

Hanson REGEN GGBS

Technical Data Sheet



Hanson REGEN Ground Granulated Blastfurnace Slag (GGBS) is manufactured to comply with the requirements of BS EN 15167. Regen GGBS is a Type II addition which is manufactured from slag, a by-product of the iron-making industry. REGEN GGBS helps reduce embodied CO₂ and increases durability of concrete.

APPLICATIONS

Hanson REGEN GGBS is suitable for use in concrete, mortar and grouting applications. Examples of applications are ready mixed concrete, soil stabilisation, mortar, precast concrete, paving, street furniture and other specialist applications.

QUALITY

Hanson REGEN GGBS is produced using carefully selected raw materials. Strict quality control throughout the manufacturing process ensures that a consistent final product is achieved.

Hanson REGEN GGBS is UKCA marked in accordance with Construction Products Regulation (Amendment etc.) (EU Exit) Regulations 2020, which provides independent third-party certification of product conformity.

Continual statistical quality control of REGEN GGBS is based on the testing of autocontrol samples taken regularly at each of the GGBS manufacturing works.

Hanson REGEN GGBS is suitable for use in combination with cements such as CEM I and CEM II/A-LL and a wide range of additives or admixtures can be used to extend or enhance the properties and uses of concretes and grouts.

DATA AND CERTIFICATION

Hanson Technical Services provide current data and routine certification of test results for all essential characteristics including compressive strength of mortar prisms, fineness, setting times, soundness, and chemical composition. These certificates are available online at [hanson.co.uk](https://www.hanson.co.uk).

SETTING and STRENGTH

Hanson REGEN GGBS is a latent hydraulic binder which requires for its activation the alkali environment provided by cement when water is added to the mix. A slower reaction results in an extended setting time and lower compressive strength at 1, 3, and 7 days but typically can achieve parity at 50% replacement levels when compared to an equivalent CEM I concrete.

It is recommended that trial mixes are carried out to determine optimum proportions whilst adhering to the requirements of BS EN 206 and BS 8500 to ensure that correct maximum replacement levels are used for the appropriate design chemical class or exposure condition and strength requirement.

Optimum performance in terms of strength and durability is achieved in concrete when the water/cement ratio is kept as low as possible, together with ensuring satisfactory placing and thorough compaction. Other factors affecting strength include conditions of curing as well as the individual properties of the constituent materials and their proportions in the mix.

In hot weather and mass concrete pours REGEN GGBS reduces the heat of hydration helping to reduce the occurrence of early age thermal cracking if good practices are followed.

CONCRETE MIX DESIGN

Concrete mix designs need to be adapted to suit individual circumstances. It is strongly recommended that trial mixes are carried out prior to commencement of work to ensure that the mix design and material combinations meet the requirements of the specification and method of use.

Please refer to current standards and recommendations for the manufacture of concretes, mortars and grouts.

The general principles of concrete mix design using Hanson REGEN GGBS are similar to those when using CEM I cement only. However, some modifications to mix design may be helpful to achieve the full benefit of its properties.

While the chemical resistance of products incorporating Hanson REGEN GGBS is enhanced, the same general considerations as for a CEM I mix to achieve good durability still apply, i.e. total cementitious powder content, supplementary additions like Silica Fume, water/cement ratio, compaction and curing.

CURING METHODS

The term curing refers to methods to prevent loss of moisture from exposed surfaces of concrete in the first seven days after casting. The following are the most common methods.

- Covering with impermeable sheeting ensuring that the edges are held down
- Covering with wet sacking (this must be kept wet by spraying with clean water)
- Ponding with clean water
- Spraying with a proprietary curing membrane preferably pigmented to ensure full coverage

ADMIXTURES

Admixtures such as air-entraining agents and workability aids are compatible with Hanson REGEN GGBS and cement, although reference should be made to BS 8500. It is recommended that trial mixes are carried out to verify performance of any admixtures

AVAILABILITY

Hanson REGEN GGBS is available nationwide, with production sites at Purfleet, Port Talbot, and Teesside along with distribution depots at Glasgow and Teignmouth.

PRODUCT DECLARATION

The table below provides a generic summary product declaration for Regen GGBS. Individual declarations for the products of each of the three production sites can be found on Hanson's website, hanson.co.uk.

Essential Characteristics	Performance	Designated Technical Specification
Compressive Strength (Activity Index)	Pass	EN 15167-1:2006
Initial Setting Time	Pass	
Fineness	Pass	
Composition-Magnesium Oxide	Pass	
Composition-Sulfide	Pass	
Composition-Sulfate	Pass	
Composition-Loss on Ignition	Pass	
Composition-Chloride	Pass	
Composition-Moisture	Pass	
Durability	NPD	
Release of dangerous substances and emissions of radioactivity	NPD	

MANAGEMENT SYSTEMS

Hanson Cement are approved to the following management systems.

ISO 9001 – Quality management

ISO 14001 – Environmental management

ISO 45001 – Occupational Health and Safety Management

BES 6001 – Responsible Sourcing of Construction Products

ISO 50001 – Energy Management

CONDITIONS OF USE

- Methods to prevent loss of moisture from exposed surfaces of concrete, known as curing, should be employed for at least the first seven days after casting.
- As a general rule, concrete should be placed within the range of 10°C to 30°C.
- In cold weather, freshly poured concrete should be protected against frost to avoid damage.
- In hot weather and mass concrete pours there is increased risk of loss of water by evaporation, cracking caused by thermal stresses and reduced ultimate strength.
- Hanson cement cannot be held responsible for poor workmanship.
- Although a lighter colour will be produced, due to the nature of raw materials colour cannot be guaranteed.

TECHNICAL SUPPORT

For further advice please contact Hanson Cement's Technical Helpline on 0330 123 2441.

HEALTH AND SAFETY

Please refer to Material Safety Data Sheet for full information.

For further information contact:

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