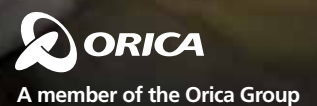


# Sprayed Cement Systems Product Data



Solutions from Materials Technology





# Sprayed Cement Systems

Minova manufactures and supplies an extensive range of sprayed coating and sealing systems for use in a large range of applications in mining and civil engineering, including a range of dry bagged shotcretes and specially developed plaster. Products and systems include Fastshot for structural sprayed support, Rappass for applications requiring abrasion and iMPact resistance and Sprayplast for low strength and cost sensitive applications.

All products are supplied pre-blended and pre-packaged requiring only the addition of set amounts of water with appropriate equipment to produce high quality products. Minova products are available in either bulk bags, or 20 kg High Wet Strength (HWS) multi wall plastic lined paper bags. Minova's 20kg 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. All grouts are supplied on shrink wrapped 2,000 kg rated pallets.

Full training procedures exist for the application of all Minova Sprayed Systems 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 product. In addition, on site quality control programs can be specifically developed and managed to suit individual customer requirements, ensuring the consistent quality of placed product.

Minova Australia's comprehensive range of sprayed cement systems includes the following:

<b>Rappass™</b>	abrasion and iMPact resistant high performance concrete and dry sprayed shotcrete
<b>Fastshot</b>	high build, minimum rebound, dry sprayed shotcrete
<b>Sprayplast</b>	rapid hardening, single component sprayable coarse plaster for surface support and ventilation sealing applications (water proofing agent available for use with plaster)
<b>SP100™</b>	high build, wet mix, sprayable cementitious sealant used for temporary ventilation stoppings

## Individual Product Information

### Fastshot

Fastshot is a high build general purpose sprayable cement based shotcrete, specially designed with low rebound and low dust for dry sprayed shotcrete applications.

- high build, up to 150 mm in one pass
- minimum rebound, reduced waste
- non-caustic admixtures, safe to handle
- chloride free
- fibre reinforced option available

UCS at 20°C	MPa
1 day	20
2 days	30
7 days	40
28 days	60

Thickness (cm)	kg per m <sup>3</sup>
4	85
6	128
8	170
9	212

### Sprayplast

Sprayplast is a rapid hardening, single component, product used primarily in the construction of rated ventilation structures and scat control using dry shotcrete application equipment.

- high build and high yield
- high early strength development
- minimal respirable dust content
- natural product, gypsum based, non-flammable and non-toxic
- quickly self supporting due to rapid set
- can be sprayed onto almost any surface with minimal rebound
- designed and live tested explosion rated 2 psi and 5 psi ventilation stoppings
- 75 mm thickness will provide over 1 hour fire protection rating to AS 1530.4-1997

<b>Strength</b>	7 MPa within 1 hour
<b>Dry Strength</b>	18 MPa at water:powder ratio of 0.5:1.0
<b>Tensile Strength</b>	2.8 MPa
<b>Yield (1 tonne)</b>	0.75 M <sup>3</sup> at WP ratio 0.45:1
Should not be used below 5°C	



# Sprayed Cement Systems

## Rappass

Rappass is a high strength abrasion and iMPact resistant dry or wet mix shotcrete, specially designed for lining ore passes, draw points, crushers, chutes and other areas subjected to heavy and frequent equipment iMPact. A trowellable version is also available for concrete floor repairs.

- high early strength
- excellent abrasion resistance
- excellent iMPact resistance
- minimum rebound
- chloride free, non-corrosive to steel
- flexural strength, independently tested to AS 1012.8.2 @ 28 days cure 8 MPa
- yield : 611 litres per 1.2 tonne of Rappass
- typical peak exotherm of 100 x 100 x 50 mm sample : 48°C
- typical wet density – 2,200 kg/m<sup>3</sup>

	Rappass GD	Rappass C/GW	Rappass CF
UCS @ 20°C – 2 hours	29 MPa	N/A	15 MPa
UCS @ 20°C – 4 hours	41 MPa	N/A	26 MPa
UCS @ 20°C – 1 day	55 MPa	61 MPa	62 MPa
UCS @ 20°C – 7 days	67 MPa	71 MPa	72 MPa
UCS @ 20°C – 28 days	90 MPa	87 MPa	87 MPa
Typical pot life @ 20°C	20 minutes	2 hours	40 minutes

Rappass GW – wet mix shotcrete

Rappass GD – dry mix shotcrete

Rappass C – concrete mix

Rappass CF – fast setting concrete mix

**Abrasion Resistance Testing** – typical Chaplin rotation disc abrasion test results (complying with BS 8204:1987 – part 2). Independently tested at 28 days cure. Results are available on request.

Rappass – 0.17 mm abrasion

36 MPa Concrete – 0.51 mm abrasion

**iMPact Resistance Testing** – four 220 g cubes tumbled for 10 minutes at 17 rpm in Y shaped rotating drum mixer containing seven 130 g steel balls. Samples cured for 28 days prior to testing.

Rappass – 3.18% weight loss

36 MPa Concrete – 6.39% weight loss

### SP100

SP100 has been designed as a high build wet mix sprayable cementitious sealant, used for ventilation stoppings, overcast and general sealing, repair work.

- Convenient – easy to use, just add water
- easily applied – high build capability in one pass
- good flowability – easily pumped without blocking hoses
- high strength – reinforced to reduce cracking
- minimum rebound and dust
- non-caustic admixtures – safe to handle
- chloride free

<b>Pumping Life @ 25°C (hours)</b>	2
<b>Drying Time @ 25°C (hours)</b>	12
<b>UCS @ 1 day</b>	5 MPa
<b>UCS @ 7 days</b>	11 MPa
<b>UCS @ 28 days</b>	14 MPa
<b>Wet Density</b>	1,300 kg/m <sup>3</sup>
<b>Yield (per 20 kg bag)</b>	18 litres
<b>Water requirement (per 20 kg bag)</b>	4 litres

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# Sprayed Cement Systems

## Water Quality

All Minova plaster and cementitious sprayed systems are tested with and recommended to 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 product and ensure that the design specifications of the grout can be achieved.

## Storage

### Shelf Life

Minova plaster and cementitious sprayed systems 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 sprayed systems should be stored in original packaging under dry warehouse conditions. If products are to be stored underground they should be stored in a dry area, free from water ingress.

## Health and Safety

- Minova plaster and cementitious sprayed systems 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
- Refer to individual MSDS for further information

Fastshot	MS287/300609
Rappass	MS2396/300609
Sprayplast	MS2473/300609
SP100	MS2473/300609



## 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](mailto:technicalsupport@minovaint.com)

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