

MINING

Fillset

ADDITIVE SYSTEM FOR CEMENTED BACKFILL

DESCRIPTION

The Fillset system consists of two components, a powder, Fillcem and a liquid, Fillgel. When added to tailings slurry, the components react in stages to form a homogeneous hardened backfill.

Fillcem is a blend of specially selected cementitious powders proportioned to give a long pipe life and optimum strength development in the backfill. It may be used alone as a tailings binder, or in combination with Fillgel.

Fillgel is an inorganic liquid additive, which when added to the tailings slurry containing Fillcem, reacts rapidly to accelerate solidification with minimal water loss.



APPLICATION AND USE

The Fillset system can be used to produce a stiff cemented backfill, the characteristics of which can be designed to suit specific backfilling requirements.

ADVANTAGES

- Classification of the tailings is not necessary
- Slimes and water run-off are reduced. Reduction in slimes and water run off results in improved conditions in gullies drains and ore-passes
- Little or no shrinkage of the backfill occurs so that no topping up is required, and contact with the hanging wall is more easily maintained
- Retention of volume reduces filling time
- Additives are non-flammable, non-toxic

TECHNICAL DATA

SETTING TIME

Fillcem is formulated to have a long life in the backfill pipeline (typically 6-8 hours depending on ambient temperatures). However, once mixed with the Fillgel the reaction is very rapid, giving gelation within minutes.

Fillcem complies with SANS 50197-1 as a CEM IIIA cement.

STRENGTH DEVELOPMENT

Typical strength development using 5% Fillcem and 1% Fillgel in quartzitic tailings slurry with 34% water content (R.D. = 1.7) is detailed below.

Age (days)	U.C.S. (MPa)
1	0.15
7	0.50
14	0.62
28	1.00

WATER RETENTION

When using quartzitic tailings slurry at R.D = 1.7, the following table illustrates the reduction in water run-off which is obtained at various dosage rates of Fillcem and Fillgel.

Addition level (%)		Water run-off
Fillcem	Fillgel	(% of total water)
5	1	6.5
7	1	4.6
9	1	3.5

APPLICATION METHOD

Dosage rates are selected on the basis of the following criteria:

- The type and particle size distribution of the tailings, classified or unclassified.
- Water content of the slurry (i.e. the R.D.).
- Degree of water retention desired.
- Backfill strength required.
- The pH of the tailings slurry to be used.

In order to find the optimal dosage levels, a detailed investigation must be carried out by ourselves, using the actual mine tailings.

SAFETY INSTRUCTIONS AND LIMITATIONS

Both Fillcem and Fillgel are alkaline, consequently the use of gloves and goggles is recommended. Splashes should be removed from the skin and eyes by washing with plenty of water. In the case of splashes in the eyes, medical attention should be sought immediately. Refer to Material Safety Data Sheet.

PACKAGING AND TRANSPORTATION

Pack size	
Fillcem	Bulk tanker
Fillgel	200 litre drums or bulk tanker

STORAGE AND SHELF LIFE

When stored in dry, cool conditions, in closed containers, Fillcem and Fillgel each has a shelf life of 6 months.

DISPOSAL

Follow local regulations.

DISCLAIMER

The Minova Logo is a registered trademark.

Copyright © 2019 Minova. All rights reserved

All information contained in this document is provided for informational purposes only and is subject to change without notice. Since Minova cannot anticipate or control the conditions under which this information and its products may be used, each user should review the information in the specific context of the intended application. To the maximum extent permitted by law, Minova specifically disclaims all warranties express or implied in law, including accuracy, non-infringement, and implied warranties of merchantability or fitness for a particular purpose. Minova specifically disclaims, and will not be responsible for, any liability or damages resulting from the use or reliance upon the information in this document.

ADDITIONAL DOCUMENTATION

- MSDS of Fillcem and Fillgel

LIST OF REPRESENTATIVES

- AUSTRIA: Minova MAI GmbH
- CZECH REPUBLIC: Minova Bohemia s.r.o.
- FRANCE / BELGIUM: Sales office Minova France / Belgium
- GERMANY: Minova CarboTech GmbH
- ITALY: Minova CarboTech GmbH Italy branch
- KAZAKHSTAN: Minova Kazakhstan LLP
- POLAND: Minova Ekochem S.A.; Minova Arnall Sp. z o.o.; Minova Ksante Sp. z o.o.
- RUSSIA: ZAO "Carbo-ZAKK"
- SLOVAKIA: Minova Bohemia s. r. o., organizačná zložka
- SOUTH AFRICA: Minova Africa (Pty) Ltd.
- SPAIN: Minova Codiv S.L.U.
- SWEDEN / NORWAY: Minova Nordic AB
- UNITED KINGDOM: Minova Weldgrip Ltd.; Minova International Ltd.
- APAC: Minova Australia Pty Ltd.
- AMERICAS: Minova USA Inc.

CUSTOMER SERVICE

For additional support options available at your area, contact our local offices.

www.minovaglobal.com