

## Monokote® MK-6 S

A spray applied structural fire protection system  
Low density gypsum plaster with greater simplicity of installation

### Description

Monokote® MK-6 S is one of the world's most widely specified and used structural fire protection systems. Monokote® MK-6 S is gypsum based (with no mineral fibres), machine applied fire protection system. It is a cost effective and fast application system for the fire protection of steel and concrete structures. Monokote® MK-6 S bonds tightly to steel and concrete substrates, forming a hard surface which does not spall, dust or flake. Being gypsum based, is not designed for continuous exposure to weather or water.

In both BS476 and the new European Standards the fire resistance performance of an element is judged against the three criteria of load-bearing capacity, integrity and insulation. The European Classification System will use the abbreviations of R, E and I respectively.

### Typical applications

- \* Structural fire resistance
  - Steel beams & columns
  - Cellular beams<sup>1</sup>
  - Composite deck
  - Concrete
- \* Refurbishment or new construction

### Approvals

Monokote® MK-6 S has been fully tested and assessed under BS 476 part 21:1987. The A/V chart is applicable to MK-6 HY and is also found in the Association for Specialist Fire protection, (ASFP) "Yellow Book".

### Advantages

**Longevity:** If undisturbed, Monokote is designed to last for the life of the building

**Proven in-place performance:** Thanks to its "specific" mechanical properties, with over 80% of binding agents, MK-6 S will stay in place during construction phase, for the life of the building until the day of the fire and meanwhile the intervention of the fire fighters

**Safety:** Monolithic barrier with no joints and do not need a chemical reaction.

**Thin system:** No need to allow the room between steels and over-cladding for expansions that is required for Intumescent Coating.

**Low density:** Less net weight applied on the structures

**Value for money:** Direct application on unprimed steel with no corrosion pre-treatment in a controlled environment in a C1 (BS EN ISO 12944-2:1988)

**Program benefit:** Installation to start as soon as the concrete deck of the floor above is poured.

### Application

As Monokote® is a life safety system Grace recommends that application of Monokote® MK-6 S is done by Grace trained installers and who are also members of FIRAS and ASFP.

### Surface preparation

Prior to the application of Monokote® MK-6 S, an inspection shall be made to determine that all steel surfaces are acceptable to receive fireproofing. The steel shall be free of oil, grease, rolling compounds or lubricants, loose mill scale, excess rust, incompatible primer, lock down agent or any other substance that will impair proper adhesion. Where necessary, the cleaning of steel surfaces to receive fireproofing shall be the responsibility of the general contractor.

Please contact your Grace Representative or applicator to verify compatibilities of Monokote® with specific corrosion paints.

The application can't be done on the steel structure unless the concrete has already been poured.

### Mixing

Monokote® MK-6 S shall be mixed by machine in a conventional, plaster-type mixer or a continuous mixer specifically modified for cementitious fireproofing. The mixer shall be kept clean and free of all previously mixed material. The mixer speed in a conventional mixer shall be adjusted to the lowest speed which gives adequate blending of the material and a mixer density of 640-720 kg/m<sup>3</sup> of material. Over-mixing Monokote® will reduce pumping rate.

Using a suitable metering device and a conventional mixer, all water shall be first added to the mixer as the blades turn. Mixing shall continue until the mix is lump-free, with a creamy texture. All material is to be thoroughly wet.

### Environment

Grace Construction Products has made a commitment to manufacturing fireproofing products that utilize recycled materials wherever possible. On an annual basis, Monokote® product lines use approximately 23 million pounds of recycled materials.



## Temperature & Ventilation

An air and substrate temperature of 40°F (4.4°C) minimum shall be maintained for 24 hours prior to application, during application and for a minimum of 24 hours after application of Monokote®. Provisions shall be made for ventilation to properly dry the fireproofing after application. In enclosed areas lacking natural ventilation, air circulation and ventilation must be provided to achieve a minimum total fresh air exchange rate of 4 times per hour until the material is substantially dry.

## Health & Safety

Read the product label and Material Safety Data Sheet (MSDS) before use. Users must comply with all risk and safety phrases. MSDS's can be obtained from Grace Construction Products or from our website at [www.graceconstruction.com](http://www.graceconstruction.com)

## Technical Services

For assistance with detailing and problem solving please contact our Technical Department at +44 (0) 1753 692929

Performance		
Product Property	Value	Test Method
Combustibility	Class 0	BS 476 parts 6 & 7
Dry Density	328 kg/m <sup>3</sup> (20.5 pcf)	BS 8202
Bond Strength	29.3 KPa (612 psf)	ASTM E 736
Air Erosion	0.000 g/m <sup>2</sup> (0.000 g/ft <sup>2</sup> )	ASTM E 859
Compressive Strength @10% Deformation	117 KPa (2451 psf)	ASTM E 761
Coverage/bag at 25 mm	2.95m <sup>2</sup>	
Colour	Grey	

Dry Thickness Required (mm)													
Fire Rating A/V	30 min		60 min		90 min		120 min		180 min		240 min		
	Columns (1)	Beams (2)	Columns (1)	Beams (2)	Columns (1)	Beams (2)	Columns (1)	Beams (2)	Columns (1)	Beams (2)	Columns (1)	Beams (2)	
Hp/A Up to													
30	10	10	10	10	15	10	15	10	20	12	25	16	
50	10	10	10	10	15	10	15	12	21	18	28	25	
70	10	10	10	10	15	11	17	15	27	24	37	33	
90	10	10	10	10	15	13	20	18	32	29	44	40	
110	10	10	11	10	17	15	23	21	37	33	51	48	
130	10	10	11	10	19	17	26	23	41	37	56	51	
150	10	10	12	10	20	18	29	25	45	41	62	56	
170	10	10	13	11	22	19	31	27	49	44	66	60	
190	10	10	14	12	23	20	33	29	52	47	71	64	
210	10	10	14	12	24	21	34	31	55	50	75	68	
230	10	10	15	13	26	23	36	32	57	54	78	71	
250	10	10	16	13	27	23	38	34	59	55	81	74	
270	10	10	16	14	28	24	39	35	62	58	84	77	
290	10	10	17	14	28	25	40	36	64	59	n/a	79	
310	10	10	17	15	29	26	41	37	66	60	n/a	82	

Notes:

- (1) Four sided protection, fire tested at 550°C
- (2) Three sided protection, fire tested at 620°C
- (3) Tested in accordance with BS 476, Part 21:1987

[www.graceconstruction.com](http://www.graceconstruction.com)

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