

Cement Anchoring Grouts Product Data



Solutions from Materials Technology





Cement Anchoring Grouts

Minova commenced the development and manufacture of a range of specially designed rapid strength cable bolt grouts in the mid 1980's. With the help of a global research and development resource base, this product range has grown and diversified into a comprehensive group of products for general and specific bolting applications in coal mining, metal mining and tunnelling. In addition to cable bolt grouting, this product range is also used for general strata injection and consolidation applications.

Minova's cement anchoring range includes products suitable for all forms of manual and mechanised cable bolt grouting. Products have been developed for a range of applications including thixotropic grouting, long distance pumping, water stop grouting and rapid advance drill and blast development. The development of specific purpose designed grout products is also possible to suit unique applications. The development of many now routine Minova cable bolt grouts commenced with the requirement to satisfy a unique application.

All products are supplied pre-blended and pre-packaged requiring only the addition of set amounts of water in a high shear mixer to produce high quality grouts. All grout formulations include a non-shrink expansion compensation system. Minova grouts are available in either 1.2 tonne bulk bags, or 20 kg High Wet Strength (HWS) multi wall plastic lined paper bags. Minova's 20 kg HWS paper bags have been aggressively evaluated to confirm their superior performance to traditional stitched or glued plastic bags in relation to strength, durability and moisture absorption. All grouts are supplied on shrink wrapped 2,000 kg rated pallets.

Full training procedures exist for the application of all Minova Cement Anchoring products and comprehensive training and assessment by qualified Minova representatives is available to all customers. It is highly recommended that the individual product training procedure be reviewed prior to the application of any Minova cement grout. In addition, on site quality control programs can be specifically developed and managed to suit individual customer requirements, ensuring the consistent quality of placed grout.



Minova Australia's comprehensive range of cement anchoring grouts includes the following:

Stratabinder HS	High strength grout for bottom up cable bolt grouting. Bolt hole collar will need to be plugged or sealed prior to grout pumping.
Stratabinder HS Slow Set	High strength low viscosity grout for maximum strata penetration which remains workable for several hours.
Conbex® HES	High early strength cable bolt grout for rapid advance development. Bolt hole collar will need to be plugged or sealed prior to grout pumping. Excellent resistance to high saline and acidic ground water. Product must be continuously mixed to avoid premature setting.
Conbex® HT	Long life thixotropic grout for use on mechanised cable bolt rigs. High early strength cable bolt grout for rapid advance development. Excellent resistance to high saline and acidic ground water. Product must be continuously mixed to avoid premature setting.
Conbex® HF	Dual shrinkage compensated rapid set high strength grout, conforming to ASTM C1107
FB400	High strength thixotropic grout for top down cable bolt grouting that is also available including a migrating corrosion inhibitor (FB400C). FB400C should not be used in areas where ground water contains high Chloride concentrations.
Conbex® UWP	Water resistant cement grout for wet hole bolting and strata injection
Capcem 60 Capsules	Cement grout capsules for non-mixing/pumping bolt applications. Available in various lengths and diameters. Capsule skin is designed to absorb water into grout to eliminate mixing

Advantages

Selection of the appropriate cement anchoring grout can provide many of the following advantages:

- rapid strength gain
- excellent pumpability
- durability of high strength and low porosity for long term life
- resistance to high saline and acidic ground water
- shrinkage compensated
- chloride free

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Product Specifications (Typical Results)

Product Name	28 day Flexural (MPa)	UCS 2 hours (MPa)	UCS 4 hours (MPa)	UCS 6 hours (MPa)	UCS 1 Day (MPa)	UCS 7 days (MPa)	UCS 28 days (MPa)
Stratabinder HS	9.9	–	–	–	50	75	100
Stratabinder HS Slow Set	6.0	–	–	–	12	32	39
Conbex® HES	7.0	20	40	50	60	75	80
Conbex® HT	–	14	31	33	48	54	62
Conbex® HF	10.0	–	46	–	67	75	93
FB400	7.1	–	–	–	40	74	85
FB400C	7.1	–	–	–	40	74	85
Conbex® UWP	–	–	–	–	25	44	53

Product Specifications (Typical Results)

Product Name	Water per 20 kg bag (litres)	Yield per 20 kg bag (litres)	20°C Set Time
Stratabinder HS	6 – 8	12.5	7 hours
Stratabinder HS Slow Set	9	14	8 hours
Conbex® HES	4	11.4	1 hour
Conbex® HT	5 – 6	12–13	80 minutes
Conbex® HF	3.0 – 3.8	10.5	25 minutes
FB400	7 – 8	15	7 hours
FB400C	7 – 8	15	7 hours
Conbex® UWP	3.6 – 4	12	5.5 hours

Quality Control

The superior quality of Minova cement anchoring grouts is assured through a four-part quality control program:

1. Raw Material Testing
2. In-process quality control testing
3. Finished product acceptance testing
4. Quality system management to ISO 9001

All quality control testing is completed by trained personnel using industry recognised equipment, regularly calibrated by an independent and authorised testing coMPany in accordance with Minova's quality management system.

Water Quality

All Minova cement grouts are tested with and should be used with potable water. If water quality is of concern for any proposed application, a 20 litre sample of the intended water should be sent to Minova's Nowra laboratory for grout coMParison testing. This testing will confirm the coMPatibility for use with the selected Minova grout and ensure that the design specifications of the grout can be achieved.

Storage

Shelf Life

Minova cement grouts have a shelf life of 12 months when stored in dry conditions. High temperature and high humidity may reduce the shelf life.

Storage Conditions

Minova cement grouts should be stored in original packaging under dry warehouse conditions. If grouts are to be stored underground they should be stored in a dry area, free from water ingress.

Health and Safety

Minova cement grouts are non-toxic and non-flammable.

- Irritating to respiratory system and skin
- Risk of serious damage to eyes
- Do not breath dust, use suitably approved dust mask
- Avoid contact with skin and eyes
- In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice
- After contact with skin, wash immediately with plenty of clean water
- Wear suitable protective clothing, gloves and eye/face/breathing protection

Stratabinder HS	: MS2228/300609
Stratabinder HS Slow Set	: MS2357/300609
Conbex® HES	: MS2252/300609
Conbex® HT	: MS2421/300609
Conbex® HF	: MS2434/300609
FB400	: MS2228/300609
Conbex® UWP	: MS2229/300609
Capcem 60 Capsules	: MS2263/300609



Product Service Support

Minova provides a full service support package to customers, including underground pull testing, operator awareness training, underground audits and stock control assistance. Each service package is developed to suit the individual customers requirements.

All aspects of Minova's product service support service is provided by experienced trained and qualified personnel.

Additional Information

For additional information relating to any aspect of this product specification data, including product performance, quality, testing, specification, range, availability etc. please contact your nearest Minova office, or email: technicalsupport@minovaint.com

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