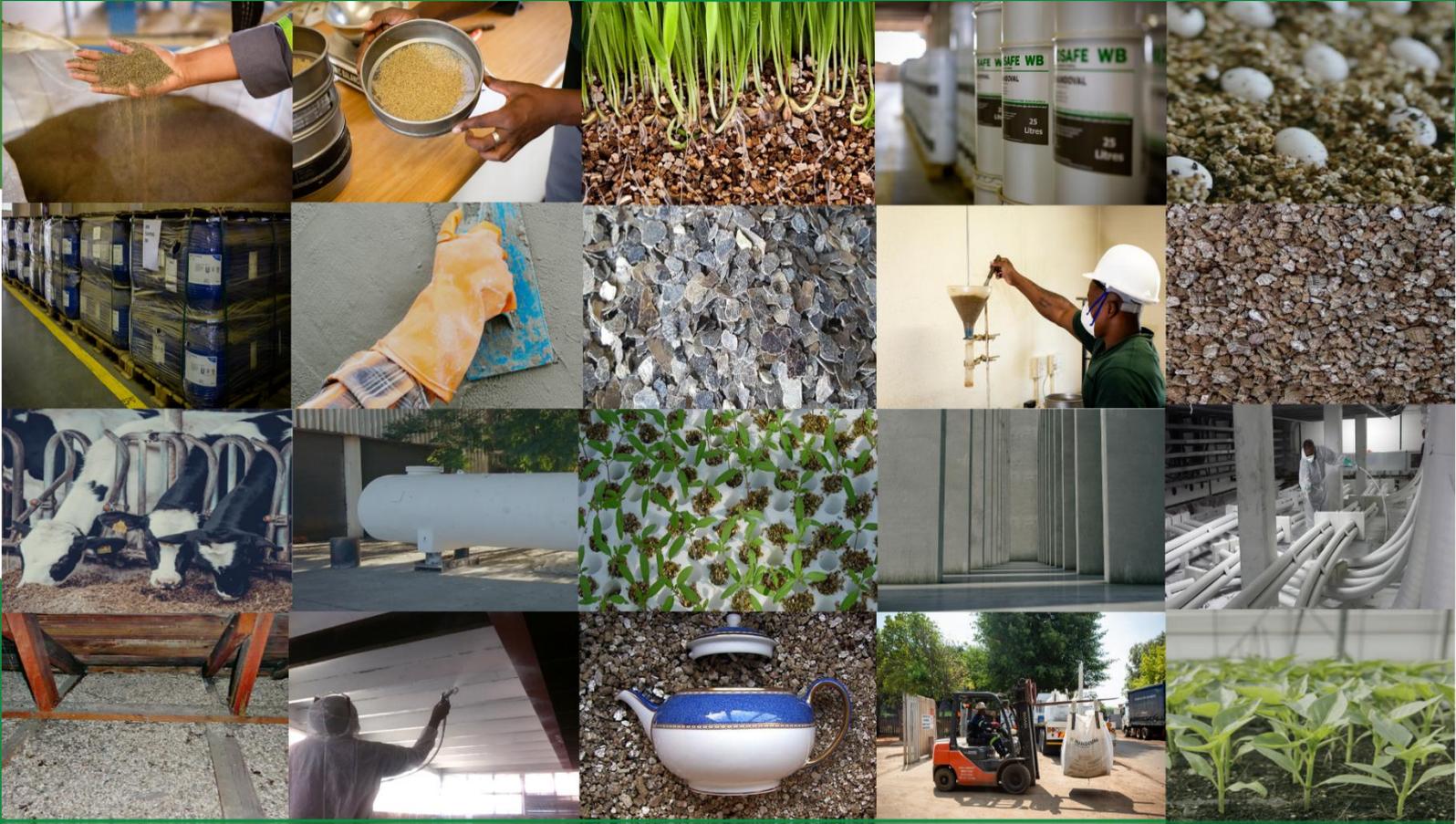




MANDOVAL

VERMICULITE INNOVATION



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ISO 9001:2015 ISO 45001:2018 ISO 14001:2015



INTRODUCTION:

At Mandoval we are committed to establishing market opportunities for Vermiculite usage in South Africa and abroad.

The company is based in Alrode, Gauteng, South Africa with branches in Cape Town, and Durban. Mandoval is recognised by its customers for its professional approach to product quality and customer service.

The company also has an excellent relationship with all its staff some of which have been with the company for over 35 years.

OUR PURPOSE:

To create value for all stakeholders through our experience, expertise and excellence.



- Teamwork
- Communication

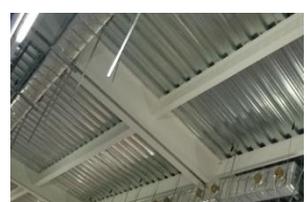
We accept that we function as a team and that decisions have knock-on effects. We listen well and seek to understand before reacting. We communicate clearly and provide honest, helpful and timely feedback to stakeholders.

- Ownership
- Responsibility and Accountability

Responsibility is distributed amongst a team that respect and trust each other. We let go when we're not directly responsible, we take action when we are and accept accountability for our actions. Individual ownership ensures anticipated outcomes.

- Integrity
- Innovation

We are genuine, impartial and transparent. We find solutions to overcome challenges and suggest better approaches. We minimise complexity and find time to simplify.



VICORE VERMICULITE



Technically Vermiculite encompasses a large group of Hydrated Laminar Magnesium-Aluminium Iron Silicates which resemble Mica.

There are two key properties of Vermiculite. The first is its laminar (or layered) crystalline structure which provides the hinged plates that make the material expand or unfold in a linear manner like an accordion. The second is that it contains trapped water which flashes into steam when heated to force the layers open.

There are a many naturally occurring Vermiculite minerals and soils and their identification often requires sophisticated scientific analysis. One of the most common forms of Vermiculite is generally known as Commercial Vermiculite. It is derived from rocks containing large crystals of the minerals Biotite and Iron-bearing Phlogopite. As these rocks are exposed to the weather they start to decompose allowing water to enter and react with the various chemicals present. As the decomposition and chemical reaction proceed Vermiculite is formed.

GRADE	BAG SIZE	PARTICLE SIZE
LARGE	25kg	-8.0 mm to +2.8 mm
MEDIUM	25kg	-4.0 mm to + 1.4 mm
FINE	25kg	-2.0 mm to + 0.710 mm
SUPER FINE	25kg	-1.0 mm to 0.355 mm
MICRON	25kg	-0.710 mm to + 0.250 mm



APPLICATIONS:

AGRICULTURAL

Production of Concentrated Feed Mix Additive



INDUSTRIAL

Insulation of Molten Metal in Steel Foundries



VICAFIL VERMICULITE



The exfoliation of Vermiculite is critical to ensuring the maximum attributes of the products are obtained. Poor exfoliation reduces the absorption properties being water or chemicals. It also affects the material density.

Mandoval's products are exfoliated using a system of maximum heat and controlled feed of the raw material thus ensuring our products are supplied according to stringent quality standards.

GRADE	BAG SIZE	PARTICLE SIZE
LARGE	7 kg	-8.0 mm to +2.8 mm
MEDIUM	8 kg	-4.0 mm to + 1.4 mm
FINE	9 kg	-2.0 mm to + 0.710 mm
SUPER FINE	10 kg	-1.0 mm to 0.355 mm
MICRON	10 kg	-0.710 mm to + 0.250 mm



APPLICATIONS:

AGRICULTURAL

- Animal Feed
- Pet Enclosures

HORTICULTURAL

- Growing Medium
- Soil Conditioner
- Hydroponics

INDUSTRIAL

- Friction Linings
- Insulation in Steelworks and Foundries
- Packaging Materials and Spillage Absorbent

COMMERCIAL

- Loose Fill Insulation
- Light Weight Screeding



PASSIVE FIRE PROTECTION

Passive Fire Protection products play a major role in all building design and are incorporated under section T of the National Building Regulations 10400. Containing a potential fire to its source and preventing the spread of toxic and corrosive gases from spreading throughout a building is an integral part of building safety as well as the prevention of structural collapse. Mandoval's Passive Fire Protection products include fire stopping seals, coatings for structural steel and fire rated boards.

FIRE PROTECTIVE PLASTERS

Mandoval Vermiculite Plasters are used in general building plasters (both hand and spray applied) to improve coverage, ease handling, adhesion to a wide variety of substrates and resistance to chipping/cracking/shrinkage.



TEKROK C

Tekrok C is a new generation fireproofing plaster for use in the Chemical and Petrochemical Industries. It has recently been modified using advanced chemical technology improving durability and workability. This plaster is a factory pre-mix product that can be troweled or spray applied and has been officially tested for 180-minute fire protection. Tekrok C is in compliance with the NFPA58 specification for flammable gas storage vessels. Tekrok C is packaged in 20kg PVC bags.

Dry Density	750 – 900 kg/m ³
Wet Density	765 kg/m ³
Colour	Grey
Mix Ratio	1 x 20kg bag : 13 – 18 Litres water
Compressive Strength	3.2 MPA
Shelf Life	12 months @ 23°C and 50% humidity
PH Value	12 – 12.5
Thermal Conductivity (K-Value)	0.19 W/m° C
Initial setting time	Min 45 minutes Max 5.5 hours
Final setting time	28 days
SABS Test report number	2023-03-30 Mandoval
Fire Protection	180 - Minutes



Product features:

Medium density, durable, chemically resistant and has excellent substrate adhesion

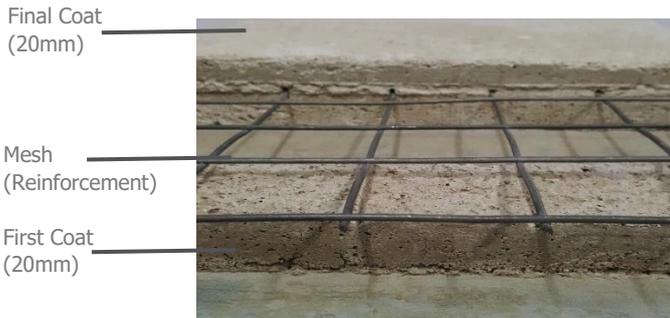
Applications:

Structural steel, LPG vessels, vessel skirts, cables and junction boxes

TEKROK S

Tekrok S is an economically proven cement pre-mix material for fireproofing structural columns and beams in commercial buildings or as a fire barrier system. It also has applications such as a condensation control material and as a spray applied monolithic coating.

Tekrok S is of particular benefit where economic and speed of application are the main considerations. Tekrok S provides a number of benefits over conventional materials including durability, being light weight and asbestos free. Tekrok S is packaged in 15kg PVC bags.



Dry Density	380 kg/m ³
Wet Density	765 kg/m ³
Colour	Off white
Mix Ratio	1 x 15kg bag : 20 – 24 Litres water
Compressive Strength	0.380 MPA
Shelf Life	12 months @ 23°C and 50% humidity
PH Value	12 – 12.5
Thermal Conductivity (K-Value)	0.091 W/m° C
Initial setting time	2 – 6 hours
Final setting time	28 days
Test report number	2023-03-29 Mandoval
Fire Protection	180 - Minutes

Product features:

Low density, durable, good substrate adhesion and excellent thermal properties

Applications:

Fire protective layer on structural steel, insulation on sludge digesters, condensation control, fire protection on lift shafts, insulation of parking garages, hotels and kitchens



TEKROK T.G.

Tekrok T.G is a modified form of Tekrok C through the addition of chemical additives. Tekrok T.G is used as a penetration seal for 180 minutes' fire protection where material structural stability is required. Tekrok T.G plaster consists of Vermiculite, cement, lime, mica and thixotropic chemical additives which assist when trowelling. The plaster may only be applied by an approved specialist contractor for the use on structural steel and LPG Vessels in the Petrochemical Industry. Tekrok TG is specifically designed to meet the needs of Hydrocarbon and Chemical Processing Industries to withstand high thermal shock experienced in high intensity hydrocarbon fuelled fires. Tekrok T.G is packaged in 20kg PVC bags.

Dry Density	750 – 900 kg/m ³
Wet Density	765 kg/m ³
Colour	Grey
Mix Ratio	1 x 20kg bag : 13 – 18 Litres water
Compressive Strength	3.2 MPA
Shelf Life	12 months @ 23°C and 50% humidity
PH Value	12 – 12.5
Thermal Conductivity (K-Value)	0.19 W/m° C
Initial setting time	Min 45 minutes Max 5.5 hours
Final setting time	28 days
Test report number	2023-03-31 Mandoval
Fire Protection	180 - Minutes



Product features:

Durable, chemically resistant, excellent substrate adhesion and medium density material

Applications:

Structural steel and LPG vessels in the Petrochemical Industry

Colour	Grey
Density	856 – 10 50 kg/m ³
Mix Ratio	1 x 25kg bag : ±18 Litres of water
Compressive Strength	3.2 MPA
Shelf Life	12 months @ 23°C and 50% humidity
PH Value	12 – 12.5
Thermal Conductivity (K-Value)	0.19 W/m° C
Initial setting time	Min 45 minutes Max 5.5 hours
Final setting time	28 days

TEKROK CAST

Tekrok Cast has been specially formulated as a cast-in place material. Tekrok Cast is used as an encasement for structural columns where fire protection as well as aesthetics are required. Tekrok Cast is packaged in 25kg PVC bags.



Product features:

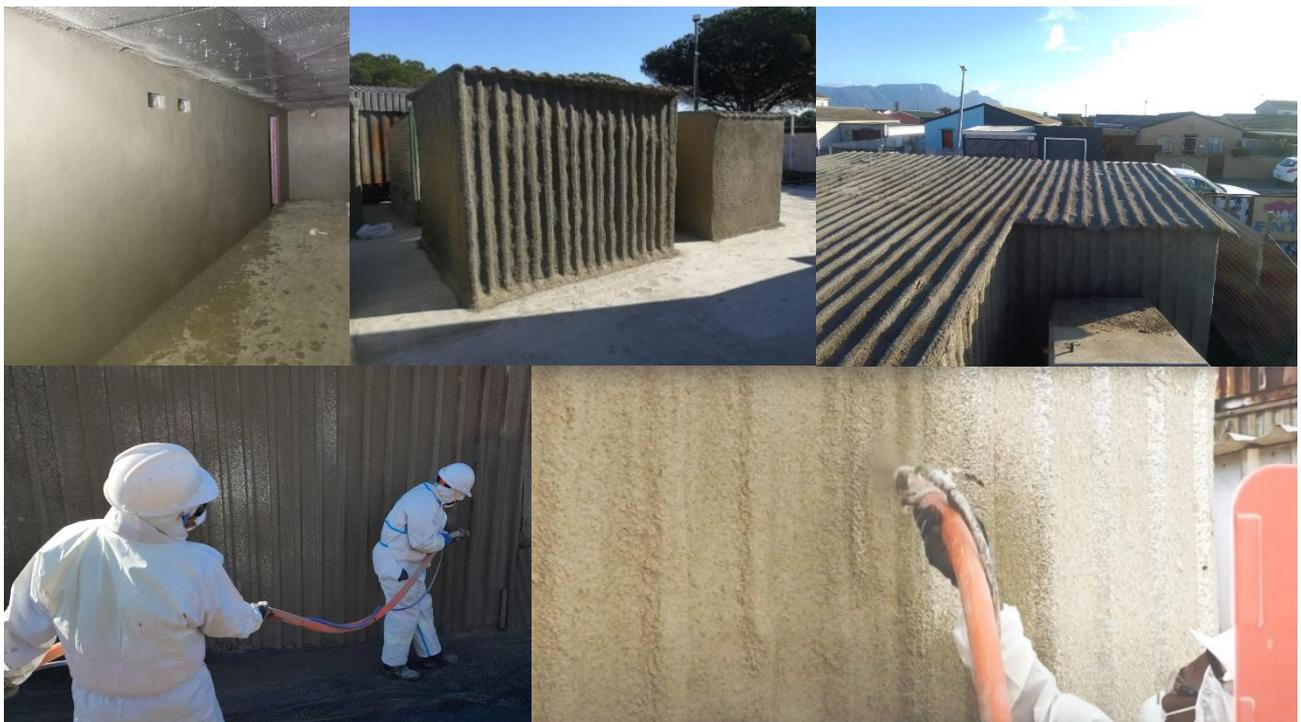
Durable, non-toxic, non-combustible and non-hazardous

Applications:

Enhancement for structural columns, fire protection aesthetics, penetration seals and cables through walls and floors

BENEFITS OF MANDOVAL'S FIRE PROTECTIVE PLASTERS

- Durability
- Easy handling
- Asbestos free
- Excellent coverage
- Good adhesion to a wide variety of surfaces
- SABS Tested to 120 minutes in Hydrocarbon conditions
- Tested to NFPA 58 for protection of flammable liquid storage vessels



DECORATIVE AND ACOUSTIC PLASTERS

VIP

VIP plaster is a specially formulated blend of Vermiculite, gypsum and other additives. This plaster is used in many applications such as infill of large cracks and voids, infill of electrical conduit channels, and junction box cavities, etc. VIP Plaster is packaged in 25kg PVC bags.

Colour	White
Mix Ratio	1 x 25kg bag : ±18 Litres of water
Shelf Life	12 months @ 23°C and 50% humidity
Initial setting time	Min 45 minutes Max 5.5 hours
Final setting time	28 days



Product features:

Asbestos free, non-toxic and non-combustible

Applications:

Skimming of ceiling, penetration and conduit casings as well as a filler for large crack and voids



Colour	Natural off White (Colours on request)
Dry Density	520 kg/m ³
Thermal Conductivity (K-Value)	0.14 W/m° C
Mix Ratio	
Spreading Rate	6.5 kg/m ² at 12 mm
Shelf Life	12 months @ 23°C and 50% humidity
Setting time	
Test Report	5462/1543752T43

Applications:

Theatres and recording studios

Product features:

Decorative, excellent sound absorption, non-combustible, non-toxic, asbestos free and durable

MANDOVAL ACOUSTIC SPRAY

Mandoval Acoustic Spray is a decorative acoustic material with proven history of successful sound control. It consists of Vermiculite and mineral binders. It is clean to handle and is asbestos free. Mandoval Acoustic Spray is applied by a special spraying process giving an attractive textured finish and ensuring maximum sound absorption. Mandoval Acoustic Spray is packaged in 15kg PVC bags.

FREQUENCY Hz	SOUND ABSORPTION COEFFICIENT
100	0.01
500	0.16
2000	0.16
4000	0.22
5000	0.27

FIRE PROTECTIVE COATING



PYROSAFE WB

Pyrosafe WB is a water-based intumescent fire-retardant coating which provides excellent protection to structural steel and can also be used as a fire protective coating on wood and electrical cables. Pyrosafe WB is non-toxic, easy to apply, and has excellent adhesive properties. Pyrosafe WB provides fire rating up to 60 minutes. Pyrosafe WB is packaged in 5 Litre and 25 Litre drums.

Solids by volume	62% - 66%
Colour	White
Gloss Level	Matt
PH Value	9.1 – 9.3
Shelf Life	12 months unopened container
Surface Drying time @ 25°C	1 hour
Touch dry @ 25°C	6 hours
Recoating	6 hours
Test report – Timber	653/82943/9513
Test report – Chipboard	653/82223/63613
Test report – Structural Steel	55059554/8

Product features:

Decorative, easy to maintain, easy to apply and provides 60-minute fire rating

Applications:

Interior structural steel, timber and electrical cables



SAPPHIRE

Sapphire is a clear water-based flame-retardant chemical, used to reduce the flame spread along natural fibres, synthetic materials and blended fabrics. Sapphire is especially adapted to the treatment of natural and synthetic fibre textiles. Sapphire is packaged in 25 litre drums.

Appearance	Clear colour liquid
PH	5.0
Methods	Spraying, dipping, sponging or brushing
Test report SABS	5409/83384/98
Test report CSIR	5032/9566

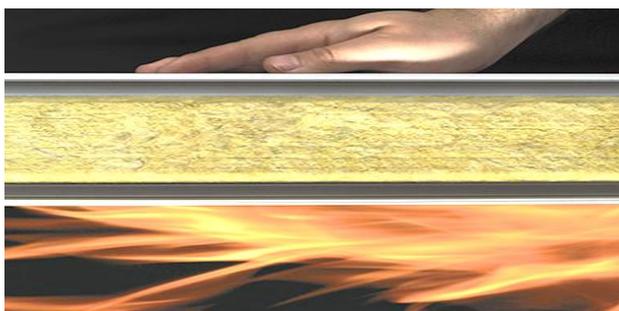
Applications:

Fire protection of fabrics, work clothes, gloves, upholstery and textiles such as curtains

Product features:

Non-toxic, non-irritating and non-dermatitic

FIRE PROTECTIVE SYSTEMS



MINERAL WOOL PANELS

Mineral Wool Panels are matt brown fibrous wool panels which are bio-soluble and have no adverse environmental effects. Mineral Wool Panels can be used for various applications such as thermal insulation, acoustic insulation, fire stopping seals and heat and fire insulation. The Mineral Wool Panel unit size is 1.2m x 0.6m x 50mm.



Density	160kg/m ³
Thermal conductivity (K-Value)	Maximum 0.043 W/mK
Thermal resistance (R-Value)	3.7m ² K/W
Sound absorption coefficient	0.14 – 0.99
Moisture absorption coefficient	0.3%
Recoating	6 hours

Product features:

Non-combustible, bio soluble, dust free, odourless and excellent thermal properties

Applications:

Thermal insulation for commercial and industrial applications, acoustic insulation between dry walling or as roof insulation and fire stopping seals used in combination with Pyrosafe WB or KBS Coating

CALCIUM SILICATE FIRE BOARD

Calcium Silicate Fire Board is a smooth, asbestos free fire board with good thermal conductivity. Calcium Silicate Boards can be used for various applications, including ceilings, roofs, floor partitions, external walls, ventilation and smoke extraction ducts, tunnel fire protection, smoke barriers, as well as a cladding material around wooden panelling. The Calcium Silicate Board unit size is 1.220m x 2.440m x 12mm.



Density	1100 – 1400 kg/m ³
Thermal conductivity (K-Value)	± 0.17 W/mK
Thermal resistance (R-Value)	0.069m ² W/mK
Moisture content	± < 11.5
Weight	50kg
Compressive strength	8 N/mm ²
Test Report	201530469

Product features:

Non-combustible, moisture resistant and excellent thermal properties

Applications:

Structural steel, ceiling, roofs, floor penetration, external walls, smoke barriers, concrete upgrading, ventilation and smoke extraction ducts

KBS FIRE PROTECTION SYSTEMS



Colour	Off white
Thermal conductivity (K-Value)	0.69 W/mK
Thinning	Water
Drying time touch dry	24 hours
Drying time cured	3 days
Solids by volume	70%
Recoating	24 hours
PH Value	8
Shelf life	18 months

Product features:

Durable, flexible, weather and water resistant

Applications:

Fire protection of grouped or bundled cables and fire protection for penetration seals



KBS® CAULKING

KBS Caulking is a viscous, one component fire retardant intumescent caulk used to seal electrical cables, plastic and steel pipes which penetrate fire rated walls and floors. KBS Caulking provides up to 120 min fire rating. KBS Caulking is packages 310ml cartridges.

Colour	Grey
Density	± 1.40g/cm ³
Solids	±75%
Drying time	2 weeks @ 5mm thickness
Elongation to break	±50%
Shelf life	12 months

Product features:

Humidity and moisture resistant, free of halogens and solvents

Applications:

Sealing electrical cables, plastic and steel pipes which penetrate fire rated walls and floors



KBS® COATING

KBS Coating is a water-based fire-retardant coating for electrical cables and as coating and sealant for use in combination with mineral wool panels as through penetration fire stops. KBS Coating as a coating for electrical cables can prolong the circuit integrity of the cables up to 52 minutes. KBS Coating used in combination with Mineral Wool Panels provides up to 200 minutes' fire rating. KBS Coating is packaged in 7kg and 35kg drums.





Colour	Red
Dry density	±600 g/l
PH Value	12.3
Compressive strength	± 0.6 – 0.7 N/mm ²
Expansion	± 3 vol%
Complete curing	±3days
Shelf life	24 months
Workability	60 minutes
Storage temperature	-20°C - 40°C

KBS® MORTAR SEAL

KBS Mortar Seal is a dry mortar mix with controlled swelling effect to provide a non-shrinking, homogeneous and smoke gas-tight fire seal for cable and utility penetrations. KBS Mortar seal expands while it sets (up to 3%), assuring a tight and crack-free seal. KBS Mortar Seal provides up to 120 minutes' fire rating. KBS Mortar Seal is packaged in 25kg bags.

Product features:

Light weight, non-shrinking, homogenous smoke and gas tight

Applications:

Fire protection of large opening with complex cable installations



KBS® SEALBAGS

KBS Sealbags are unique pillows ideal for penetration seals where changes such as retrofitting of cables or metal pipes are the rule rather than the exception. KBS Sealbags provide up to 120 minutes' fire rating. Each Sealbag weighs 720g and is packaged in a box of 20 Sealbags.

Product features:

Weather, water and electrical resistant

Applications:

Penetration seals where subsequent retrofitting and changes are expected



Size	340 x 180 x 35mm
Appearance	Pulvinated elements with orange printing
Expansion rate	45%
Ceramic reaction	@800°C

KBS® PIPE SEAL

KBS Pipe Seals are strangler seal for thermoplastic pipes. KBS Pipe Seals offer protection for pipes of all dimensions and installations up to 500 mm diameter. They consist of a round steel casing, supplied in two halves, with a heat-expanding inner shell. KBS Pipe Seals provide 2-hour fire resistance.

Product features:

Weather, water and electrical resistant

Applications:

Penetration seals where subsequent retrofitting and changes are expected



Integrity F-Rating	Up to 2 hours
Insulation T-Rating	Up to 2 hours



FSI FIRE STOPPING SYSTEMS



Colour	White, paste, matt finish
Slump	5mm after 1hr in 30mm joints
Cured Rate	3mm per day at 50% relative humidity 23°C
Shrinkage	Approximately 12%
Application Temperature	+5°C to 40°C
Water Resistance	Good when fully cured
UV Resistance	Good
Shelf life	18 months
Fire Rating	Up to 240 minutes



ETA 13-1069
ETA 13-1070
CE 1121-CPR-JA5009

PYROPRO® – HPE

PyroPro® HPE Sealant is a water based acrylic sealant used to reinstate the fire resistance of wall and floor constructions in apertures when penetrated by single or multiple services. PyroPro® HPE Sealant has been developed utilizing specialist intumescent technologies which result in the sealant expanding in the presence of heat or fire to reinstate fire resistance where combustible services are present. The expansion of PyroPro HPE is fast acting and up to 25 times. The expanding sealant fills the void left by combusting materials and remains in place, exerting a pressure on the surrounding substrate upholding the fire resistance of the compartment.

Colour	Dark Grey / Black
Shore Hardness	68
Cured Time	1.7mm per 24 hours
Density	Ca. 1.23 – 1.33g/cm ³
Application Temperature	+5°C to 35°C
Expansion Ratio	Up to 25 times
Insulation	120
pH	6-9
Fire Rating	Up to 240 minutes



ETA 13-1069
ETA 13-1070
CE 1121-CPR-JA5009

PYROCOUSTIC® INTUMESCENT

Pyrocoustic® Fire Resistant Sealant is a water based acrylic sealant used to reinstate the fire resistance of wall and floor constructions where apertures are penetrated by multiple services and linear gap seals where wall and floor constructions abut. Pyrocoustic® Sealant is extensively tested for global requirements, it is supplied in: 600ml foils.

Product features:

Provides a smoke seal
Easy gunning and tooling
Halogen free, resist fungi and vermin
Flexible, high performance water based fire sealant

Applications:

Head of walls
Blank openings
Multi service penetrations
Cable trays and cable ladders
Metallic Pipes, Cables and Cable bunches
Flexible walls, rigid walls and rigid floors



Product features:

Causes no known affects to plastic pipes, plastic cables, sheathing or metallic components
Easy clean up with water and is odourless
Over paintable
Smoke, gas, watertight and airtight
High Expansion Ratio

Applications:

Rigid wall and floors, flexible wall and batts in wall and floor.
Linear Joints up to 20mm wide
Large service openings up to 300mm x 100mm
Batt aperture up to 1100mm x 750mm
Metallic Pipes, Cables, Cable Bunches (incl. Telecommunication),
Cable Trays and Cable Ladders

FLEXI COAT®

Flexi-Coat® is a highly flexible water based, acrylic coating used in linear gaps where voids are present in floor and wall constructions as well as service penetrations to reinstate the fire resistance performance.

The Flexi-Coat® system offers excellent movement and acoustic capabilities. Flexi-Coat® can offer up to 50% movement. Supplied in liquid form in 20kg, pails, the Flexi-Coat® can be poured, trowelled or sprayed into the aperture between the separating elements to a specified depth utilising Mineral Wool backing material.



Colour	White
Coating Thickness	2.5mm Nominal, wet coating thickness
Cured Rate	3mm per day at 50% relative humidity 23°C
Coverage	2.8kg/m ² , 2.24L/m ²
Application Temperature	+0C to +30C
Applied by:	Spray, brush or trowel applied
Shelf life	18 months unopened
Fire Rating	Up to 120 minutes



ETA 13-1057
ETA 15-0434
CE 1121-CPR-JA5010

Product features:

Highly flexible and water resistant
Halogen free, resist fungi and vermin

Applications:

Cable trays and cable ladders
Flexible linear joint sealing system
Suitable for voids up to 500mm wide
Metallic Pipes, Cables and Cable bunches



PIPEBLOC PWP® INTUMESCENT PIPE WRAP

PipeBloc® PWP Wraps are designed and tested to seal service penetration apertures containing plastic pipes formulated with thermoplastic composites based on reactive intumescent technology. The individual PWP Wraps have been developed to provide a high volume expansion and pressure seal during a fire. The PipeBloc® PWP wraps can be used to a maximum diameter of 200mm. The ultra-thin design of PipeBloc® PWP wraps ensures that they can be installed into the tightest of locations.

Product features:

Internal use only
High performance intumescent
Not affected by fungus, vermin or rodents
Based on a thermoplastic composite and is therefore non-toxic
Halogen free, contains no asbestos, ceramic or mineral fibres and is environmentally friendly

Applications:

Flexible walls, rigid walls, rigid floor constructions, in bat seals and combustible plastic pipe penetrations

Colour	Green plastic packaging
Sizes	110mm and 160mm x 40mm
Thickness	2mm at 32mm upto 12mm at 250mm
Density	Approximately 1.2 g/cm ³
Volume Expansion	Approximately 25 times
Expansion Pressure N/mmP	1.30
Compatible with	Polypropylene (PP), polyethylene (PE) and polyvinylchloride (PVC) pipes.
Shelf life	N/A
Fire Rating	Up to 240 minutes



ETA 15-0490
CE 1121-CPR-JA5081



PIPEBLOC EL®

PipeBloc® EL system is designed and tested to seal service penetrations in apertures containing combustible services. PipeBloc® EL has been developed utilizing specialist intumescent technologies which result in the wrap expanding in the presence of heat or fire. This expansion is fast acting and up to 25 times. The expanding intumescent fills the void left by combusting materials and remains in place, exerting a pressure on the surrounding substrate upholding the fire resistance of the compartment. This uniquely formulated product allows it to be tested and Certified to internationally recognised standards, including, Certifire, CE marking and UL Listings. PipeBloc® EL Wrap has been tested and Certified as part the FSi Fire Stopping range. The PipeBloc® EL system can be installed across a variety services and substrates.

Colour	Black
Sizes	Pipes 32 – 200mm (L- 25m roll W-40mm)
Installation Temperature	+5 - 35°C
Shelf life	18 months if stored correctly
Density	Approximately 1.2g/cm ³
Volume Expansion @450°C	Approximately 25 times
Expansion Pressure N/mm²	Up to max 1.30
Fire Rating	Up to 120 minutes

Product features:

- Ultra-thin design to allow installation into tightest of areas
- High performance intumescent
- Not visible once installed

Applications:

Flexible walls, rigid walls, rigid floor constructions, in bat seals and combustible plastic pipe penetrations



PIPEBLOC EL® – 25M ROLL APPLICATION GUIDELINE

Pipe Diameter	Intumescent Thickness	
	No of Layers / Wraps	Total Thickness (mm)
40	1	2
55	2	4
63	2	4
75	2	4
82	2	4
90	3	6
110	3	6
125	4	8
160	4	8
200	5	10

PIPEBLOC PCP® COLLARS

PipeBloc® PCP Collars are designed and tested to seal service penetration apertures containing plastic and metallic pipes both with and without insulation. PipeBloc® PCP has been developed to provide a high volume expansion and pressure seal in the event of a fire. The PipeBloc® PCP Collars can be used on pipes to a maximum diameter of 250mm for internal and external applications. The ultra-thin profile of PipeBloc® PCP Collars shells, a depth of 30mm or 40mm allows for the installation into the tightest of locations.



Colour / Appearance	Green Steel – 3 Fixing Tabs
Plastic Types	PVC-U, PVC-C, ABS, SAN + PVC, PE-HD, PE, PP
Expansion Rate	20:1
Expansion Pressure N/mm²	1.30
Working Temperature	-20°C to +120°C
Shelf life	N/A
Fire Rating	Up to 240 minutes

Product features:

- Internal use only
- Environmentally friendly
- Halogen free, resist fungi and vermin
- Allows thermal and mechanical movement of pipe
- Halogen free, contains no asbestos, ceramic or mineral fibres

Applications:

- Stopseal Bat system
- Around combustible pipes
- Angled combustible pipes through walls
- Rigid floors with 150mm minimum thickness
- Rigid wall with > 100mm minimum thickness
- Flexible walls with > 100mm minimum thickness



ETA 15-0489
CE 1121-CPR-JA5080



NS PUTTY PADS®

NS Putty® Pads are a pre-cut ablative pads designed for easy application around single and double electrical sockets where fire resistance must be upheld in the event of a fire.

Product features:

- Simple to install
- Internal use only
- High tack adhesion
- Environmentally friendly
- Highly flexible and water resistant
- Not affected by fungus, vermin or rodents
- Pliable and mouldable with excellent self-bonding properties
- Halogen free, contains no asbestos, ceramic or mineral fibres

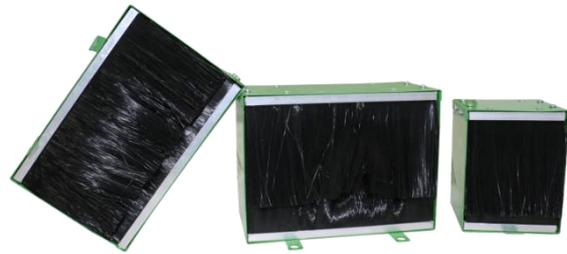
Applications:

- Maintains a fire and smoke barrier around sockets in flexible wall systems

Colour	Green
Size	170mm x 170mm x 4mm
Density	1.55 – 1.6 g/cm ³
Activation	250°C
Shelf life	12 months
Fire Resistance	Up to 120 minutes

PASS-IT TRANSIT SYSTEM®

Pass-It® Transit System is a pre-assembled, multi layered reactive intumescent device encased in a 2 part powder coated steel shell. It is designed to prevent the passage of fire between compartment floors and walls, whilst still allowing for the easy installation and removal of services without destruction of the seal. There are a wide range of different sizes available depending on the number and size of the services required to penetrate. It can be formed into a modular grid or linear format, allowing an easy route for services to travel.



Product features:

- Internal use
- Instant entry / re-entry
- Easy installation of services
- 11 different size combinations
- Brackets included in the pack
- Can be module fixed together
- Superior Level of Sustainability
- Good Acoustic Isolation on Properties
- Use of advanced Intumescent Technology
- Ideal for Historical Building Upgrades or new build

Applications:

- Modular builds
- Reinstate fire resistance through walls
- Penetration of multi-service penetrations

Colour / Appearance	Green Steel – 3 Fixing Tabs
Plastic Types	PVC-U, PVC-C, ABS, SAN + PVC, PE-HD, PE, PP
Expansion Rate	20:1
Expansion Pressure N/mm²	1.30
Working Temperature	-20°C to +120°C
Shelf life	N/A
Fire Rating	Up to 120 minutes



PRODUCT OVERVIEW & CERTIFICATIONS

PRODUCT	DESCRIPTION	FIRE RATING	TEST REPORT /CERTIFICATION	PAGE
VERMICULITE				
VICORE	Raw Vermiculite	N/A	Asbestos free certification	2
VICAFIL	Exfoliated Vermiculite	N/A	Asbestos free certification	3
FIRE PROTECTIVE PLASTERS				
TEKROK C	Exterior fire protective plaster on structural steel	180 minutes	2023-03-30 Mandoval	4
TEKROK C	Exterior fire protective plaster on LPG Vessel	120 minutes	FPE9/84228/02	4
TEKROK S	Interior fire protective plaster on structural steel	180 minutes	2023-03-29 Mandoval	5
TEKROK TG	Trowel grade fire protective plaster	180 minutes	2023-03-30 Mandoval	5
TEKROK CAST	Cast-in-place plaster as steel columns encasement	N/A	N/A	6
DECORATIVE & ACOUSTIC PLASTERS				
VIP PLASTER	Gypsum plaster for skimming ceilings and filling cracks and gaps	N/A	N/A	7
ACOUSTIC SPRAY	Acoustic spray	N/A	5462/1543752T43	7
FIRE PROTECTIVE COATING				
PYROSAFE WB	Intumescent coating on structural steel	60 minutes	5505955418	8
PYROSAFE WB	Intumescent coating on chipboard	60 minutes	653/82223/63613	8
PYROSAFE WB	Intumescent coating on timber	60 minutes	653/82943/9513	8
PYROSAFE WB PANEL SEAL	Penetration fire stopping seal	120 minutes	2023-03-28 Mandoval	8
SAPPHIRE	Fabric fire protection	60 minutes	5409/83384/981	8
FIRE PROTECTIVE SYSTEMS				
MINERAL WOOL PANEL	Insulation panel	N/A	N/A	9
CALCIUM SILICATE BOARDS	Fire board	60 minutes	201530469	9
KBS FIRE PROTECTIVE SYSTEMS				
KBS COATING	Flammastik fire protective coating	120 minutes	653/80725/U588 2023-03-28 Mandoval Approvals: EN 13501, FM 3971, IEC 60332, IEC 60331, BS 476-6, BS 476-7	10
KBS PANEL SEAL	Penetration fire stopping seal	120 minutes	653/81628/D2538	10
KBS CAULKING	Intumescent caulk seal	120 minutes	N/A	10
KBS MORTAR	Mortar mix seal	120 minutes	653/81628/D2541	11
KBS SEALBAGS	Penetration seal pillows for retrofitting	120 minutes	653/81628/D2540	11
KBS PIPE SEAL	Fire protective pipe seal	120 minutes	10110905-W	11
FSI FIRE STOPPING SYSTEMS				
PYROCOUSTIC INTUMESCENT	Fire Resistance Penetration Seals	Up to 240 min	EN1366-3:2009	12
PYROCOUSTIC INTUMESCENT	Fire Resistance Linear Seals	Up to 240 min	EN1366-4:2009	12
PYROCOUSTIC INTUMESCENT	Fire Resistance	Up to 240 min	EN13501-2	12
PYROPRO HPE	Fire Resistance	Up to 240 min	EN1366-3 and EN1366-4	12
FLEXI COAT	Fire Classification	Up to 240 min	EN13501-2	13
FLEXI COAT	Reaction to fire	Up to 120 min	EN13501-1	13
PIPEBLOC PWP WRAP	Fire Resistance Penetration Seals	Up to 240 min	EN1366-3:2009	13
PIPEBLOC PWP WRAP	Fire Resistance	Up to 240 min	EN13501-2	13
PIPEBLOC EL	Fire Resistance	Up to 240 min	EN 1366-3: 2009 and EN 13501-2 Result Up to EI 120	14
PIPEBLOC PCP COLLARS	Fire Resistance Penetration Seals	Up to 240 min	EN1366-3:2009	15
PIPEBLOC PCP COLLARS	Fire Resistance	Up to 240 min	EN13501-2	15
NS PUTTY PADS	Fire Resistance Penetration Seals	Up to 240 min	EN1366-3:2009	15
PASS-IT TRANSIT SYSTEM	Fire Resistance Penetration Seals	Up to 120 min	EN1366-3:2009	16

ISO 9001:2015

ISO 45001:2018

ISO 14001:2015