

High Volume Output Grouts Product Data



Solutions from Materials Technology



High Volume Output Grouts

Minova High Volume Output Grouts are defined by the fact that considerably larger outputs are possible when mixing this range of products, compared to traditional cement grouts. This is particularly beneficial in underground mining and tunnelling, as significantly less amounts of physical material are required to be transported into the mine or tunnel.

Originally developed in the UK, Minova Australia commenced the domestic development and manufacture of these grouts to suit Australian mining conditions and requirements in 1989. In 2003 through a new company acquisition, Minova inherited an additional suite of grouts, which lead to a subsequent rationalisation of the combined product ranges. Minova Australia's High Volume Output Grout product range today is the most extensive in the world, offering products for a large range of routine and unique applications.

Minova High Volume Output Grouts have an extremely successful history of applications in Australia, which began with the construction of live tested explosion resistant coal mine ventilation seals. This developed further with the use of these grouts for general underground cavity filling, collapsed roadway recovery, backfilling behind steel sets and sidewall (rib) stabilisation. In 2001 successful applications commenced in Australian metal mines, using Minova grouts for rockfill consolidation and pillar replacement. This involved consolidating old backfilled stopes for the safe and successful removal of remnant crown and rib pillars and to create false pillars in newly mined stopes. Specific information on these individual applications is available from Minova.

Minova Australia's product range consists of numerous foaming and non-foaming grouts, ranging in strength from 0.5 MPa to 25.0 MPa. Purpose designed placer pump units are used to continuously place the entire range of High Volume Output Grouts and hire and training in the safe and correct of these units is available from Minova.

All products are supplied pre-blended and pre-packaged requiring only the addition of set amounts of water to produce consistent quality grouts. 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 superior performance to traditional stitched or glued plastic bags in relation to strength, durability and moisture absorption properties. All grouts are supplied on shrink wrapped 2,000 kg rated pallets.

Full training procedures exist for the application of all Minova cement grout 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 High Volume Output Grouts includes the following:

Tekseal™	Long life foaming grout used for ventilation seals and cavity filling
FB200™	Low viscosity grout used for rockfill consolidation and ventilation seals
Geofill™	Fast setting grout used for fall recoveries, sidewall (rib) stabilisation and cavity filling
Rockfast – Hydroblend™	Fast setting low viscosity grout used for fall recoveries
Rockfast – Hydrofoam™	Fast setting low strength grout used for short term cavity filling
CMT Grout	High strength grout used for standing supports (chock bags) and backfill applications
CMT Grout Hi Thix	High thixotropic grout used for backfilling and sidewall (rib) stabilisation in broken ground
Rockfast – Hydroseal™	Fibre reinforced grout used for cavity filling and fall recoveries
Hydropak	2 component grout used for long distance pumping applications

Advantages

- Rapid placement
- Quick strength gain
- Remote pumping
- Reduced formwork requirement
- Rapid gelling quickly seals leakage paths
- Quality controlled application
- Yields to ground pressure thereby reducing stress concentration
- Non shrinking and low alkalinity (safe to handle)
- Long distance pumping, up to 3 km (Hydropak)





High Volume Output Grouts

Product Name	Water to Powder Ratio	20°C Gel Time (minutes)	Kg Powder per m ³	Fresh Wet Density (kg/m ³)	UCS 1 Day (MPa)	UCS 7 Days (MPa)	UCS 28 Days (MPa)	Flexural Strength 28 days (MPa)
Tekseal	1:1	3 – 5	200 – 240	400 – 450	0.6	0.8	1.0	0.3
FB200	2:1	4 – 8	400 – 440	1200 – 1300	0.6	3.3	7.5	1.8
	2.5:1	8 – 11	340 – 360	1160 – 1260	0.5	1.4	4.5	
Geofill	2:1	1 – 2	420 – 430	1200 – 1300	3.4	3.9	5.0	–
	2.5:1	2 – 2.25	340 – 350	1160 – 1260	2.5	2.8	4.0	
Rockfast – Hydroblend	2.5:1	5 – 6	340 – 360	1200 – 1300	3.0	4.5	4.8	–
	2:1	3 – 4	400 – 440	1220 – 1320	4.0	4.7	5.0	
	1.75:1	2 – 3	470 – 480	1250 – 1350	5.0	5.5	6.5	
Rockfast – Hydrofoam	2.5:1	2 – 3	100 – 120	300 – 400	0.35	0.50	0.62	–
CMT Grout	2:1	12 – 15	415 – 425	1260	4.0	5.0	7.0	–
	1.5:1	9 – 11	535 – 545	1340	6.0	8.0	12.5	
	1:1	4 – 7	735 – 745	1470	10.0	14.0	18.0	
CMT Grout Hi Thix	2:1	12 – 15	415 – 425	1260	1.3	2.5	7.0	–
	1.5:1	9 – 11	535 – 545	1340	3.0	5.0	13.0	
	1:1	4 – 7	735 – 745	1470	6.0	13.0	25.0	
Rockfast – Hydroseal	1.8:1	7 – 8	480 – 500	1300 – 1500	2.8	3.1	3.7	–
	1.5:1	2.5 – 3.0	560 – 590		3.5	4.7	5.0	
	1.2:1	2 – 2.5	640 – 680		5.3	6.5	7.9	
Hydropak	2.5:1	8 – 12	345 – 355	1200 – 1300	5.1	6.0	6.1	–
	2:1	6 – 8	420 – 430		8.0	8.5	9.1	
	1.75:1	5 – 6	470 – 480		9.0	6.0	11.3	

Quality Control

The superior quality of Minova High Volume Output 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 AS/NZS 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 High Volume Output 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

Tekseal	: MS2223/300609
FB200	: MS2242/300609
Geofill	: MS2269/300609
Rockfast – Hydroblend	: MS2384/300609
Rockfast – Hydrofoam	: MS2385/300609
CMT Grout	: MS2262/300609
CMT Grout Hi Thix	: MS2278/300609
Rockfast – Hydroseal	: MS2386/300609
Hydropak	: MS2388/300609



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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