



gcp

MONOKOTE®

FIRE PROTECTION SYSTEMS



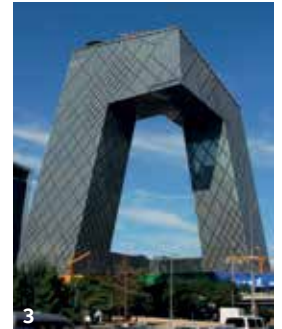
SAINT-GOBAIN



1



2



3



4



5



6



7



8

1. Cheung Kong Centre and International Finance Centre II, Hong Kong
2. Central Government Complex, Hong Kong
3. CCTV Building, Beijing, China Mainland
4. Petronas Twin Towers, Kuala Lumpur, Malaysia
5. International Commerce Centre, Hong Kong
6. Incheon International Airport, Incheon, S. Korea
7. JR Central Station, Nagoya, Japan
8. 405 Bourke Street, Melbourne, Australia

Interior Concealed Fireproofing

MONOKOTE® MK-6/HY & MK-6S

Proven in-place performance on interior structural steel makes it the most widely used fireproofing material in the world. MK-6/HY & MK-6S are low cost, gypsum-based, cementitious, spray-applied fireproofing products designed for an easy, fast application to steel and concrete substrates. MK-6/HY incorporates application benefits, including GCP's exclusive injection technology for fast set and improved hangability.



Chek Lap Kok International Airport, Hong Kong

Typical Uses

- High-rise commercial office buildings
- Conventional buildings
- Hotels, resorts and casinos
- Health care facilities, sports centres
- Schools and museums
- Airport terminals

Benefits

- High bond strength
- Quick set in 15 minutes
- Gypsum-based formulation contains no mineral fibres
- No topcoat or surface sealer required
 - Compliant with Australian Standards

Performance Characteristics*

PHYSICAL PROPERTIES	MONOKOTE® MK-6/HY & MK-6S Recommended Specification	Test Method
Dry density, minimum average	240 kg/m ³ (15 pcf)	ASTM E 605
Bond strength	9.6 kN/m ² (200 psf)	ASTM E 736
Compression strength @ 10% deformation	51 KPa (1,200 psf)	ASTM E 761
Air erosion	Max. 0.00 g/m ² (0.000 g/ft ²)	ASTM E 859
High velocity air erosion	No continued air erosion after 4 hours	ASTM E 859
Corrosion	Does not contribute to corrosion	ASTM E 937
Bond impact	No cracking, spalling or delamination	ASTM E 760
Deflection	No cracking, spalling or delamination	ASTM E 759
Resistance to mold growth	No growth after 28 days	ASTM G 21
Surface burning characteristics	Flame spread = 0, Smoke developed = 0	ASTM E 84
Combustibility	Less than 5 MJ/m ² 20 kw/m ² peak heat release	ASTM E 1354

* Actual laboratory tested values meet or exceed GCP's recommended values. Test reports are available upon request.

Interior Exposed Fireproofing

MONOKOTE® Z-106/HY

A portland cement-based, medium density fireproofing product that provides excellent moisture resistance and durability for interior, exposed applications. Z-106/HY incorporates application benefits including GCP's exclusive injection technology for fast set and improved hangability. It provides highly cost-effective installation while assuring the specifier of high performance in-place characteristics.



Korean Airlines Cargo Terminal, Incheon International Airport, Incheon, S. Korea

Typical Uses

- High-rise commercial office buildings
- Transportation terminals
- Convention centres
- Swimming pools
- Parking garages
- Light manufacturing facilities
- Mechanical rooms
- Elevator shafts
- Power plants
- Dockyards

Benefits

- Cement-based formulation provides high bond strength
- Damage-resistant surface resists air erosion, abrasion and impact damage
- Can be trowel-finished for improved aesthetics
- Withstands high humidity and condensation
- Proven performance with moisture exposed ASTM Bond and Compressive Tests
 - Compliant with Australian Standards

Performance Characteristics*

PHYSICAL PROPERTIES	MONOKOTE® Z-106/HY Recommended Specification	Test Method
Dry density, minimum average	350 kg/m ³ (22 pcf)	ASTM E605
Bond strength	94.5 kN/m ² (2,000 psf)	ASTM E736**
Compression, 10% deformation	680 KPa (100 psi)	ASTM E761**
Air erosion	Max. 0.00 g/m ² (0.000 g/ft ²)	ASTM E859
High velocity air erosion	No continued erosion after 4 hours	ASTM E859
Corrosion	Does not contribute to corrosion	ASTM E937
Bond impact	No cracking, spalling or delamination	ASTM E760
Deflection	No cracking, spalling or delamination	ASTM E759
Resistance to mold growth	No growth after 28 days	ASTM G21

* Actual laboratory tested values meet or exceed GCP's recommended values. Test reports are available upon request.

** ASTM test methods modified where required for high density high performance products.

Tunnels & Exterior Exposed Fireproofing

MONOKOTE® Z-146T

High density, cement-based fire protection delivers maximum protection for roadway tunnels and exterior exposed applications. Its physical characteristics are excellent for areas exposed to environmental or climatic conditions.



National Semiconductor Facility, South Portland, Maine, USA

Typical Uses

- Roadway tunnels
- Heavy manufacturing facilities
- Steel corrosion environments

Benefits

- Ready to use. simply add water
- Equipment versatility as it can be mixed in standard plaster mixer
- Trowelable finishing for improved aesthetics
- Retard the rate of corrosion due to salt and other aggressive environmental conditions thanks to the inclusion of calcium nitrite
- Resists freeze/thaw, wind and rain

Performance Characteristics*

PHYSICAL PROPERTIES	MONOKOTE® Z-146T Recommended Specification	Test Method
Dry density, minimum average	640 kg/m ³ (40 pcf)	ASTM E605
Bond strength	478 kN/m ² (10,000 psf)	ASTM E736**
Compression, 10% deformation	3.45 MPa (500.0 psi)	ASTM E761**
Air erosion	Max. 0.00 g/m ² (0.000 g/ft ²)	ASTM E859
High velocity air erosion	No continued erosion after 4 hours	ASTM E859
Corrosion	Does not contribute to corrosion	ASTM E937
Bond impact	No cracking, spalling or delamination	ASTM E760
Deflection	No cracking, spalling or delamination	ASTM E759
Resistance to mold growth	No growth after 28 days	ASTM G21
Surface burning characteristics	Flame spread = 0, Smoke developed = 0	ASTM E84
Combustibility	Less than 5 MJ/m ² total, 20 kw/m ² peak heat release	ASTM E1354

* Actual laboratory tested values meet or exceed GCP's recommended values. Test reports are available upon request.

** ASTM test methods modified where required for high density high performance products.

Interior & Exterior Petrochemical Fireproofing

MONOKOTE® Z-156PC

Ultra-high density, cement-based fire protection that provides maximum protection in petrochemical processing and refinery facilities with harsh conditions.



405 Bourke Street, Melbourne, Australia

Typical Uses

- Control rooms
- Storage facilities
- Vessel Skirts
- Pipe racks
- Structural supports

Benefits

- Tested in accordance with Underwriters Laboratories Inc. UL 1709 and UL 263 (ASTM E119)
- Sets and dries to an extremely hard, damage resistant coating
- Application versatility by hand or spraying equipment after mixing as in standard plaster mixer
- Cost-effective fire resistance in interior and exterior environments

Performance Characteristics*

PHYSICAL PROPERTIES	MONOKOTE® Z-156PC Recommended Specification	Test Method
Dry density, minimum average	Min. 50 pcf (800 kg/m ³)	ASTM E605
Bond strength	Min. 10,000 psf (478 kN/m ²)	ASTM E736**
Compression, 10% deformation	850 psi (5.86 MPa)	ASTM E761**
Air erosion	Max. 0.00 g/m ² (0.000 g/ft ²)	ASTM E859
High velocity air erosion	No continued erosion after 4 hours	ASTM E859
Hardness	40	ASTM D2240
Bond impact	No cracking, spalling or delamination	ASTM E760
Deflection	No cracking, spalling or delamination	ASTM E759
Resistance to mold growth	No growth after 28 days	ASTM G21
Surface burning characteristics	Flame spread = 0, Smoke developed = 0	ASTM E84
Combustibility	Less than 5 MJ/m ² total, 20 kw/m ² peak heat release	ASTM E1354

* Independent laboratory tested value. Report available upon request.

** ASTM International test methods modified for Bond strength and Compressive strength, where required, for high density, high performance products.

International Standard of Manufacturing

MONOKOTE® fireproofing products applied in Asia are produced in our ISO 9001 certified manufacturing facility in South Korea. The GCP manufacturing facility, Incheon, Korea, is under the Underwriters Laboratories Inc's Follow-up Service Programme. MONOKOTE products are manufactured under strict quality control, in accordance with our formulations and specifications. The facility's location also ensures prompt delivery of quality MONOKOTE fireproofing products to meet the most demanding construction schedules.



GCP manufacturing facility in Incheon, S. Korea

Professional Installation

Product quality alone does not guarantee success. It requires professional installation from well trained and experience applicators. GCP has a network of applicators that have trained in the proper application and installation of MONOKOTE fireproofing. The proper application and installation of fireproofing is critical to its long-term performance and its ability to meet the required hourly ratings. GCP has a world class training program that provides instruction and guidance to its network of experienced applicators. This training along with GCP's technical support and field assistance provide our network of applicators the guidance and support to efficiently and effectively apply MONOKOTE products.



TOP: Reputable hardware (continuous mixer) is deployed;
BOTTOM: A proper and safe job site setup is crucial in achieving the product's designed in-place performance and in meeting the construction schedule.

Fire Test Approvals

MONOKOTE fireproofing has been tested world-wide and has the following global approvals, which includes over 120 design listings at Underwriters laboratories Inc. (UL).

AU	AS 4100/ AS 1530
USA	UL 263/ASTM E 119
JAPAN	JIS A 1304
SPAIN	EN13381 Series
UK	BS476 Parts 20, 21 and EN13381 Series
CANADA	ULC S101/ASTM E 119
FRANCE	EN13381 Series
GERMANY	DIN4102 and EN13381 Series
KOREA	KSF-2257
CHINA	GB 14907



**SAINT-GOBAIN
CONSTRUCTION CHEMICALS**

GCP • 14 Colebard Street West
Archerfield . QLD 4108 . AUSTRALIA
+61 1800 334 444
gcpat.com.au