

**Support pack pre-stressing
Non-Weeping system**

Lokpak consists of a dry pre-bagged grout. The grout is a blend of cementitious powders that will absorb up to 2,5 times their mass of water. Two types of Lokpak are available: *non-seismic* grout with a minimum strength of 4MPa, and a *seismic* grout with a minimum strength of 6MPa

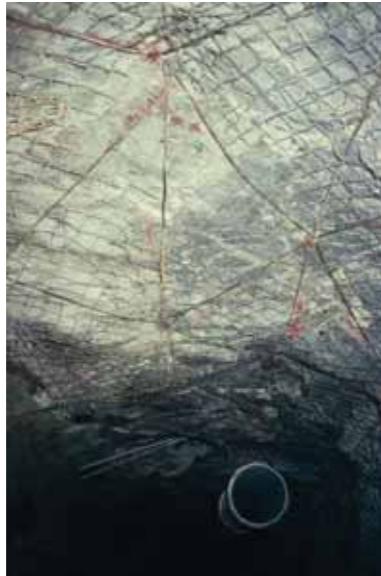
Weeping system

The weeping system comprises of a dry pre-bagged grout that can be both sand and pozzolan based. **Blokpak** grout consist of special cementitious components and specially graded sands.

Novax consist of a blend of special cementitious and pozzolanic components. Both products are batched and packaged to **SABS ISO 9001:2000** quality assurance standards.

Roofbolt grouts

Available in various set times to suit the safety requirements of mines. These are normally fast - <6 hours, medium - <8 hours and standard - 24 hours. These times relate to the time before a proof load can be applied to a standard Y16 Re-bar shepherds crook grouted into rock. Technicrete offers these grouts in a pumpable form to ensure the hole is completely filled.



The cube strength of these grouts tested according to SABS 869 are typically:-

HT33 Binder and grout blends

This is a unique cementitious product with extraordinary flow properties and long term strength gain. The HT33 can be supplied as a premixed pumpcrete ideal for pumping as a structural mix into difficult areas such as Box Fronts, or as a fine grout for consolidation of loose material. The HT33 is easily converted into a foam product suitable for mixing into a tailings mix for stope support as a yielding grout pack.



Void filling

Voidcrete grouts are a special blend of Rapid Hardening Cement and chemical additives that provides a self-foaming cement which only requires pumping through conventional mixer pumps, without special foaming machines being required.

The typical yield of Voidcrete is more that 6 litres of foam per kilogram.



Quality

All products are manufactured according to the SABS ISO 9001: 2000 quality assurance program. Daily tests are carried out on all products supplied, and these records are open to inspection by mine quality officers. Test are also carried out on all materials used in the manufacture of our products to ensure compliance with SABS specifications.

- Benefits of Pre-bagged material**
- More cost effective than loose materials
 - A correct mix design for the project without guesswork
 - Easy transportation and handling of materials
 - Quality assured performance by an independent testing authority
 - Consistent performance of final material throughout the project
 - Bags can be neatly stacked against side walls to allow cars to pass unobstructed
 - Packaged for underground use so cement cannot harden whilst in storage
 - Manufactured in close proximity to the mines for good economy
 - On site training is available – especially for the more specialized products

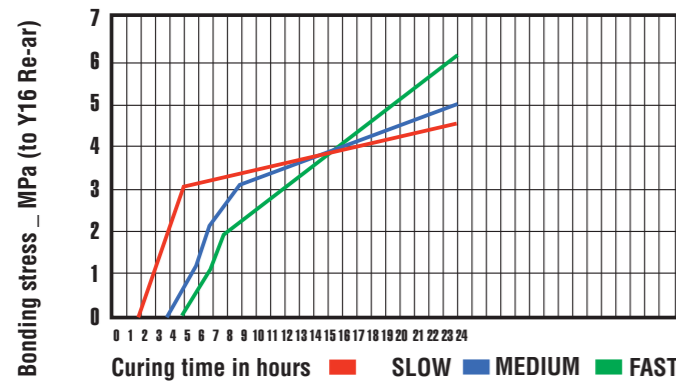
TECHNICRETE PreBagged products

Premix



Roofbolt Grout

Initial Bonding Strength Gain over the first 24 hours



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Concrete PreBagged products

Cost effective, quality assured pre-bagged products designed to offer an all-in-one solution such as concrete in various strength grades, high abrasion resistant concrete, pumpable concrete and special grouts, which can be tailor-made for specific situations.

In addition, technical advice on the correct product and methods for specialised projects to suit the client's requirements is offered.

The bags contain the correct blend of aggregates and a sachet of cement. The stone and sand are of the correct type and quality with regard to crushing strength, absorption values and grading.

The selection and quantity of all components is selected according to SABS specifications to provide a consistent and reliable concrete. The standard concrete products are 25MPa and 40MPa mixes with other strengths available to 60MPa or higher to suit special requirements.



Factors affecting the strength of concrete

Water/Cement ratio: The more water that is added to the cement will weaken the final strength. Add as little water to the mix as is practical.

Compaction: When the concrete is in the shutter, the air must be worked out. This is ideally done by poker vibrator or by working the wet concrete vigorously with tamping rods or shovels. A 5% air content in concrete can reduce its strength by up to 35%.

Mixing: The purpose of a correct mix design is to provide a homogeneous mass of consistent strength. A job that has zones of weakness within the mass can cause dramatic failure of the structure. Ideally a mechanical mixer should be used.

Curing: All concrete must be cured for a suitable time before the structure is loaded. Curing must take place in moist conditions, ideally under plastic sheeting or in high humidity conditions to prevent premature drying of the concrete.

Cement type: Concrete made with extenders such as fly ash or slag requires more attention to curing than pure Portland cement

The mix design and materials used in our bagged concrete ensures that performance is kept to optimal levels.

Applications

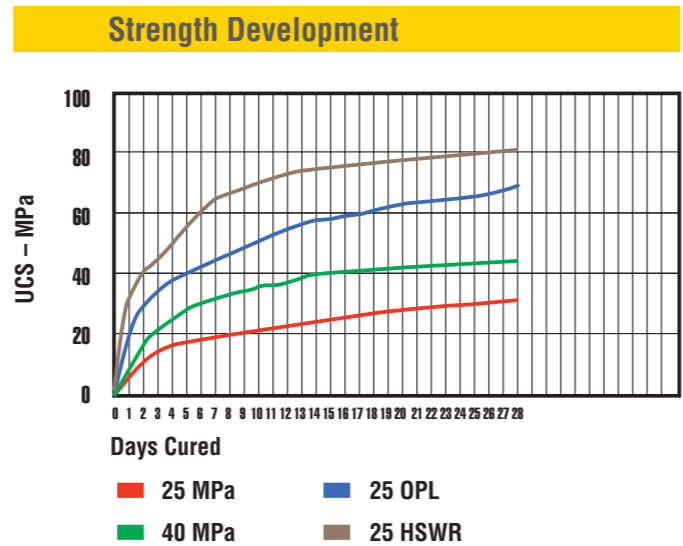
The pre-bagged concrete mixes are typically used for the construction of dams, floors, box fronts, drains, sumps, foundations to machinery etc.

Product available

- 40MPa Concrete
- 25MPa Concrete
- Ore Pass Lining – High Abrasion Resistant Concrete
- HSWR – High Strength Wear Resistant Concrete
- Other products are available to suit customer requirements

Mixing and placing

Empty contents of bags onto a clean flat surface and mix together dry. Add water slowly whilst mixing until a slump of 60mm is achieved. Avoid adding too much water as this could cause a reduction in strength or the mix to segregate



Ore – pass lining

This is a special concrete intended for the lining of ore-passes and underground silos where high abrasion resistant properties are required.

Comparative tests have proved the exceptional abrasion resistance provided by the product.

Shotcrete

A variety of shotretes are available for underground rock stabilization. These shotcrete materials typically contain Silica Fume to assist with adhesion to the rock face, improve pumping, and reduce rebound. The shotcrete products are also available with the option of fibre reinforcement for flexural strength and post-crack performance.

Description

Each bag contains a blend of fine aggregates together with a sachet of cement and silica fume. Other additives may also be included, such as accelerators or pumping aids. The shotcrete products are suitable for either the wet or dry processes. Fibre reinforced shotcrete made to customer specification in either steel or polypropylene. Typical performance details for various types of fibres are available.

Factors affecting the rebound of shotcrete

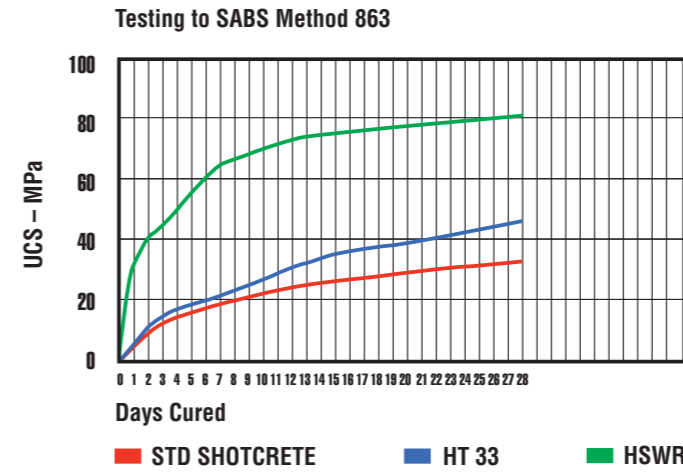
- The **moisture** content of the mix impacting on the rock face must be correct. Too dry or too wet a mix will cause the material to slide or bounce off. *Dry process material may require pre-wetting prior to spraying.*
- The **nozzle** must be perpendicular to the face being sprayed.
- The **spraying distance** should be 0.5 to 1.0m from the nozzle to the face.
- The air **velocities** must be sufficient to provide good compaction of the wet particles.
- Shotcrete must be **properly mixed** to avoid surges of coarse and fine material. Fine particles adhere to the coarser particles to form a sticky matrix to make a homogenous shotcrete.
- **Equipment must run continuously** and efficiently when spraying to deliver the material in a consistent manner.



Grout products

A number of specialized grouts are available, typically for pre-stressing of support packs, void filling, foamed material roof-bolt anchor grouts etc. Products can also be made on request for special applications.

Shotcrete Strength Development



SFRS Wet Shotcrete Slabs

