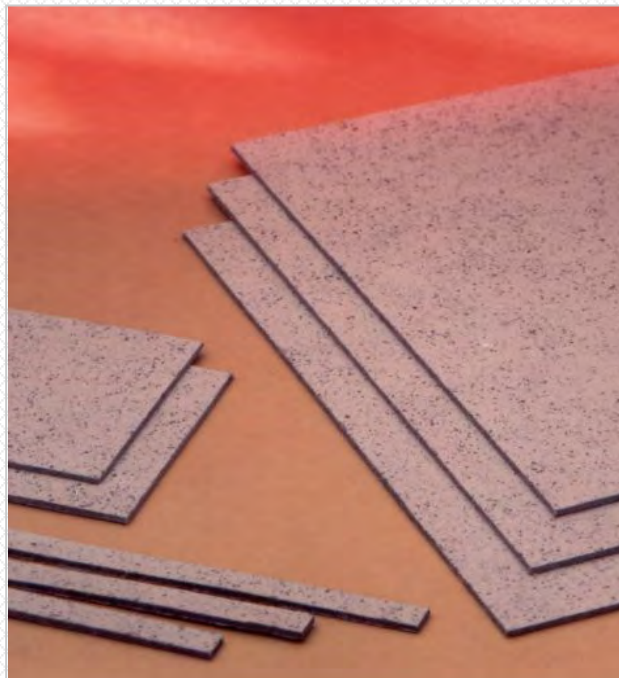


Rigid Intumescent Material

TENMAT FIREFLY 102B is a rigid intumescent material that possesses good pressure generation and mid-range free expansion performance.

TENMAT FIREFLY 102B is most commonly used as the intumescent core within air transfer grilles to maintain fire compartmentation in timber fire doors.

The material would also be suited to applications including as a fire seal for door and glazing applications, ironmongery protection, construction joints and general gap sealing.



STANDARD DIMENSION

Length (mm)	2150
Width (mm)	1050
Thickness (mm)	2.3
Thickness with self adhesive (mm)	2.6
Thickness with PVC coating (mm)	2.9

TENMAT FIREFLY 102B is available with or without self adhesive backing or PVC coating. It can be supplied in sheets with maximum dimensions of 2150 x 1050 mm, or alternatively it can be slit to a variety of widths and lengths within those dimensions or slotted to build up into a air grille matrix.

PROPERTY	UNITS	TYPICAL VALUE
Density	kg / m ³	900
Tensile Strength	MPa	3
Moisture Content	%	3 max
Free Expansion Ratio (@ 450 °C, 15 mins)		17:1
Activation Temperature (under 50 psi load)	°C	200
Pressure generation expansion (@ 450 °C)	Bar	14.0
Reaction to Fire Classification EN 13501-1		E
Material Approval (Baustoff Zulassung)	Zulassungsnr.	Z-19.11-1033

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Intumescent Paper

TENMAT FIREFLY 104E is a dark grey intumescent paper which generates high expansion and expansion pressure when exposed to fire or heat.

It is suitable for applications such as door and glazing seals, door hardware and ironmongery protection, damper seals, gap sealing or a variety of gasketing applications.

FIREFLY 104E is highly flexible allowing it to be wrapped or folded to suit various applications but produces an excellent char structure helping to maintain integrity throughout the fire.



STANDARD DIMENSIONS

	No	Yes	No	Yes	No	Yes
Self adhesive	No	Yes	No	Yes	No	Yes
Thickness (mm)	0.5	0.8	1	1.3	1.8	2.1
Width (mm)	560	560	1120	1120	1120	1120
Length (m)	100	100	100	100	50	50

TENMAT FIREFLY 104E is with or without self adhesive backing. It can be supplied in full rolls or alternatively slit to a variety of widths and roll lengths. The material is also suitable for gasket cutting.

PROPERTY	UNITS	TYPICAL VALUE
Density	kg / m ³	750
Moisture Content	%	3 max
Expansion (under 50 psi load)	%	100
Free Expansion Ratio (@ 400 °C, 15 mins)		20:1
Activation Temperature (under 50 psi load)	°C	200
Pressure Generation Expansion @ 400 °C	Bar	11
Reaction to Fire Classification EN 13501-1		E
Material Approval (Baustoff Zulassung)	Zulassungsnr.	Z-19.11-1721

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Flexible High Expansion Intumescent

TENMAT FIREFLY 107 is an exceptionally powerful intumescent which combines fast reaction with high expansion and pressure generation.

TENMAT FIREFLY 107 produces a solid char of good integrity.

It is suitable for a wide range of applications including penetration seals for pipes, pipe and duct fire wraps, fire collars, cladding and rainscreen cavity fire barriers and other construction joint and gap sealing applications where the high expansion characteristics lead to economical material usage.



STANDARD DIMENSIONS

	3	4	5	6*
Thickness (mm)	3	4	5	6*
Thickness with self adhesive (mm)	3.3	4.3	5.3	6.3
Thickness with PVC coating (mm)	3.6	4.6	5.6	6.6
Width (mm)	1050	1050	1050	1050
Length (mm)	2150	2150	2150	2150

TENMAT FIREFLY 107 is available in a variety of thicknesses from 3mm up to 6 mm* in sheets up to 2150 x 1050 mm, or alternatively it can be slit to a variety of widths and lengths within those dimensions. The material can be supplied with self adhesive backing, please speak to **TENMAT** if this is required.

* Larger thicknesses above 6 mm may be available upon request. Please contact **TENMAT** for enquiries.

PROPERTY	UNITS	TYPICAL VALUE
Density	kg / m ³	630
Moisture Content	%	3 max
Free Expansion Ratio (@ 400 °C, 15 mins)		30:1
Activation Temperature (under 50 psi load)	°C	180 - 200
Pressure Generation Expansion @ 400 °C	Bar	17
Reaction to Fire Classification EN 13501-1		E
Material Approval (Baustoff Zulassung)	Zulassungsnr.	Z-19.11-1726

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Non Ceramic, High Temperature Universal Millboard

TENMAT FIREFLY FF 650 has been specially developed as a general insulation board that includes a percentage of recycled **TENMAT** products that have a graded mixture of fibre and dust, giving insulation properties that provide the market with a commercial grade of millboard that is both strong and flexible up to 1000 °C.

Typically FF650 is ideally suited for application as a heat shield material.



The material is supplied with small specks of coloured particles sometimes visible on the surface.

PROPERTY	UNITS	FF650
Classification Temperature	°C	1,000
Density	kg / m ³	760 - 840
Coefficient of Thermal Conductivity	W / mK	0.1
Tensile Strength	MPa @ 20 °C	3.2
Flexural Strength	MPa @ 20 °C	6.6
Compression	% @ 21 MPa	32
Moisture Content	%	1.4
Loss on Ignition	%	19.5
Linear Shrinkage	% @ 1000 °C	0.7
Colour		Beige to Grey

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Availability

STANDARD SHEETS 1 m x 1 m			
Thickness (mm)	Sheets in a Carton	Thickness (mm)	Sheets in a Carton
1.5	74	5.0	22
2.0	56	6.0	18
2.5	44	8.0	14
3.0	37	10.0	11
4.0	28	12.0	9

Non Ceramic, High Temperature Universal Millboard

TENMAT FIREFLY FF 700 has been specially developed as a commercial grade of millboard that is both strong and flexible with very low shrinkage at 1000 °C. It provides outstanding performance as a universal gasketing, heat shield, and insulation material.

Easy to cut and machine, **FIREFLY FF 700** combines low density with high strength.



TENMAT non-ceramic refractory millboards are classed as non-hazardous under EU regulations, and thus can be disposed of in non-hazardous landfill - unlike competitor products containing Refractory Ceramic Fibre (RCF).

PROPERTY	UNITS	FF700
Density	kg / m ³	1,000
Classification Temperature	°C	1,000
Coefficient of Thermal Conductivity	W / mK	0.12
Electrical Resistance	ΩX x 10 ⁹ / cm ²	7.9
Tensile Strength	MPa @ 20 °C	5
Flexural Strength	MPa @ 20 °C	7
Compression	% @ 21 MPa	36
Moisture Content	%	1
Loss on Ignition	%	11
Linear Shrinkage in 24hrs	% @ 1000 °C	2.3
Colour		Yellow

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Availability

STANDARD SHEETS 1 m x 1 m

Thickness (mm)	Sheets in a Carton	Thickness (mm)	Sheets in a Carton
1.5	74	5.0	22
2.0	56	6.0	18
2.5	44	8.0	14
3.0	37	10.0	11
4.0	28	12.0	9

– Non-marking Millboard for Glass Roll Covers

TENMAT FIREFLY FF 800 is manufactured from high quality non-ceramic mineral fibres yielding a durable, high-performance, non-asbestos material which is non-hazardous and easy to handle.

Due to its silk-like finish when machined to shape, FF 800 has become the leading material for coverings of roller conveyors within the mass production of sheet glass.

TENMAT FIREFLY FF 800 is a non-marking roll covering. The self-cleaning millboard material protects the surface of a glass sheet, thus improving the quality of the product glass yielded. Common plant contaminants such as tin or glass shards do not adhere to FF 800, which increases roller lifetime and maintains glass purity.

TENMAT FIREFLY FF 800 is a versatile and user-friendly material, reducing operating costs as it is easy to handle and form into roll coverings. FF 800 also enables the machining of grooves and scallops into roller covering surfaces to facilitate the clearing of process shrapnel from machinery.

FF 800 combines high strength with superior thermal stability at extreme temperatures, being classified at 1000 °C. This is made possible through high-temperature organic binding agents which achieve optimum strength at temperatures above 400 °C.



PROPERTY	UNITS	FF 800
Classification Temperature	°C	1,000
Coefficient of Thermal Conductivity	W / mK	0.11
Linear Shrinkage @ 1000 °C	%	2.1
Loss on Ignition	%	11
Flexural Strength @ Ambient	MPa	6.5
Compression @ 21 MPa	%	36
Moisture Content	%	1
Density	kg / m ³	850
Colour	-	Pink

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Non Ceramic Millboard for Metal Spin Casting

TENMAT FIREFLY FF 900 is a specialist grade millboard material developed to excel in the spin casting of molten metal. The high performance, high temperature insulation material is durable, low density and enjoys minimal shrinkage at 1000 °C.

FF 900 is low-smoking, low-fuming, and its superior resistance to wetting by molten metal has seen it enjoy sustained success over several decades.



TENMAT non-ceramic refractory millboards are classed as non-hazardous under EU regulations, and thus can be disposed of in non-hazardous landfill - unlike competitor products containing Refractory Ceramic Fibre (RCF).

PROPERTY	UNITS	FF 900
Density	kg / m ³	1,000
Classification Temperature	°C	1,000
Coefficient of Thermal Conductivity	W / mK	0.12
Electrical Resistance	$\Omega \times 10^9 / \text{cm}^2$	4.2
Flexural Strength	MPa @ 20 °C	6
Compression	% @ 21 MPa	34
Moisture Content	%	1
Loss on Ignition	%	8
Linear Shrinkage	% @ 1000 °C	1.8
Colour		Buff

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Availability

STANDARD SHEETS 1 m x 1 m

Thickness (mm)	Sheets in a Carton	Thickness (mm)	Sheets in a Carton
2.0	56	6.0	18
3.0	37	8.0	14
4.0	28	10.0	11
5.0	22	12.0	9

FIREFLY MILLBOARD PRODUCT

TENMAT FIREFLY FF1125 has been specially developed as an alkaline earth silicate fibre millboard to combat the high temperature wear problems associated with roller coverings in stainless steel strip manufacture.

Very low shrinkage and high resistance to cracking makes this material an excellent performer. *FIREFLY FF1125* is produced using exonerated, low bio persistent fibres and meets the relevant European regulatory requirements.

Before being put in to service the *FIREFLY FF1125* rollers should be thermally treated by placing them in the stand-by position at a temperature of approximately 1100°C for around 24 hours. This process is essential for the best performance.



PROPERTIES	UNITS	FF1125
Density	Kg/m ³	800
Compression	%@21MPa	30
Colour		Off White
Flexural Strength	MPa Ambient	8
Loss on Ignition 1000°C	%	12
Linear Shrinkage	% @ 1000°C	1.8
Classification Temperature (4% Shrinkage)	°C	1300

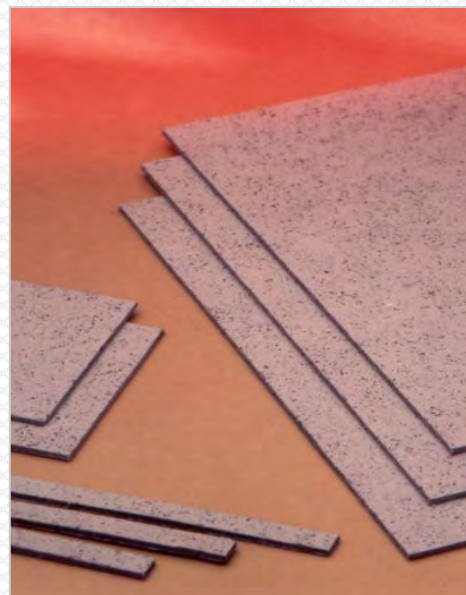
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Rigid Intumescent Material

TENMAT FIREFLY 102 is a rigid intumescent material that possesses excellent pressure generation and expansion performance.

TENMAT FIREFLY 102 is suited to wide range of applications including as a fire seal for door and glazing applications, ironmongery protection, cladding & rainscreen cavity fire barriers, construction joints and general gap sealing.

TENMAT FIREFLY 102 is a halogen free graphite based intumescent material which produces a particularly stable and resilient insulating char structure during and after expansion.



TENMAT FIREFLY 102 is available in a variety of thicknesses, from 1.5 mm up to 6 mm*, with or without self adhesive or PVC coatings. It can be supplied in sheets up to 2150 x 1050 mm, or alternatively it can be slit to a variety of widths and lengths within those dimensions.

STANDARD DIMENSIONS

Thickness (mm)	1.7	2	3	4	5	6*
Thickness with self adhesive (mm)	2	2.3	3.3	4.3	5.3	6.3
Thickness with PVC coating (mm)	2.3	2.6	3.6	4.6	5.6	6.6

* Larger thicknesses above 6 mm may be available upon request. Please contact **TENMAT** for enquiries.

PROPERTY	UNITS	TYPICAL VALUE
Density	kg / m ³	900
Tensile Strength	MPa	4
Moisture Content	%	3 max
Free Expansion Ratio (@ 400 °C, 15 mins)		26:1
Activation Temperature (under 50 psi load)	°C	200
Pressure generation expansion (@ 400 °C)	Bar	16.0
Reaction to Fire Classification EN 13501-1		E
Material Approval (Baustoff Zulassung)	Zulassungsnr.	Z-19.11-1033

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High Temperature Insulation

TENMAT FIREFLY CS1150 S products are manufactured from 100% exonerated Alkaline Earth Silicate (AES) fibres, with proprietary high temperature bonding agents.

CS1150 S offers excellent thermal insulation combined with superior resistance to wetting by ferrous and non-ferrous molten metals.

CS1150S is available in many board sizes up to 45 mm thickness, and can be preformed in three dimensional shapes. Accurately machined parts can also be produced. The products offer low thermal conductivity and superior resistance to thermal shock.

TENMAT FIREFLY materials are classed as non-hazardous under EU regulations, and thus can be disposed of in non-hazardous landfill - unlike competitor products containing Refractory Ceramic Fibre (RCF).



PROPERTY	UNITS	<i>FIREFLY</i> CS1150 S	
Density	kg / m ³	425	
Classification Temperature	°C	1,150	
Colour		White	
Flexural Strength	MPa (Ambient)	2.5	
Linear Shrinkage 24 Hrs	% @ 1000 °C	2	
Coefficient of Thermal Conductivity	@ 200 °C	W / mK	0.07
	@ 400 °C	W / mK	0.08
	@ 600 °C	W / mK	0.09

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High Temperature Refractory Products

TENMAT RF1000FL is manufactured from the highest quality exonerated mineral fibre and acrylic latex. The product is highly compressible, flexible and strong. The latex will burn off harmlessly at elevated temperature.

TENMAT RF1000FL is suitable for various applications, including:

- Domestic appliance insulation
- Compressible seals and gaskets
- Refractory backup insulation

TENMAT RF1000FL is available as pre-cut seal gaskets or full sheets of 1000mm x 500mm with thicknesses ranging from 5 to 75mm.



TENMAT RF1000FL is classed as non-hazardous under EU regulations, and thus can be disposed of in non-hazardous landfill - unlike competitor products containing Ceramic Fibre.

PROPERTY	UNITS	TYPICAL VALUE
Max. Operating Temperature	°C	1000
Classification EC 97/69		Exonerated
Density	kg / m ³	200
Colour		Grey / Green
Linear Shrinkage (24h @ 850°C)	%	4.0
Thermal Conductivity		
200	W/mK	0.05
400	W/mK	0.07
600	W/mK	0.09

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Shot-free Refractory Insulation Paper

TENMAT FIREFLY RF1000P is a high-performance, non-ceramic insulation paper made from 100% exonerated, non-hazardous mineral fibres.

Using high temperature organic binding agents, **FIREFLY RF1000P** exhibits superior reliability in challenging environments. RF1000P is a smooth, shot-free material which has a highly uniform structure, further enhanced by its low thermal conductivity and good handling strength.

TENMAT FIREFLY RF1000P offers exceptional stability at high temperatures; it is a highly durable and resilient material whilst being lightweight and flexible.

TENMAT FIREFLY RF1000P is easy to apply as a wrap, and can also be cut or preformed into gaskets, seals, heat shields, or be applied as general back-up insulation. RF1000P is available in a wide range of thicknesses and roll sizes.



PROPERTY	UNITS	<i>FIREFLY</i> RF1000P
Classification Temperature	°C	1000
Thermal Conductivity @ 200 °C	W / mK	0.06
Thermal Conductivity @ 400 °C	W / mK	0.10
Thermal Conductivity @ 600 °C	W / mK	0.15
Classification Status (EC 97/69)	-	100% Exonerated
Density	kg / m ³	180
Tensile Strength	kN / m ²	1.0
Shrinkage 24h @ 1000°C	%	4
Colour	-	White

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