

# Safety Data Sheet

according to Regulation (EC) No 1907/2006

## GGBS (Ground Granulated Blastfurnace Slag)

Revision date: 01.02.2017

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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

GGBS (Ground Granulated Blastfurnace Slag)

##### Further trade names

This MSDS covers the following products:

GGBS Normal

GGBS Superfine

REACH Registration Number: 01-2119487456-25-

CAS No: 65996-69-2

EC No: 266-002-0

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

##### Use of the substance/mixture

Additives, additives and binders for concrete, mortar and chemistry products for building industries, soil stabilization and immobilization and other construction products.

PROC 2: Use in closed, continuous process with occasional controlled exposure ,PROC 3: Use in closed batch process (synthesis or formulation) ,PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) ,PROC 7: Industrial spraying ,PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities ,PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities ,PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) ,PROC 10: Roller application or brushing, PROC 11: Non industrial spraying ,PROC 13: Treatment of articles by dipping and pouring ,PROC 19: Hand-mixing with intimate contact and only PPE available, PROC 24: High (mechanical) energy work-up of substances bound in materials and/or articles ,PROC 26: Handling of solid inorganic substances at ambient temperature, ERC 5: Industrial use resulting in inclusion into or onto a matrix , ERC 10a: Wide dispersive outdoor use of long-life articles and materials with low release , ERC 11a: Wide dispersive indoor use of long-life articles and materials with low release

##### Uses advised against

Any uses not listed above.

#### 1.3. Details of the supplier of the safety data sheet

Company name: Ecocem  
Street: F1 East Point Office Park  
Place: Dublin 3, Ireland  
Telephone: +353 16781800  
e-mail: [info@ecocem.ie](mailto:info@ecocem.ie)  
Contact person:  
  
www.ecocem.ie

#### 1.4. Emergency telephone number:

National Poison Centre +353 1809 2166 (mon – fri 08:00 – 22.00)  
+353 1809 2566 (24 Hours)

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Regulation (EC) No. 1272/2008

This substance is not classified as hazardous in accordance with Regulation (EC) No. 1272/2008.

#### 2.2. Label elements

##### Additional advice on labelling

Labelling according to Regulation (EC) No. 1272/2008 [CLP]: none

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#### **2.3. Other hazards**

The product develops an alkaline pH value with moisture and can cause irritation.

### **SECTION 3: Composition/information on ingredients**

#### **3.1. Substances**

##### **Chemical characterization**

Slag in solid form, which is formed from the molten substance by the action of a melting agent on the lode matter of iron-containing materials from a blast furnace. The rapid cooling during the granulation creates glassy Blast Furnace Granules.

##### **Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
65996-69-2	Slags, ferrous metal, blast furnace			100 %
	266-002-0		01-2119487456-25-	

Full text of H and EUH statements: see section 16.

##### **Further Information**

Product does not contain listed SVHC substances > 0,1 % according to Regulation (EC) No. 1907/2006 Article 59 (REACH)

### **SECTION 4: First aid measures**

#### **4.1. Description of first aid measures**

##### **General information**

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

##### **After inhalation**

In case of accident by inhalation: remove casualty to fresh air and keep at rest. In case of respiratory tract irritation, consult a physician.

##### **After contact with skin**

Gently wash with plenty of soap and water. In case of skin irritation, seek medical treatment.

##### **After contact with eyes**

Rinse cautiously with water for several minutes. In case of persistent symptoms, consult an ophthalmologist.

##### **After ingestion**

Rinse mouth thoroughly with water. Drink water in little sips (dilution effect). Do NOT induce vomiting. In all cases of doubt, or when symptoms persist, seek medical advice.

#### **4.2. Most important symptoms and effects, both acute and delayed**

Inhalation of dust/particles: Irritation to respiratory tract. Coughing.

In case of skin contact: mechanical irritation. May cause sensitisation especially in sensitive humans.

Eye contact: Damage can be caused through mechanical influence of the product (eg. sticking).

#### **4.3. Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

### **SECTION 5: Firefighting measures**

#### **5.1. Extinguishing media**



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#### **Suitable extinguishing media**

Product is not flammable. Carbon dioxide (CO<sub>2</sub>). Dry extinguishing powder. alcohol resistant foam. Atomized water.

#### **Unsuitable extinguishing media**

None. Co-ordinate fire-fighting measures to the fire surroundings.

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

GGBS is non combustable and non-explosive. It will not facilitate or sustain the combustion of other materials.

#### **5.3. Advice for firefighters**

Wear a self-contained breathing apparatus and chemical protective clothing.

#### **Additional information**

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.  
Co-ordinate fire-fighting measures to the fire surroundings.

### **SECTION 6: Accidental release measures**

#### **6.1. Personal precautions, protective equipment and emergency procedures**

Ventilate affected area. Avoid generation of dust. Do not breathe dust.  
Wear personal protection equipment (refer to section 8).

#### **6.2. Environmental precautions**

Leaks may be protected against wind drifts with a tarpaulin. Discharge into the environment must be avoided.

#### **6.3. Methods and material for containment and cleaning up**

Use approved industrial vacuum cleaner for removal. (High efficiency particulate air filter (HEPA filter).)  
If vacuuming is not possible, knock down dust with water spray jet. Take up mechanically. Prevent the risk of slipping.  
Treat the recovered material as prescribed in the section on waste disposal.

#### **6.4. Reference to other sections**

Safe handling: see section 7  
Personal protection equipment: see section 8  
Disposal: see section 13

### **SECTION 7: Handling and storage**

#### **7.1. Precautions for safe handling**

##### **Advice on safe handling**

Wear personal protection equipment (refer to section 8). Do not breathe dust.

##### **Advice on protection against fire and explosion**

Usual measures for fire prevention.

##### **Further information on handling**

Avoid generation of dust.  
General protection and hygiene measures: refer to chapter 8

#### **7.2. Conditions for safe storage, including any incompatibilities**

##### **Requirements for storage rooms and vessels**

Keep container tightly closed. Keep the packing dry and well sealed to prevent contamination and absorption of humidity.

##### **Advice on storage compatibility**

Do not store together with: Explosives. Oxidizing solids. Oxidizing liquids. Radioactive substances. Infectious substances, food and animal feeding stuff.

##### **Further information on storage conditions**

Recommended storage temperature: 20°C  
Protect against: moisture.

#### **7.3. Specific end use(s)**

refer to chapter 1.

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#### SECTION 8: Exposure controls/personal protection

##### 8.1. Control parameters

###### PNEC values

CAS No	Substance	
	Environmental compartment	Value
65996-69-2	Slags, ferrous metal, blast furnace	
	Freshwater	5000 mg/l
	Marine water	500 mg/l
	Micro-organisms in sewage treatment plants (STP)	10000 mg/l
	Soil	1000 mg/kg

##### 8.2. Exposure controls



###### Appropriate engineering controls

Dust should be exhausted directly at the point of origin.

###### Protective and hygiene measures

Always close containers tightly after the removal of product. When using do not eat, drink, smoke. Wash hands before breaks and after work.

###### Eye/face protection

Dust protection goggles.

###### Hand protection

In case of prolonged or frequently repeated skin contact:

Wear suitable gloves.

Suitable material:

FKM (fluororubber). - Thickness of glove material: 0,4 mm

Breakthrough time  $\geq$  8 h

Butyl rubber. - Thickness of glove material: 0,5 mm

Breakthrough time  $\geq$  8 h

CR (polychloroprenes, Chloroprene rubber). - Thickness of glove material: 0,5 mm

Breakthrough time  $\geq$  8 h

NBR (Nitrile rubber). - Thickness of glove material: 0,35 mm

Breakthrough time  $\geq$  8 h

PVC (Polyvinyl chloride). - Thickness of glove material: 0,5 mm

Breakthrough time  $\geq$  8 h

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Before using check leak tightness / impermeability. In the case of wanting to use the gloves again, clean them before taking off and air them well.

###### Skin protection

Suitable protective clothing: Protective clothing.

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500.

###### Respiratory protection

With correct and proper use, and under normal conditions, breathing protection is not required.

Respiratory protection necessary at:

-Generation/formation of dust



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-exceeding exposure limit values

Suitable respiratory protective equipment: particulates filter device (DIN EN 143). Type P1-3

The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, closed-circuit breathing apparatus must be used!

Half-face mask or quarter facepiece: maximum use concentration for substances with exposure limits: P1 filter: up to a max. of 4 times the exposure limit. P2 filter: up to a max. of 10 times the exposure limit. P3 filter: up to a max. of 30 times the expo Full-face mask or mouthpiece with particulate filter: maximum use concentration for substances with exposure limits: P1 filter: up to a max. of 4 times the exposure limit. P2 filter: up to a max. of 15 times the exposure limit. P3 filter: up to a max. of

#### Environmental exposure controls

No special precautionary measures are necessary.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state: Powder , solid  
Colour: white - light grey  
Odour: characteristic

#### Test method

pH-Value: > 11,5 (in aqueous solution)

#### Changes in the physical state

Melting point: Not Applicable  
Initial boiling point and boiling range: Not Applicable  
Sublimation point: Not Applicable  
Softening point: Not Applicable  
Pour point: Not Applicable  
Flash point: Not Applicable  
Sustaining combustion: Will not sustain combustion

#### Explosive properties

none

Lower explosion limits: Not Applicable  
Upper explosion limits: Not Applicable  
Ignition temperature: Not Applicable

#### Auto-ignition temperature

Solid: Not Applicable

Decomposition temperature: Not Applicable

#### Oxidizing properties

none

Vapour pressure: Not Applicable

Density: 2,85-2,95 g/cm<sup>3</sup>

Bulk density: 0.90 – 1.2

Water solubility: 0,10 - 0,15 g/L

#### Solubility in other solvents

not determined

Partition coefficient: Not Applicable

Viscosity / dynamic: Not Applicable

Viscosity / kinematic: Not Applicable

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Flow time: Not Applicable

Vapour density: Not Applicable

#### 9.2. Other information

Solid content: Not Applicable

Granulometry:

GGBS Normal: 1 - 60 µm

GGBS Superfine: 0,1 - 40 µm

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No information available.

#### 10.2. Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature.

#### 10.3. Possibility of hazardous reactions

The product develops hydrogen in an aqueous solution in contact with metals.

#### 10.4. Conditions to avoid

Protect against: moisture.

#### 10.5. Incompatible materials

Materials to avoid: Oxidizing agents, strong. Reducing agents, strong. Acid. Light metal. (Aluminium. ) ammonium salts. ( Release of: Ammonia.)

#### 10.6. Hazardous decomposition products

As in case of all fire: Can be released in case of fire: Carbon monoxide. Carbon dioxide (CO<sub>2</sub>).

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

##### Toxicokinetics, metabolism and distribution

No data available.

##### Acute toxicity

Based on available data, the classification criteria are not met.

No data available.

CAS No	Chemical name			
	Exposure route	Dose	Species	Source
65996-69-2	Slags, ferrous metal, blast furnace			
	oral	LD50 >2000 mg/kg	Rat	ECHA Dossier
	dermal	LD50 >4000 mg/kg	Rat	ECHA Dossier
	inhalative (4 h) aerosol	LC50 >5,23 mg/l	Rat	ECHA Dossier

##### Irritation and corrosivity

Based on available data, the classification criteria are not met.

No data available.

##### Sensitising effects

Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation:

Method: OECD Guideline 406

Result / evaluation: no danger of sensitization.

##### Carcinogenic/mutagenic/toxic effects for reproduction

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Based on available data, the classification criteria are not met.  
 In-vitro mutagenicity: negative. ; literature information ECHA Dossier  
 In-vivo mutagenicity: negative. ; literature information ECHA Dossier  
 No evidence for reproductive toxicity in experimental animals.  
 No evidence for: Carcinogenicity.

#### STOT-single exposure

Based on available data, the classification criteria are not met.  
 No data available.

#### STOT-repeated exposure

Based on available data, the classification criteria are not met.  
 Subchronic inhalation toxicity :  
 Method: OECD Guideline 412 (Repeated Dose Inhalation Toxicity: 28/14-Day)  
 Species: Rat. ; Exposure duration: 28 d  
 Result: NOAEC = 24.9 mg/m<sup>3</sup>; literature information: ECHA Dossier

#### Aspiration hazard

Based on available data, the classification criteria are not met.  
 No data available.

#### Specific effects in experiment on an animal

No data available.

## SECTION 12: Ecological information

### 12.1. Toxicity

No data available.

CAS No	Chemical name				
	Aquatic toxicity	Dose	[h]   [d]	Species	Source
65996-69-2	Slags, ferrous metal, blast furnace				
	Acute fish toxicity	LC50 >100000 mg/l	96 h	Leuciscus idus	ECHA Dossier
	Acute algae toxicity	ErC50 >100000 mg/l	72 h	Desmodesmus subspicatus	ECHA Dossier
	Acute crustacea toxicity	EC50 >100000 mg/l	48 h	Daphnia magna	ECHA Dossier
	Crustacea toxicity	NOEC >= 1563 mg/l	21 d	Daphnia magna	ECHA Dossier

### 12.2. Persistence and degradability

No data available.

### 12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

#### BCF

CAS No	Chemical name	BCF	Species	Source
65996-69-2	Slags, ferrous metal, blast furnace	10	algae	ECHA Dossier

### 12.4. Mobility in soil

No data available.

### 12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

### 12.6. Other adverse effects

No data available.

### Further information

Do not allow to enter into surface water or drains.



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#### SECTION 13: Disposal considerations

##### 13.1. Waste treatment methods

###### **Advice on disposal**

Observe in addition any national regulations! Consult the local waste disposal expert about waste disposal.

Non-contaminated packages may be recycled.

According to EAKV, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.

Control report for waste code/ waste marking according to EAKV:

###### **Waste disposal number of waste from residues/unused products**

100202 WASTES FROM THERMAL PROCESSES; wastes from the iron and steel industry; unprocessed slag

###### **Waste disposal number of used product**

100202 WASTES FROM THERMAL PROCESSES; wastes from the iron and steel industry; unprocessed slag

###### **Waste disposal number of contaminated packaging**

150106 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); mixed packaging

###### **Contaminated packaging**

Handle contaminated packages in the same way as the substance itself.

#### SECTION 14: Transport information

##### **Land transport (ADR/RID)**

**14.1. UN number:** Not restricted

**14.2. UN proper shipping name:** Not restricted

**14.3. Transport hazard class(es):** Not restricted

**14.4. Packing group:** Not restricted

##### **Inland waterways transport (ADN)**

**14.1. UN number:** Not restricted

**14.2. UN proper shipping name:** Not restricted

**14.3. Transport hazard class(es):** Not restricted

**14.4. Packing group:** Not restricted

##### **Marine transport (IMDG)**

**14.1. UN number:** Not restricted

**14.2. UN proper shipping name:** Not restricted

**14.3. Transport hazard class(es):** Not restricted

**14.4. Packing group:** Not restricted

##### **Air transport (ICAO-TI/IATA-DGR)**

**14.1. UN number:** Not restricted

**14.2. UN proper shipping name:** Not restricted

**14.3. Transport hazard class(es):** Not restricted

**14.4. Packing group:** Not restricted

##### **14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: no



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#### **14.6. Special precautions for user**

refer to chapter 6-8

#### **14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

not relevant

### SECTION 15: Regulatory information

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

##### **EU regulatory information**

2010/75/EU (VOC):	0 % (estimated)
2004/42/EC (VOC):	0 g/L (estimated)
Information according to 2012/18/EU (SEVESO III):	Not subject to 2012/18/EU (SEVESO III)

##### **Additional information**

This substance is classified as not hazardous according to regulation (EC) No. 1272/2008 [CLP].  
REACH 1907/2006 Appendix XVII: not relevant

##### **National regulatory information**

Water contaminating class (D): - - not water contaminating

#### **15.2. Chemical safety assessment**

For this substance a chemical safety assessment has been carried out.

### SECTION 16: Other information

#### **Changes**

Rev. 1.0; Initial release 01.02.2016

#### **Abbreviations and acronyms**

ADR: Accord européen sur le transport des marchandises dangereuses par Route  
CAS Chemical Abstracts Service  
DNEL: Derived No Effect Level  
IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER  
International Carriage of Dangerous Goods by Road  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
ICAO: International Civil Aviation Organization  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)  
LOAEL: Lowest observed adverse effect level  
LOAEC: Lowest observed adverse effect concentration  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
NOAEL: No observed adverse effect level  
NOAEC: No observed adverse effect level  
NTP: National Toxicology Program  
N/A: not applicable  
OSHA: Concerning the International Transport of Dangerous Goods by Rail  
PNEC: predicted no effect concentration  
PBT: Persistent bioaccumulative toxic  
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail )  
SARA: Superfund Amendments and Reauthorization Act



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SVHC: substance of very high concern  
TRGS Technische Regeln für Gefahrstoffe  
TSCA: Toxic Substances Control Act  
VOC: Volatile Organic Compounds  
VwVwS: Verwaltungsvorschrift wassergefährdender Stoffe  
WGK: Wassergefährdungsklasse

#### Further Information

Classification according EC regulation 1272/2008 (CLP): - Classification procedure:  
Health hazards: Calculation method.  
Environmental hazards: Calculation method.  
Physical hazards: On basis of test data. and / or calculated and / or estimated.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

#### Identified uses

No	Short title	SU main	SU	PC	PROC	ERC	AC	Specification
1	Additives, additives and binders for concrete, mortar and chemistry products for building industries, soil stabilization and immobilization and other construction products.	-	-	-	2, 3, 5, 7, 8a, 8b, 9, 10, 11, 13, 19, 22, 26	5, 11a	-	

SU main: Main user groups

PC: Product categories

ERC: Environmental release categories

SU: Sectors of use

PROC: Process categories

AC: Article categories