individual compositions of constituents could vary within the MR3 application ranges.
<b>Supplier/Manufacturer:</b>	Basilisk-Contracting BV Molengraaffsingel 10 2629 JD Delft, The Netherlands T: +31 15 202 6128 E: info@basiliskconcrete.com W: www.basiliskconcrete.com
<b>Emergency Contact:</b>	Supplier/Manufacturer
<b>REACH</b>	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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### SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

**Product Nature:** Basilisk Self-healing Repair Mortar MR3 is a mix of substances as listed below with nonhazardous additions;

**Hazardous Substance** None.

MR3 has the following composition:

Ingredient	CAS No.	Weight percentage of product (%)
Fly ash	N/A	30 - 40
Portland cement	65997-15-1	20 - 40
Calcium Carbonate	1317-65-3	25 - 30
Basilisk Healing Agent (PLA) *	26100-51-6/ 1317-65-3/ 546-93-0/ 14808-60-7/ 7732-18-5	0.5 - 2

\* Contains bacterial spores from alkaliphilic spore-forming Bacilli, classified as group 1 bacteria. Group 1 bacteria are considered not dangerous and nonpathogenic for humans as defined by the European Parliament (2000) Directive 2000/54/EC on the protection of workers from risks related to exposure to biological agents at work.

### SECTION 3 – HAZARDS IDENTIFICATION AND FIRST AID MEASURES

#### Emergency Overview:

Basilisk Self-healing Repair Mortar MR3 contains compounds which are dangerous if swallowed, inhaled and upon contact with skin or eyes. Based on the bacterial strains present in MR3 and strains used for spore production, this product is classified as non-hazardous, according to EU directive 2000/54/EC.

#### Label elements. Label elements under CLP Pictograms



**Signal words:** Warning - Danger

#### Hazard statements

- H302 Harmful if swallowed, category 4.
- H315 Causes skin irritation, category 2.
- H317 May cause an allergic skin reaction, category 1.
- H318 Causes serious eye damage, category 2.
- H335 May cause respiratory irritation, category 3.

#### Other hazards PBT

This substance is not identified as a PBT substance.

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### Potential Health Effects/Hazard statements:

<b>Eye Contact:</b>	<b>H318</b> - Causes serious eye damage.
<b>Skin Contact:</b>	<b>H315</b> - Causes skin irritation. <b>H317</b> - May cause an allergic skin reaction.
<b>Inhalation:</b>	<b>H335</b> - May cause respiratory irritation.
<b>Ingestion:</b>	<b>H302</b> - Harmful if swallowed.
<b>Chronic Effects:</b>	No known significant effects.

## SECTION 4 – FIRST AID MEASURES

### Precautionary statements

P261	Avoid breathing dust/mist/spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection (FFP3 class filter minimum).
P301 + P330 + P312	IF SWALLOWED: rinse mouth. Call a poison center or doctor/physician if you feel unwell.
P302 + P352 (P321)	IF ON SKIN: Wash with plenty of soap and water.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P362	Wash contaminated clothing before reuse.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor/physician.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of (undiluted) contents and container to hazardous or special waste collection point.

### First aid measures

<b>General advice:</b>	Consult a physician. Show this safety data sheet to the doctor in attendance.
<b>Eye Contact:</b>	Immediately flush eyes thoroughly with water. Continue flushing for 15 minutes. Seek medical attention if eye irritation persists.
<b>Skin Contact:</b>	<i>Dry mortar:</i> Remove product as much as possible. Wash skin with water and pH neutral soap or mild detergent intended for use on skin. <i>Wet mortar:</i> Wash skin with water and pH neutral soap or mild detergent intended for use on skin. Get medical attention when skin irritation develops or persists.
<b>Inhalation:</b>	Immediately remove person to fresh air. If respiratory irritation remains or breathing becomes difficult, seek medical attention.
<b>Ingestion:</b>	If mortar mixture enters the mouth, wash out with water immediately. Seek medical attention if any irritation sensation in the mouth or intestinal discomfort occurs. If mortar is ingested, directly get medical advice. Do NOT induce vomiting. First rinse mouth, thereafter drink plenty of water to dilute the mortar mixture.
<b>Chronic Effects:</b>	If a respiratory allergy is developing over time, seek medical attention - contact a doctor/physician.

### Advice to medical personnel:

There could be a risk of inflammatory reaction of skin after contact, especially when contacted skin area contains open wounds. Mortar is highly alkaline.

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**SECTION 5 – FIRE EXPLOSION DATA / FIRE FIGHTING MEASURES**

<b>Flammability:</b>	Not Flammable.
<b>Flash Point:</b>	N/A.
<b>Lower Explosive Limit:</b>	N/A.
<b>Upper Explosive Limit:</b>	N/A.
<b>Auto ignition Temperature:</b>	N/A
<b>Sensitivity To Static Discharge:</b>	N/A.
<b>Sensitivity To Impact:</b>	N/A
<b>Extinguishing Media:</b>	Water, (alcohol-resistant) foam, carbon dioxide, dry powder
<b>Special Fire-Fighting Procedures:</b>	None.
<b>Hazardous Combustion Products:</b>	None.
<b>Unusual Fire/ Explosion Hazards:</b>	None.

**SECTION 6 – STABILITY AND REACTIVITY**

<b>Stability:</b>	Stable.
<b>Reactivity:</b>	No possible reactions known.
<b>Hazardous Decomposition:</b>	Will not occur.
<b>Hazardous Polymerization:</b>	Will not occur.
<b>Incompatibility:</b>	MR3 mixture is mild to strong alkaline in its product state/application solution. As such it is incompatible with acids, ammonium salts, and aluminum metal. Aluminum powder and other alkali and alkaline earth elements can react under liberation of hydrogen gas in due to the strong alkaline conditions in concrete).
<b>Products evolved when subjected to heat or combustion:</b>	Carbon dioxide, calcium oxide, water vapor.

**SECTION 7 – ACCIDENTAL RELEASE MEASURES**

Avoid flushing mortar in sewage or drainage systems or ditching in surface water. In case dry mortar is released or spilled, vacuum or brush and collect spilled material. Collect waste in suitable container and wash surface with water. Avoid high pressure rinsing or dispersion of mortar dust into the air. Maintain good housekeeping practices. In case wet mortar is released collect waste in suitable container and let material dry before disposed. Unused product should be disposed as chemical/biological waste in accordance with current local, state/provincial and federal regulations.

**SECTION 8 - HANDLING AND STORAGE**

<b>Handling:</b>	Avoid dust formation. Breathing. Avoid spilling and skin- and eye contact.
<b>Storage:</b>	Store in original packaging, unopened, at temperatures between 0 to 40 °C.

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**SECTION 9 - EXPOSURE CONTROLS AND PERSONAL PROTECTION**

<b>Exposure Limit:</b>	10 mg/m <sup>3</sup>
<b>Eye Protection:</b>	Wear safety goggles according to EN166.
<b>Skin Protection:</b>	Avoid direct skin contact of MR3. Do not allow contact of MR3 (dry powder or wet) with skin for any period of time. Wear impermeable, wear-resistant, and alkali-resistant and cotton lined gloves. Do not rely on barrier creams; barrier creams should not be used in place of gloves! Wear protective clothing.
<b>Respiratory Protection:</b>	Use a protective mask (FFP 3 grade according to EN 149: 2001) during the handling of MR3 Mortar.

**SECTION 10 – PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance:</b>	Grey powder
<b>Odor:</b>	No distinct odor
<b>Odor Threshold:</b>	N/A
<b>Physical State:</b>	N/A
<b>pH (as a solid):</b>	N/A
<b>pH in water (at 20 °C):</b>	11 – 13.5
<b>Solubility In Water:</b>	Miscible
<b>Vapor Pressure:</b>	N/A
<b>Vapor Density:</b>	N/A
<b>Boiling Point:</b>	> 1250 °C
<b>Freezing Point:</b>	N/A
<b>Melting Point:</b>	N/A
<b>Specific Gravity (20 °C):</b>	N/A
<b>Evaporation Rate:</b>	not applicable
<b>O/W Coefficient:</b>	not applicable

**SECTION 11 - TOXICOLOGICAL INFORMATION**

For MR3 no individual test results regarding toxicological data are available. The toxicological influences mentioned are deducted from MR3 constituents, physical properties and similar agents.

Individual toxicological information of compounds  $\geq 0.1\%$  content:

**Calcium Carbonate**

**Toxicity to Animals:**

Ingestion	Crystalline Silica: Oral Rate LD50 > 22,500 mg/kg bw.
Skin Contact	No data available.
Eye Contact	No data available.
Inhalation	No data available.

**Effects on Humans:**

Ingestion	No adverse effects expected for normal, incidental ingestion. If a large amount is swallowed, may cause gastrointestinal irritation, discomfort and blockage.
Skin Contact	Exposure to pulverized dust may cause dryness and irritation. This material is not known to cause sensitization.
Eye Contact	Exposure to pulverized dust may cause irritation.
Inhalation	Exposure to pulverized dust may cause irritation in nose, throat and lungs.
Chronic toxicity	This product contains trace amounts of crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica can cause silicosis, as serious lung disease. This product is not listed as carcinogenic by OSHA, IARC, NTP, ACGIH, or the EU Directives. This product may contain trace amounts of crystalline silica quartz which is listed by IARC as "Carcinogenic to Humans" (Group1) and "Known to be a Human Carcinogen" by NTP.

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Human experience -

### Portland Cement

#### Toxicity to Animals:

Ingestion Portland Cement LD50/LC50 = Not available  
Skin Contact No data available.  
Eye Contact No data available.  
Inhalation No data available.

#### Effects on Humans:

Ingestion Based on available data, the classification criteria are not met.  
Skin Contact May cause skin irritation. May cause serious burns in the presence of moisture.  
Eye Contact Causes serious eye damage.  
Inhalation May cause respiratory irritation.  
Chronic toxicity Not available.  
Human experience N/A.

### Fly Ash

#### Toxicity to Animals:

Ingestion No data available.  
Skin Contact No data available.  
Eye Contact No data available.  
Inhalation No data available.

#### Effects on Humans:

Ingestion N/A.  
Skin Contact N/A.  
Eye Contact N/A.  
Inhalation N/A.  
Chronic toxicity N/A.  
Human experience N/A.

### Basilisk Healing Agent (Poly-lactic acid)

#### Toxicity to Animals:

Ingestion No data available.  
Skin Contact No data available.  
Eye Contact No data available.  
Inhalation No data available.

#### Effects on Humans:

Ingestion No data available.  
Skin Contact No data available.  
Eye Contact No data available.  
Inhalation No data available.  
Chronic toxicity Not a reported carcinogen by IARC, NTP, ACGIH, OSHA.  
Human experience No data available.

## SECTION 12 - ECOLOGICAL INFORMATION

**Ecotoxicity:** MR3 material is considered to be harmless for the environment since MR3 does not contain dangerous substances. MR3 is not recognized for unusual toxicity to plants or animals based on available toxicity data on individual compounds. Any negative environmental effect could be related to the alkaline nature of the product.

**Remark:** For MR3, no product ecotoxicity test results are available.

#### Individual toxicological information of compounds $\geq 0.1\%$ content:

#### Calcium Carbonate

Mobility Inorganic. Slightly soluble in water.  
Persistence and degradability Inorganic. Upon dilution, rapidly decomposes into compounds indistinguishable from natural dissolved magnesium, calcium and silica.  
Bioaccumulation Inorganic. This material shows no bioaccumulation effect or food chain concentration toxicity.

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Ecotoxicity effects                      Because of the elevated pH of this product, it might be expected to produce some ecotoxicity upon exposure to certain aquatic organisms and aquatic systems in high concentrations.

#### Portland Cement

Mobility                                      Soil/ water partition coefficient (Koc): No data available.  
Persistence and degradability        No data available.  
Bioaccumulation                          No data available.  
Ecotoxicity effects                        Toxicity to fish (Chronic NOEC) = 100 mg/L

#### Fly Ash

Mobility                                      Slightly mobile in soil. Possible absorption to  
Persistence and degradability        Biologically or abiotically degradable.  
Bioaccumulation                          The substance has no potential for bioaccumulation.  
Ecotoxicity effects                        N/A.

#### Basilisk Healing Agent (Poly-lactic acid)

Mobility                                      Not available.  
Persistence and degradability        Not available, product is expected to be readily biodegradable.  
Bioaccumulation                          No data available, no bioaccumulation expected.  
Ecotoxicity effects                        No data available.

### SECTION 13 - DISPOSAL CONSIDERATIONS

Do not allow product of large quantities of it to reach ground water, water course or sewage system.

Dispose of waste material according to local, provincial, state, and federal regulations.

### SECTION 14 - TRANSPORT INFORMATION

**Hazardous materials description**    MR3 is not hazardous under EU regulations.

**Hazard Class:**                              IATA: not classified.  
                                                          ADR: not classified.  
                                                          IMO: not classified.

**Identification Number:**                Not applicable.

**Required Label Text:**                    Not applicable.

### SECTION 15 - REGULATORY INFORMATION

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

Not applicable.

#### Chemical Safety Assessment

A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

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**SECTION 16 - OTHER INFORMATION**

**Approval Date or Revision Date:** 05-12-2019  
**Date Of Previous MSDS:** 19-06-2017  
**MSDS Number:** Not applicable

While the information provided in this Material Safety Data Sheet (MSDS) is believed to provide a useful summary of the potential hazards of Basilisk MR3, one cannot anticipate and provide all of the information that might be needed in every situation.

The data listed in this MSDS does not address hazards that may be posed by other materials mixed with MR3. Users of MR3 and mix products should review other relevant material safety data sheets before working with MR3.

The information contained in this MSDS is based on the data available to us at this time, and is believed to be accurate based upon that data. The information herein is given in good faith but no warranty expressed or implied, is made. No representations or warranties with respect to the accuracy or correctness of this information, or of any kind or nature whatsoever are given, made, or intended by Basilisk-Contracting . No legal responsibility whatsoever is assumed for this information, or for any injuries or damages, however caused, which may result from the use of this information. The information contained in this MSDS is offered solely for informational purposes and is subject to your own independent investigation and verification.