

Safety Data Sheet Stonegrit

Trade Name: Stonegrit
Grades: Coarse, Fine and Extrafine
Original Issue Date: September 2003 (as MSDS 33)
This Issue: February 2016

SECTION 1:

Identification of the substance/mixture and of the company/undertaking

1.1 **Product Identifier:** Granulated blast furnace slag (GBFS)
Product Description: This product consists of a glassy granular material formed when molten blast-furnace slag is rapidly chilled, as by immersion in water.
Chemical Family: Amorphous silica; Fused mineral composite
EC No: 266-002-0
CAS: 65996-69-2

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

Product use: Blast cleaning abrasive

Granulated blast-furnace slag is a co-product of the steel industry produced by adding a limestone flux to the ore to remove non-ferrous components. As such, it may contain small quantities of hazardous heavy metals, including trace amounts of chromium, usually in solution in the glass. Although this material is not listed as a carcinogen, it does contain slight quantities of titanium in complexes, as well as, crystalline silica. Crystalline silica has been classified by IARC and NTP as a known human carcinogen. Hexavalent chromium is listed by IARC, EPA, NTP and OSHA as a known human carcinogen. When finely ground, it is referred to a ground granulated blast furnace slag (GGBFS).

1.3 Details of supplier of the safety data sheet

Hodge Clemco Ltd, Orgreave Drive, Sheffield S13 9NR, U.K.

Email address of person: sales@hodgeclemco.co.uk (Steve Robertson)

Emergency telephone number of the supplier

Telephone number: +44(0)114 254 8811
Hours of operation: Mon – Fri 08.30 – 1700

SECTION 2: Hazards Identification

2.1 Classification of substance or mixture

Classification according to Regulation (EC) No. 1272/2008 (which replaces Directive 67/548/EC (DSD))

Classification: Not classified. GBFS does not meet the criteria for classification in accordance with the regulations EC1272/2008. No special conditions are therefore needed. Risk management measures due to the potential occurrence of hazardous dusts during use as an abrasive may be needed.

2.2 Label Elements

Labelling according to Regulation (EC) No 1272/2008 (which replaces Directive 67/548/EC (DSD))

None

2.3 Other hazards

The substance does not meet the criteria for a PBT or vPvB substance
Use of this material may generate dust so risk management measures may be needed

Emergency overview

GBFS is comprised of sand-sized granules. A single short-term exposure to these materials is not likely to cause serious harm. However, exposure to the material when wet can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns. The same type of tissue destruction can occur if wet or moist areas of the body are exposed for sufficient duration to these materials by chemical (caustic) burns or an allergic reaction.

Potential Health Effects

- *Relevant Routes of Exposure* Eye contact, skin contact, inhalation, and ingestion
- *Effects resulting from eye contact:* Exposure to airborne dust may cause immediate or delayed irritation or inflammation. Eye contact with larger amounts of dry powder or splashes of these wet materials may cause effects ranging from moderate eye irritation to chemical burns and blindness. Such exposures require immediate first aid. (See section IV) and medical attention to prevent significant damage to the eye.
- *Effects resulting from skin contact:* Discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. Consequently, the only effective means of avoiding skin injury or illness involves minimising skin contact, particularly contact with wet GBFS. Exposed persons may not feel discomfort until hours after the exposure has ended and significant injury has occurred.

Exposure to dry GBFS may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Dry GBFS contacting wet skin or exposure to moist or wet GBFS may cause more severe skin effects including thickening, cracking or fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns.

Some individuals may exhibit an allergic response (e.g. allergic contact dermatitis) upon exposure to GBFS, possibly due to trace amounts of chromium. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers. Persons already sensitised may react to the first contact with the product. Other persons may experience this effect after years of contact with GBFS products.

- *Effects resulting from inhalation:* GBFS contains small amounts of free crystalline silica. Prolonged exposure to respirable free silica can aggravate other lung conditions and cause silicosis, a disabling and potentially fatal lung disease and/or other diseases.

- Risk of injury or disease depends on duration and degree of exposure. (See also "Carcinogenic potential" below). Exposure to GBFS may cause irritation to the mucous membranes of the nose, throat and upper respiratory system. It may also leave unpleasant deposits in the nose.
- *Effects resulting from ingestion:* Although small quantities of dust are not known to be harmful, ill effects are possible if larger quantities are consumed. GBFS should not be eaten.
- *Carcinogenic potential:* NTP, OSHA or IARC have not listed GBFS as a carcinogen. It may, however, contain trace amounts of substances listed as carcinogens by these organisations. Crystalline silica, which is present in GBFS in small amounts, has been listed by IARC and NTP as a known human carcinogen (Group 1) through inhalation. Hexavalent chromium is listed by IARC, EPA, NTP and OSHA as a Group 1 known carcinogen by inhalation.
- *Medical conditions which may be aggravated by inhalation or dermal exposure*
 - Pre-existing upper respiratory and lung diseases
 - Unusual (hyper) sensitivity to hexavalent chromium (chromium ⁺⁶) salts.

SECTION 3: Composition/information on ingredients

Component	CAS No.	EH40/2005 WELs	OSHA PEL (8-hour TWA)	ACGIH TLV-TWA (2002)
Granulated blast-furnace slag	65996-69-2		15 mg/m ³ (total dust); 5mg/m ³ (respirable dust)	10 mg/m ³ (total dust); 3mg/m ³ (respirable dust)
Amorphous silica	7631-86-9	TWA 6mg/m ³ 8 hr (inhalable) TWA 2.4mg/m ³ 8 hr (respirable)	(80 mg/m ³) /(percent silica)	10 mg/m ³
Crystalline Silica (Quartz) *	14808-60-7	TWA 0.1mg/m ³ 8 hr (respirable)	10 mg/m ³ (respirable dust) /(percent silica + 2) 30 mg/m ³ (total dust) /(percent silica + 2)	0.10 mg/m ³ (respirable quartz)

*NIOSH REL (8-hour TWA) = 0.05 mg/m³ (respirable quartz)

Trace constituents: GBFS or granulated blast-furnace slag is a co-product of the steel industry produced by adding a limestone flux to the ore to remove non-ferrous contaminants. As such, it may contain small quantities of hazardous heavy metals, including trace amounts of chromium, usually in solution in the glass. Although this material is not listed as a carcinogen, it does contain slight quantities of titanium in complexes, as well as, crystalline silica. Crystalline silica has been classified by IARC and NTP as a known human carcinogen. Hexavalent chromium is listed by IARC, EPA, NTP and OSHA as a known human carcinogen inhalation. When finely ground, it is referred to as ground granulated blast-furnace slag (GGBFS).

SECTION 4: First Aid Measures

4.1 Description of First Aid Measures

Eyes: Immediately flush eyes thoroughly with water. Continue flushing eye for at least 15 minutes, including under lids, to remove all particles. Call physician immediately.

Skin: Wash skin with cool water and pH-neutral soap or a mild detergent. Seek medical treatment in all cases of prolonged exposure to wet GBFS, wet cement mixtures, wet concrete liquids from fresh GBFS products, or prolonged wet skin exposure to dry GBFS.

Inhalation of Airborne Dust: Remove to fresh air. Seek medical help if coughing or other symptoms do not subside. (Inhalation of gross amounts of GBFS requires immediate medical attention.)

Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

4.2 Indication of any immediate medical attention and special treatment needed.

Notes for the doctor. Treat symptomatically.

SECTION 5: Fire Fighting Measures

5.1 Extinguishing media

The product is non-combustible. Use an extinguishing agent appropriate to the surrounding materials.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: None

5.3 Advice for fire-fighters

Wear self-contained breathing apparatus and protective clothing

SECTION 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Avoid breathing dust. Use appropriate personal protective equipment.

6.2 Environmental precautions

Make sure spills can be contained. Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

6.3 Methods and material for containment and clean-up

Ventilate the area thoroughly. Vacuum or sweep up material and place in a suitable container for re-cycling or disposal. Allow to dry before disposal.

6.4 References to other sections

Section 1 for emergency contact information

Section 8 for information on personal protective equipment

Section 13 for Waste Disposal

SECTION 7: Handling and Storage

7.1 Precautions for safe handling

GBFS is not classified and no protective measures are needed for safe handling. Keep dry until used. Prevent formation of dust. Use only in well ventilated areas. Wear personal protective clothing. Wash hands and face before breaks and after work, especially after exposure to wet GBFS and dust.

7.2 Conditions for safe storage including any incompatibilities

Keep dry. No other special requirements.

7.3 Specific end uses

Abrasive blast cleaning may fracture the product and generate dust. Ventilate work area in vicinity of operator

SECTION 8: Exposure Controls/Personal Protection

8.1 Control parameters of relevance to industrial settings (occurrence of dusts, mists and fumes)

Silica – amorphous. No free silica	TWA 6 mg/m ³ (inhalable) TWA 2.4 mg/m ³ (respirable)
---------------------------------------	---

8.1.2 PNECs and DNELs

Not available for the substance. The PNECs and DNELs of the elemental constituents apply.

8.2 Exposure controls for industrial settings

8.2.1. Appropriate Engineering Controls

Use process enclosures, local exhaust ventilation or other engineering controls to keep exposure to below any recommended or statutory limits. For storage and handling, general ventilation is adequate.

8.2.2 Personal Protective Equipment

Skin Protection: Prevention is essential to avoid potentially severe skin injury. Avoid contact with unhardened wet products. If contact occurs, promptly wash affected area with soap and water. Where prolonged exposure to unhardened GBFS products might occur, wear impervious clothing and gloves to prevent skin contact. Where required, wear sturdy boots that are impervious to water to eliminate foot and ankle exposure. Do not rely on barrier creams; barrier creams should not be used in place of impervious gloves and clothing. Periodically wash areas contacted by dry GBFS or wet GBFS with a pH-neutral soap. Wash again at the end of the work. If irritation occurs, immediately wash the affected area and seek treatment. If clothing becomes saturated with GBFS, it should be removed and replaced with clean, dry clothing.

Respiratory protection: Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits. Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation. (Advisory: Respirators and filters purchased after July 10, 1998, must be certified under 42 CFR 84.)

Ventilation: Use local exhaust or general dilution ventilation to control exposure within applicable limits.

Eye Protection: In conditions where user may be exposed to splashes or puffs of GBFS wear safety glasses with side shields or goggles. In extremely or unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with GBFS or fresh cement products.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<i>Appearance:</i>	Solid angular particles
<i>Colour:</i>	Brown
<i>Odour</i>	No distinct odour
<i>Odour threshold:</i>	Not applicable
<i>pH in water:</i>	10.5 to 12.7
<i>Melting point:</i>	1300-1350°C
<i>Initial boiling point and range:</i>	Not applicable i.e. >1000°C
<i>Flash Point:</i>	Not applicable
<i>Evaporation Rate:</i>	Not applicable
<i>Flammability (solid/gas):</i>	Non-flammable
<i>Upper/lower flammability or explosive limits</i>	Not applicable
<i>Vapour pressure:</i>	Not applicable
<i>Vapour density:</i>	Not applicable
<i>Relative Density (ref water at 20°C)</i>	2.7 – 3.1
<i>Solubility:</i>	Slightly (0.1 to 1.0%)
<i>Auto-ignition temperature:</i>	Not applicable
<i>Explosive properties:</i>	Non explosive
<i>Oxidising properties:</i>	Non oxidising

9.2 Other information

Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity	Not applicable. See Section 9.
10.2 Chemical stability	Stable under normal conditions
10.3 Possibility of hazardous reactions	No hazardous reactions known
10.4 Conditions to avoid	Avoid dust formations and contact with water
10.5 Incompatible materials	Acids
10.6 Hazardous decomposition products	Will not spontaneously occur. Adding water

10.7 Hazardous polymerisation

produces (caustic) calcium hydroxide as a result of hydration
Will not occur

SECTION 11: Toxicological information

Non-toxic

SECTION 12 Ecological information

Ecotoxicity: No recognised unusual toxicity to plants or animals

Relevant physical and chemical properties: See Sections 9 & 10

SECTION 13: Disposal considerations

The abrasive must be disposed of in accordance with national legislation (See Section 16) and local regulations. The material as supplied is classed as a non-hazardous inert solid waste, European Waste Catalogue (EWC 2002) 10 02 02 (blast furnace slags from iron/steel production). Spent abrasive used as a blasting medium must be disposed of under classification 12 01 16 (waste blasting material containing dangerous substances) or 12 01 17 (waste blasting material other than those mentioned in 12 01 16). The waste producer must determine if hazardous substances in the coating being removed are likely to cause the waste to be hazardous.

SECTION 14: Transport information

14.1 UN number

Not applicable

14.2 UN proper shipping name

Not applicable

14.3 Transport hazardous classes

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not applicable

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of MARPOL and the IBC code

Not applicable

SECTION 15: Regulatory Information

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

The product is not subject to identification regulations under EC Directives

SECTION 16: Other information

Abbreviations and acronyms:

ACGIH	- American Conference of Governmental Industrial Hygiene
CAS	- Chemical Abstracts Service number
CLP	- Classification, Labelling and Packaging Regulation (Regulation (EC) No. 1272/2008)
DNEL	- Derived No-effect Level
EC	- European Commission
EC No.	- European Chemical number (replaces EINECS, ELINCS or NLP)
ECHA	- European Chemicals Agency
IARC	-International Agency for Research on Cancer
NTP	-National Toxicology Program (US Department of Health and Hygiene)
PNEC	-Predicted No Effect Concentration

GBFS should only be used by knowledgeable persons. While the information provided in the material safety data sheet is believed to provide a useful summary of the hazards of GBFS as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product.

A key to using the product safely requires the user to recognize that GBFS chemically reacts with water, and that some of the intermediate products of this reaction pose a more severe hazard than does GBFS itself. These hazards include potential injuries to eyes and skin.

The data furnished in this sheet do not address hazards that may be posed by other materials mixed with GBFS to produce GBFS products. Users should review other relevant material safety data sheets before working with this GBFS or with GBFS products, including, for example, concrete containing GBFS.

SELLER MAKES NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THERE OF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY HODGE CLEMCO LTD., EXCEPT THAT THE PRODUCT SHALL CONFORM TO CONTRACTED SPECIFICATIONS.