Southwest Type 5GP

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	A gypsum based, Spray-applied Fire Resistive Material (SFRM) designed for the fire protection of interior structural steel. Formulated and applied to meet the minimum bond strength requirements of the IBC Code listed in the “High Rise Building Section" for buildings up to 22.9m (75 feet).
Description	A 240 kg/m³ (15 lb./ft³) SFRM intended for the fire protection of interior structural columns, beams, joists, decks, walls, roofs, girders, floors and pre-cast concrete units. It is tested and certified for fire resistance ratings up to 4 hours. Southwest Type 5GP is a trademark of the Southwest Fireproofing Products Company.
Features	• Assessed in accordance with AS 1530.4:2005 (see "Approvals NZ/AU" section) • Assessed in accordance with AS 4100 (see "Approvals NZ/AU" section) • Provides protection for I-section and hollow beams and columns up to 240 FRR (4 hours) • Certified data available for limiting temperatures ranging from 350°C to 700°C • Non-combustible • Can be injected with Accelerator A-20 for fast set and increased yield (optional) • Excellent film builds on all surfaces including columns, beams and decks. • Applicator friendly – High film build, no alum required for increased coverage*. • Asbestos-free – complies with EPA and OSHA regulations. • Mineral Wool free – no airborne fibres. • Styrene free – no toxic decomposition gases. • Economical – Maintains project on budget. • Design flexibility with over 100 UL designs
Colour	Non-Uniform Tan
Finish	Textured
Primer	Primers are not required or recommended. If a primer is specified, or steel is primed, bond strength must meet minimum adhesion. Consult Technical Services for further advice. Southwest Fireproofing materials neither promote nor prevent corrosion. Fireproofing should not be considered part of the corrosion protection system.
Application Thickness	13 - 16 mm (1/2" - 5/8") on initial pass Full system varies according to required fire rating and steel type. Typically between 10mm and 40mm.
Theoretical Coverage Rates	**Without A-20 Injection:** 7.45 square metres per 22.7 kg (50lb) bag at 10 mm thickness and 352 kg/m^3 (22.0 pcf) **With A-20 Injection:** 10.59 square metres per 22.7 kg (50 lb) bag at 10 mm thickness and 256 kg/m^3 (16.0 pcf)
Limitations	Not intended for permanent direct exposure to weather or excessive physical abuse beyond normal construction cycles. Not recommended for use as refractory cement or where continuous operating temperatures exceed 93°C.
Topcoats	Generally not required. In severely corrosive atmospheres, consult Carboline Technical Service for selection of coating most suitable for the operating environment.

SUBSTRATES & SURFACE PREPARATION

General	Prior to application, all substrates must be clean and free of loose scale, dirt, oil, grease, condensation, or any other substance that would impair adhesion.

SUBSTRATES & SURFACE PREPARATION

	Be sure that all roof work is completed and water tight before commencing installation of fire protection.
Steel	Degrease where necessary. Wire brush to remove loose rust
Concrete or CMU	Remove all laitance by sweep abrasive blasting, HP Water-Jetting or acid etching. Apply a tie-in coat of Type DK-3 Spatter Coat uniformly to 70% of the surface.

PERFORMANCE DATA

Test Method	Results
ASTM 1042 DOD Classification	Type 1, NCR 50, Class (a), Category A
ASTM C384 Acoustics Noise Reduction Coefficient (NRC)	0.37 @ 0.30" (7.6 mm) 0.51 @ 0.45 (11.4 mm)
ASTM E136 Combustibility	Passed (non-combustible)
ASTM E605 Density[1]	15 pcf (240 kg/m³) minimum average
ASTM E736 Cohesion/Adhesion	>200 psf
ASTM E759 Deflection	Passed
ASTM E760 Impact	Passed
ASTM E761 Compresive Strength	3,700 psf (177 kPa)
ASTM E84 Surface Burning	Flame Spread: 0 Smoke Development: 0
ASTM E859 Air Erosion	0.00 g/ft² (0.00 g/m²)
ASTM E937 Corrosion	Passed
ASTM G21 Fungi Resistance	Passed (no growth)

[1] Air dry at ambient conditions to constant weight. Do not force cure. Use ASTM E605 Positive Bead Displacement method utilizing #8 lead shot. Test density in accordance with AWCI Technical Manual 12-A (Standard Practice for the Testing and Inspection of Field Applied Sprayed Fire-Resistive Materials, an Annotated Guide).
All values derived under controlled laboratory conditions.
Test reports and additional data available upon written request.

MIXING & THINNING

Mixer	1. Batch Mix. Use a minimum 340-453 litre (12-16 cubic foot) heavy-duty mortar mixer capable of rotating at 40 rpm with rubber tipped blades that wipe the sides. 2. Continuous feed mixer. Contact Carboline Technical Service for recommendation. Densities may vary when using this type of mixing equipment.
Mixing	Always mix with clean potable water. The mixer shall be kept clean and free of any previously mixed materials which may cause premature setting of product. A 2 bag mix is recommended for paddle type mixers. Mix time should be approximately 2 minutes minutes at 40 rpm. Do not over mix. The material volume should not go over center bar of mixer. Use 30.3 to 37.8 litres of water per 22.7 kg (50 lb.) bag. Add water to the mixer first with blades stopped. With mixer turned on, add material to the water and begin mixing.
Ratio	Optimum: 22.7 kg bag : 34 litres Range: 30.3 to 37.8 litres per 22.7 kg (50 lb) bag

MIXING & THINNING

Density	For information and recommendations obtaining the proper density and yield, refer to Southwest Type 5GP Application Instructions or Carboline Fireproofing Technical Service.

APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Pump	This material can be pumped with a wide range of piston, rotor stator and squeeze pumps designed to pump cement & plaster materials including: Essick - model# FM9/FM5E (Rotor Stator/2L4) Putzmeister - model# S5EV (Rotor Stator/2L6) Hy-Flex - model# 321E (Piston) Hy-Flex - model# HZ-30E (Rotor Stator/2L6) Hy-Flex - model# H320E (Piston) Strong Mfg. - model# Spraymate 60 (Rotor Stator/2L6) Airtech - model# Swinger (Piston) Mayco - model# PF30 (Dual Piston) Thomsen - model# PTV 700 (Dual Piston) Graco - model# F340e (Piston) Graco - model# F800e (Dual Piston) Marvel kit must be removed from piston pumps.
Ball Valves	Ball valves should be located at the manifold and at the end of the surge hose to facilitate cleaning of the pump and/or hoses.
Material Hose	Use 5 m to 8 m of 75 mm I.D. or larger surge hose from the manifold. Follow with a 16” (406 mm) tapered fitting to a 50 mm I.D. hose to the spray area. Taper to 5 m to 6 m of minimum 32 mm or 25 mm whip hose. All connections should have conical tapered fittings.
Standpipe	Use 75 mm (3”) I.D. aluminum tubing with quick external disconnections. Elbows should be 75 mm (3”)) I.D. with minimum 900 mm (36”).
Nozzle/Gun	Use a minimum 25 mm (1”) I.D. plaster type nozzle with shut off valve, swivel and air shut off valve.
Orifice Size and Shields	9 mm to 16 mm (9/16 to 5/8”) I.D. “blow-off” tips (mini shields optional)
Compressor	Compressor on pump must be capable of maintaining minimum 30 psi (206 kPa) and 9 to 11 cfm at the nozzle.
Air Line	Use 16 mm (5/8”) I.D. hose with a minimum bursting pressure of 100 psi (689 kPa).

APPLICATION PROCEDURES

General	Thicknesses of 12.5 mm - 16 mm (1/2" - 5/8") or less can be applied in one pass. When additional coats are required to reach specified thickness, apply subsequent coats after prior coat has set. If preceding coat has dried, dampen the surface with water prior to application of additional coats. Material can be injected with Accelerator A-20 solution to increase set time and yield. Refer to the Southwest Type 5GP application procedures for detailed instructions.

APPLICATION PROCEDURES

Field Tests | Test for thickness and density in accordance with the applicable building code, AWCI Technical Manual 12-A (Standard Practice for the Testing and Inspection of Field Applied Sprayed Fire-Resistive Materials, an Annotated Guide), and ASTM E605 (Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Materials Applied to Structural Members).

Finishing | Normally left as a sprayed texture finish.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	4°C (39°F)	4°C (39°F)	4°C (39°F)	0%
Maximum	38°C (100°F)	52°C (126°F)	43°C (109°F)	95%

Air and substrate temperatures shall be maintained 24 hours before, during and 24 hours after application. Gypsum based products are susceptible to water and must be protected accordingly. Contact Carboline Fireproofing Technical Service for recommendations.

CURING SCHEDULE

Surface Temp.	Dry to Recoat
25°C (77°F)	4 Hours

Recoat times will vary based upon ambient conditions and air movement. Material can be injected with Accelerator A-20 for fast set time and increased yield.

CLEANUP & SAFETY

Cleanup | Pump, mixer and hoses should be cleaned with potable water. Sponges should be run through the hoses to remove any material remaining in the hoses. Wet overspray must be cleaned up with clean, potable water. Cured overspray material may be difficult to remove and may require chipping or scraping to remove.

Safety | Follow all safety precautions on the Safety Data Sheet. It is recommended that personal protective equipment be worn, including spray suits, gloves, eye protection and respirators.

Overspray | Adjacent surfaces shall be protected from damage and overspray. Sprayed fireproofing materials may be difficult to remove from surfaces and may cause damage to architectural finishes.

Ventilation | In enclosed areas, ventilation shall not be less than 4 complete air exchanges per hour until the material is dry.

TESTING / CERTIFICATION / LISTING

Underwriters Laboratories, Inc.	Tested in accordance with ASTM E119/UL 263 at Underwriter's Laboratories, Inc. and listed by UL in the following designs (most commonly used in bold): **Protected Floor/Ceiling:** **D739, D788 (Restrained/Unrestrained)** Additional designs: A702, D701, D703, D704, D705, D706, D708, D709, D710, D711, D712, D715, D716, D722, D723, D725, D726, D727, D728, D729, D730, D740, D742, D743, D744, D745, D746, D747, D748, D750, D751, D752, D753, D754, D756, D758, F817, F818 **Unprotected Floor/Ceiling:** **D949 (Restrained/Unrestrained)** Additional designs: D905, D907, D909, D910, D916, D917, D920, F906 **Concrete Floor/Roof:** **J718 (Restrained/Unrestrained)** Additional designs: G701, G702, G703, J701, J704, J705, J706, J709, J919, J957, J966 **Beam/Joist:** **N791, S740 (Restrained/Unrestrained)** Additional designs: N401, N404, N706, N708, N732, N736, N754, N756, N791, S701, S702, S715, S739 **Protected Roof/Ceiling:** **P741 (Restrained/Unrestrained)** Additional designs: P675, P676, P701, P708, P709, P710, P711, P714, P717, R705 **Unprotected Roof/Ceiling:** **P921 (Restrained)** Additional designs: P901, P902, P907, P919, P920, P923, P937 **Metal Wall Assembly:** **U703 (Restrained/Unrestrained)** **Columns:** **X771, Y725** Additional designs: X527, X701, X704, X722, X723, X772, X751, X752, X808, X813, X819, X820,X821, X822, Z805, Z806, Z807, Z810

PACKAGING, HANDLING & STORAGE

Packaging	50 lb. (22.7 kg) bags
Shelf Life	12 months
Shipping Weight (Approximate)	50 lb. (22.7 kg)
Storage	Store indoors in a dry environment between 0°C - 52°C Material must be kept dry or clumping of material may occur.

APPROVALS

Approvals NZ/AU	**AS 1530.4 - 2005** Type 5GP has been fully assessed in accordance with AS 1530.4; reference BRANZ FAR 3764 (4/11/11). 30 to 240 minute fire ratings for structural beams, columns and hollow sections at Limiting Temperatures ranging from 350°C to 700°C. **AS 4100** Fire resistance of 3 side exposed beams assessed and approved under the requirements of the Building Code of Australia, Specification A2.3, Clause 2 (d) (i) in accordance with AS 4100; reference BRANZ Report FAR 3876 **BS 476: Part 21** Reference WFRC Reports 163280, 160007 & 160008 30 to 240 minute fire ratings for structural beams, columns and hollow sections at Limiting Temperatures from 350°C to 700°C. All testing at maximum permissible design loads according to BS449.

WARRANTY