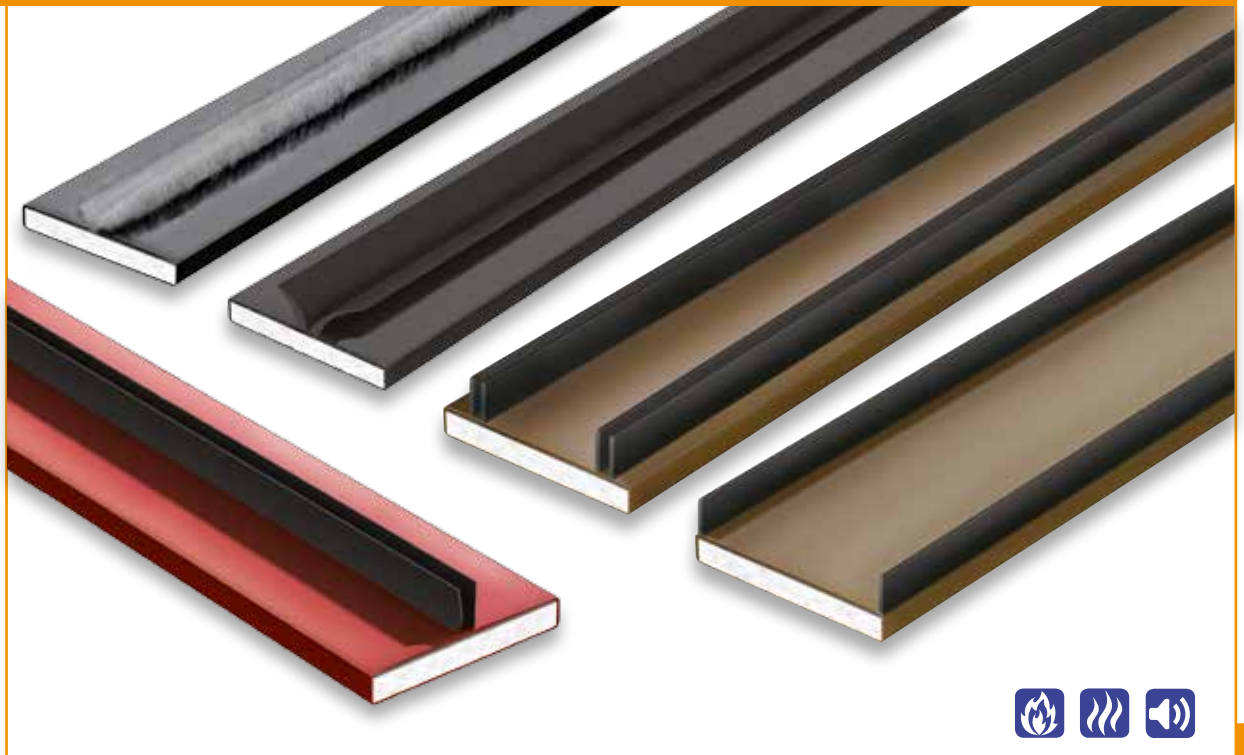


Intumescent fire and cold smoke seals

GB / 1.3 / Rev. 4

PALUSOL[®] EF



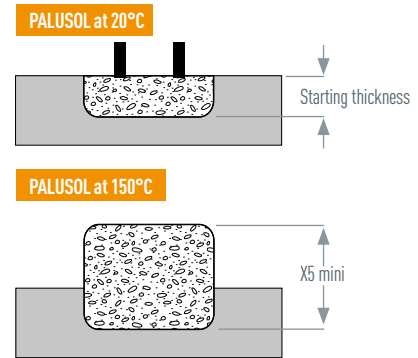
odice
PASSIVE FIRE PROTECTION



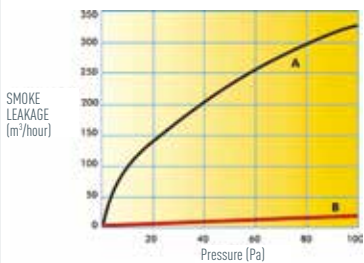
Product description

PALUSOL EF is an intumescent fire seal made from **PALUSOL**, a hydrated sodium silicate material, encapsulated in a rigid thermoplastic profile in combination with a protection against cold smoke. In normal conditions of use, the **PALUSOL EF** seal provides a seal against air and prevents the escape of what is known as cold smoke (below 150°C). When exposed to fire, **PALUSOL** is activated at a temperature of between 100 and 120°C, the seal profile runs and a rigid, non-combustible foam is formed which offers a high level of thermal insulation.

In contact with heat, the intumescent material expands in one direction to at least five times its initial thickness. The expansion pressure thereby generated can reach 1,5N/mm². This ensures continuity of sealing, thus providing an effective barrier preventing the escape of any flames, smoke or hot gases around the perimeter of the fire-resistant element sealed in this way.



Measurement of smoke leakage* at room temperature

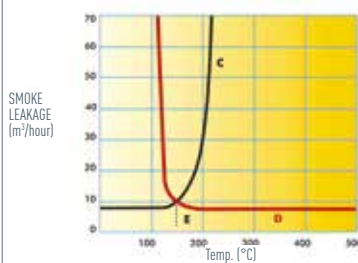


A - Smoke leakage through a door not fitted with a seal

B - Reduction of smoke leakage with **PALUSOL EF** seal fitted around the edge of the door and a special threshold seal (please contact us).

* For a fire retardant door with 3 mm clearance between the door leaf and the frame, and a 6mm gap at the threshold

Continuous seal integrity at the various stages of a fire



C - Activation of the cold smoke seal.

D - Activation of **PALUSOL**.

E - Threshold at which the **PALUSOL** replaces the action of the cold smoke seal.

Features

In interior applications, the thermoplastic profile extends the service life of the **PALUSOL EF** intumescent seal by protecting it against humidity and from carbon dioxide, thus preventing weathering. It also provides the base for the cold smoke seal to be fixed to.

The presence of a thermoplastic sheath and a cold smoke seal in no way affects the intumescent reaction of the **PALUSOL**.

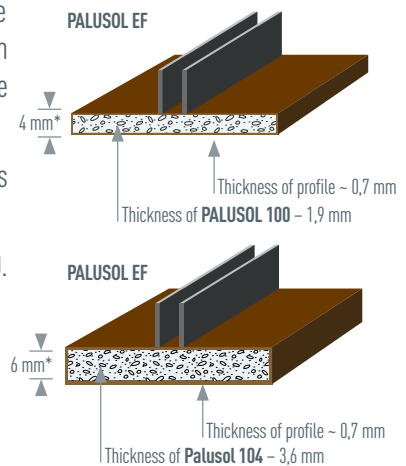
Other features: refer to the technical data sheets for **PALUSOL 100, 104 & 210**.

Technical data

Values given for information only(*). Refer to the section on tolerances

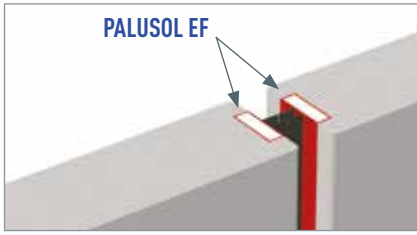
Foaming height (10 minutes at 550°C under load)	>5 x initial thickness
Expansion pressure	≥ 0,9 N/mm ²
Thermal conductivity (at 20°C)	0,8 W/m.K
Water content	25 to 40% of weight
Areal weight PALUSOL 100 (average)	3,0 kg / m ²
Areal weight PALUSOL 104 (average)	5,7 kg / m ²

Fire Cold smoke Acoustic



Chemical composition

PALUSOL is a material made from hydrated sodium silicate, coated on both sides with an epoxy resin. The centre layer is reinforced with glass fibre. **PALUSOL** is asbestos-free.



Example of an application: fire resistant door

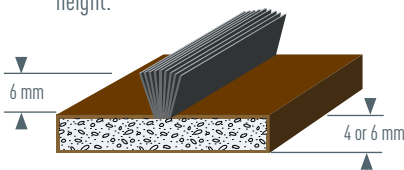
Applications

PALUSOL EF is intended for all opening elements designed to be fire retardant, where there is a requirement for mechanical resistance. Such applications include fire resistant or flame resistant doors, swinging or sliding, with a single or double door-leaf in addition to fire resistant shutters and smoke dampers.

Type of cold smoke protection

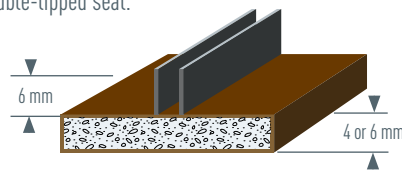
PALUSOL EF, Type Br

The sheath is combined with a brush seal of 6 or 8 mm in height.

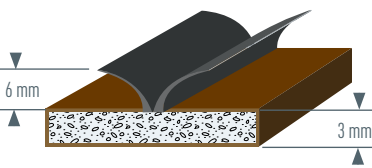


PALUSOL EF, Type DL

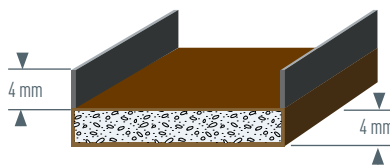
The sheath is combined with a highly resistant 4 or 6 mm double-lipped seal.



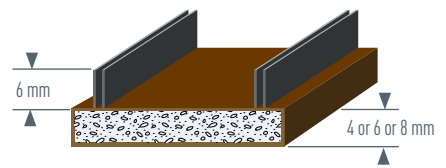
PALUSOL EF, Type V



PALUSOL EF, Type SDL



PALUSOL EF, Type DL MAG2



Other types of cold smoke protection may be possible. Please contact us.

Sections

PALUSOL EF Br, DL <i>Width and thickness</i>	
10 x 4 mm	10 x 6 mm
15 x 4 mm	15 x 6 mm
20 x 4 mm	20 x 6 mm
25 x 4 mm	25 x 6 mm
30 x 4 mm	30 x 6 mm
35 x 4 mm	40 x 6 mm
40 x 4 mm	50 x 6 mm
45 x 4 mm	PALUSOL EF SDL
50 x 4 mm	15 x 4 mm
55 x 4 mm	PALUSOL EF DL MAG2
PALUSOL EF V	40 x 4 mm
12 x 3 mm	40 x 6 mm
15 x 3 mm	40 x 8 mm
20 x 3 mm	

Other sections can also be fabricated.

Product range

Profile colour:

White, black, red, grey and brown. For all colours please contact us.



Adhesive version (Ref. SA) :

PALUSOL EF can be surfaced with a double-sided adhesive strip to facilitate installation.

Standard length: 1020, 2040, 2100 mm.

Any other length can be fabricated up to a maximum of 3000 mm.

Tolerances:

- Sheaths:
- Thickness(*): ± 0,2 mm
 - Width: ± 0,5 mm
 - Length: 0 /-1 mm

Cold smoke seals:

- Height: ± 0,5 mm

(*) On products without self-adhesive strip.



Long-term efficiency of PALUSOL

The long-term efficiency of **PALUSOL** has been proven in normal climatic conditions.

The results of tests conducted by BASF SE and by independent institutions (such as the Institut für Holzforschung in Munich) show that after 40 years of prolonged exposure in normal conditions of use, **PALUSOL** retained its efficiency in the event of fire (the expansion height and expansion pressure parameters remained constant).

Recommendations for use

- Do not use at temperatures above 40°C.
- For applications in sustained high humidity levels (> 90%), or when in regular contact with water or steam (marine, rail applications), we recommend the use of WATERTIGHT **PALUSOL EF** (a watertight bead is applied to both ends of the seal, thus preventing any penetration of water). Where the customer cuts the seal himself, simply applying a bead of silicon mastic will create an effective barrier.

Installation

Since the intumescent action of **PALUSOL EF** seals creates an expansion pressure, for sealing a fire retardant door it is essential that it is fitted to the edge of the frame or door leaf.

In order to achieve an aesthetically acceptable installation as well as mechanical protection, the **PALUSOL EF** intumescent seal should be fitted into a groove which is wider than the section. This groove will also serve to channel the expansion of the intumescent material.

The surface must be free from dust, grease and any kind of wax. Remove poorly adhering paint.

The seal can be fixed by gluing, but we recommend fixing by double-sided adhesive strip which is easy to use. This method of fixing requires the seal to be mounted to allow the adhesive strip to be applied properly to the surface.

Packaging

PALUSOL EF is delivered in flat, semi-rigid profiles, packed into cardboard boxes.

Storage

Store carefully in a dry, well-ventilated place.

Health and safety measures

Observe usual workplace health and safety rules.

Refer to the safety data sheet for **PALUSOL 100, 104 & 210**.

PALUSOL® is a registered trademark of BASF SE.

IMPORTANT: while the descriptions, designs, data and information contained herein are presented in good faith and believed to be accurate, it is provided for your guidance only. Because many factors may affect processing or application/use, we recommend that you make tests to determine the suitability of a product for your particular purpose prior to use. No warranties of any kind, either express or implied, including warranties of merchantability or fitness for a particular purpose, are made regarding products described or designs, data or information set forth, or that the products, designs, data or information may be used without infringing the intellectual property rights of others. In no case shall the descriptions, information, data or designs provided be considered a part of our terms and conditions of sale. Further, you expressly understand and agree that the descriptions, designs, data and information furnished by ODICE hereunder are given free of charge and ODICE assumes no obligation or liability for the description, designs, data and information given or results obtained, all such being given and accepted at your risk.



ODICE S.A.S - Passive Fire Protection

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