



Polyurethane Foams

SMART INSULATING SOLUTIONS FOR THE PROFESSIONAL





BOSTIK, SMART ADHESIVES

The new logo and the new house style with the characteristic green gecko is more than just a visual appearance. “Smart Adhesives” is a reflection of our positioning with regard to the development of smart and innovative sealing and bonding solutions that are safe, flexible and efficient.

We develop innovative sealing and bonding solutions that, whatever is constructed, connected or built, are smarter and can adjust better to the forces and challenges in our daily life.

THE GECKO - INSPIRING ADHESION

For centuries, scientists have been inspired by geckos because of their unique bonding mechanism. They can stick to almost any surface, can climb super-fast against smooth polished glass and can easily carry their entire body weight with just one toe.

The Bostik gecko is flexible, easy to adapt to environments, is open to new situations and is courageous. It symbolizes Bostik’s smart and innovative sealing and bonding solutions for the challenges which today’s market faces.

1. Introduction

Versatile. Durable. Incredible.

Polyurethane foam is one of the most versatile insulating materials that we know. In fact, polyurethane foams in the building and construction industry play an important role in improving performance: sustainability!

Nowadays polyurethane foams are used for thermal and sound insulation as well as airtightness and therefore significantly enhance the energy efficiency of buildings. Energy lost through walls, roofs and windows is the largest single waste of energy in most buildings. Energy loss means extra operating costs and loss of comfort, not to mention an increased carbon footprint.

Bostik also offer polyurethane foams for bonding panels in ETICS systems. ETICS stands for exterior thermal insulation composite systems. In other words bonding of insulation panels on the exterior side to improve the thermal performance of the building. Polyurethane foam adhesives contain the best thermal and bonding performance and includes ETA004:2000 certification!

Safety

Safety is one of Bostik's key priorities! Passive fire protection is therefore one of the pillars in our professional portfolio. We like to keep you and your loved ones safe from fire and smoke during an accident. Bostik offers enough time during calamities to leave the building safely.

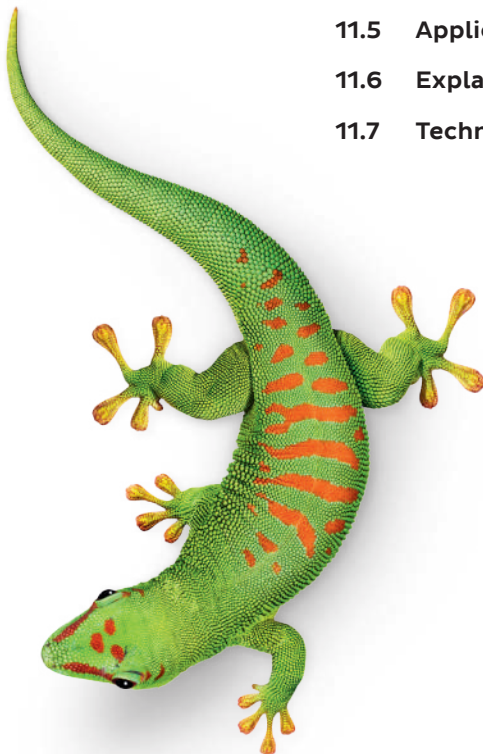
But polyurethane foam is more versatile than only the above mentioned applications. Polyurethane foam is available in several variations, including canisters with one or two-component foam. Additionally, the foam can be applied by hand (adapter) or with a PU Foam application gun. Depending on the type, the foam can expand to 30 times its original volume after application and cures under the influence of moisture in the air and/or from building materials.

So really versatile, durable, incredible and sustainable! If your house needs to be energy efficient, sound efficient and safe from any calamity, we ensure that you can make that promise to your loved ones by choosing smart products from Bostik!



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2. Certification & Regulation

The new Bostik Polyurethane Foam range complies to many well known industry certification standards and regulations. These certifications we like to highlight and explain to you more in detail.

EN 13501 and DIN 4102

Protection against fire hazard and assessment of reaction to fire as well as fire resistance is a basic presumption when planning and erecting buildings, and is therefore an imperative requirement of both, national and EC regulations, given e.g. in the construction products directive (CPD). Assessment of reaction to fire solely is possible on the basis of a prescriptive fire model and resulting fire test methods.

Reaction to fire for polyurethane foams used in the building industry has been historically by classification within national standards such as DIN 4102. The new reaction to fire classification system for building products according to EN 13501-1, set up by the European Commission, now requires reaction to fire assessment on the basis of newly introduced fire test methods, especially the new "central" test method. For polyurethane foams we differentiate by fire behaviour of flame resistant (B1), normally flammable (B2) and easily flammable (B3). Read more about this subject at chapter 11, page 39.

EN 1366-4

Passive fire resistant products are the primary means, used in the construction of a building, of limiting the spread of flames, heat and smoke and hugely increasing fire safety. By correct application of these products the basic, legal compartmentalization requirements will be met. These products contribute to the structural stability of a building and provide time for people to get out of a building safely or for the building to be evacuated. Passive fire resistance limits the spread of flames and smoke and thus the transfer and flashover of fire between compartments.

The polyurethane foams in the Bostik portfolio can be applied accordingly the EN 1366-4 for linear joints. Products and systems tested in accordance with EN 1366-4 are used to fully seal fire compartments where walls, frames and floors meet. Most of these products and systems were designed to be able to absorb movements in the construction components.

For more detailed information about the passive fire portfolio we are pleased to refer you to the brochure BOSTIK FIRE PROTECT RANGE.

Sound Reduction (ISO 10140)

Noise pollution is a critical problem in our daily life and it's getting even worse with the megatrend of urbanization. A comfortable house is not only having an energy efficient house but also a house where noise pollution from the outside environment is prevented.

Polyurethane foams can assist significantly in reducing the outside noise pollution. The cell structure of the cured material does have the ability the 'absorb' sound transmission.

The majority of the Bostik polyurethane foams are equipped with acoustic reports executed at IFT Rozenheim, Germany.

ETA 004:2000

The Guideline sets out the performance requirements for External Thermal Insulation Composite Systems (ETICS) for use as external insulation of building walls, the verification methods used to examine the various aspects of performance, the assessment criteria used to judge the performance for the intended use and the presumed conditions for the design and execution. This Guideline deals with "External Thermal Insulation Composite Systems (ETICS)" with rendering intended for use as external thermal insulation to the walls of buildings. The walls are made of masonry (bricks, blocks, stones ...) or concrete (cast on site or as prefabricated panels). ETICS are designed and installed in accordance with the ETA-applicant's design and installation instructions. The ETICS comprise components which are factory-produced by the ETA-applicant or the component suppliers. The ETA-applicant is ultimately responsible for all components of the ETICS which should be specified by the ETA-applicant.

GEV-EMICODE EC1 Plus

EMICODE® is a protected product classification system and at the same time an Eco label. Products from the range of installation materials, adhesives and construction materials are submitted to a strict certification procedure where the quantity of emitted volatile organic compounds (VOC) is examined.

A+ Certification

A+ is a compulsory French VOC emissions labelling of construction products installed indoors based on emission testing. This regulation foresees that any covered product placed on the market has to be labelled with emission classes based on their emissions after 28 days, as tested with ISO 16000 and calculated for European reference room. The same holds true for EMICODE, GUT and Blue Angel. Also other valid information can be used as a basis for this assignment of class, such as tests based on ISO 16000, but with shorter testing duration.

BREEAM

BREEAM is the world's leading sustainability assessment method for master planning projects, infrastructure and buildings. It recognizes and reflects the value in higher performing assets across the built environment lifecycle, from new construction to in-use and refurbishment. Bostik is able to support the BREEAM international scheme to provide independent third party certificates, as we can do for this product. Due to the EC1 Plus, Bostik can provide the required 'proof' accordingly the Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels.

3. Choose your Smart Product

Polyurethane Foam

Polyurethane foam or OCF (one component foam) is a mixture of polyols and isocyanates in one can with the addition of a propellant. A prepolymer with isocyanate functionality is formed inside the can prior to spraying. One component foam comes in a single can. Curing occurs through a reaction with moisture from the atmosphere and substrate. The reaction is accompanied by cross-linking and an increase in volume.

Polyurethane Foam advantages

- Good adhesion to most common substrates
- Thermal conductivity (λ -value \pm 0,030 – 0,035 W/m.K)
- Noise reduction
- Water vapour open
- Very low density = high volume from one canister (handy, cheap and “green”)
- Seal and fills all kinds of shapes
- Easy to use

Polyurethane Foam points of attention

- Formulations can contain isocyanates
- Post expansion (uncontrollable)
- Temperature sensitive during application
- Pressurized canister (dangerous at high temperature $>50^{\circ}\text{C}$)
- Flammable propellants
- Not UV stable
- Transportation limitation in vehicles

Polyurethane Foam types

Within Bostik we do have different types of polyurethane foams. These types can vary per application and specification. Our mapping will be as follows:

- Straw (hand held) and gun foams
- DIN 4102 classified by flame behaviour
- One and two component foams
- Expanding foams
- Specialty foams

Hand Held and Gun Foams

Application wise polyurethane foams come in two different types. We have so called hand held formulations and gun grade formulations. Hand applied polyurethane foams are equipped with a straw that can be screwed to the valve on top of the dome. The so called gun foam needs a 'pu-gun' to apply the material.

Hand Held PU Foam advantages

- Hand held polyurethane foams will have no additional costs of buying a foam gun
- Simple and easy to apply

Hand Held PU Foam points of attention

- Difficult to dose
- Should be emptied in one go to avoid blocking the straw with cured material
- After flow possible

Gun Grade PU Foam advantages

- Easy to dose, easy to apply
- No after flow from gun
- Reusable
- Less waste

Gun Grade PU Foam points of attention

- Additional costs for gun and PU cleaner

One and two component PU foam

OCF stands for one component foam. The polyols and isocyanates are mixed in one can with the addition of a propellant. One-Component foams cure through a reaction with moisture in the atmosphere and substrate. The reaction is accompanied by cross-linking and an increase in volume.

When we speak about a two component foam we are basically describing a so called 1½ component foam. 1½C foams are based on OCF products consisting of 3 components; Polyol, isocyanate and propellants. A 4th component (hardener or catalyst) is added prior to foaming. 1½C foams cure very quickly without humidity from the air, in fact the 4th component replaces the humidity of the air. This will result in a faster curing, with limited post-expansion. The drawback is the short pot-life which is reduced to a few minutes after activation.

The application fields of the 2 component foams are:

- Big cavities / gaps that need to be filled in one process
- Areas where the access of sufficient air humidity and / or moisture from the subsurface is not present
- Mounting window and door frames of doors up to 40 kg

Expanding foams

Insulation, gap filling, energy saving, fire safety and even bonding of door posts, stone, and insulation panels are just a few smart solutions that Bostik offers for the professional craftsman who demands efficiency in costs, time, environment and quality. For those professionals Bostik's full portfolio of expanding foams is the answer and fulfils the needs and demands of the job and legislation.

Specialities

Last but not least we have standard and speciality foams, due to product behaviour during application or once cured.

Some examples:

- All season foams: can be used in a wide temperature range (+10°C to +35°C)
- Winter foams: can be also used at freezing temperatures (-10°C to 25°C)
- Mega or Maxi foams: have high yield from 50L up to 65L from 1 can
- Flame Retardant foams: flame retardant foam, usually a B2 or B1 foam
- Flexible foams: one component polyurethane foam which remains highly flexible after full curing. This type of foam is designed for applications which have repetitive movements or where vibration resistance is required, such as doors, windows, piping and construction in general.
- Foam adhesives: one-component, low-density foams – the foam adhesive has superior gluing and sealing qualities. Bonds well with most construction materials, except "Teflon", polyethylene and silicon surfaces. – Main use is for installation of insulation panels (EPS and XPS), installation of roof tiles and pipes and multiple types of cementitious, concrete and stony materials.

Filling

Polyurethane foam can be used to fill cracks and holes in building structures. Examples are spaces between walls, frames and doors. For these applications Bostik supplies standard and premium foams, such as high yield or traditional foams with user-friendly guns. Fill the crack or hole no more than 50 to 70%. The foam will start expanding immediately after application.

Bonding

Bostik manufactures a range of unique one and two component high-end foams based on polyurethane for bonding of various materials. The environment, time saving, clean application, low-cost and simplicity are key terms that form the basis for the development of these products.

Insulating

Insulating, i.e. making frames or building structures such as wall and roof elements, airtightness and other characteristics of polyurethane foam. Airtightness eliminates undesirable airflows and is based on the Passive House standard. Bostik supplies unique foams with a very high insulation value and very low air permeability, exceeding this standard by far.

Fireproofing

Bostik supplies high-end foams for linear joints in fire compartments positioned both horizontally and vertically. These foams can also be used as an insulating barrier to make small surface penetrations fire-resistant and to prevent smoke, heat and fire passing through. This improves the fire retardancy of buildings, allowing people to be evacuated to a 'safe' environment and gives the emergency services time to perform their work.

| PRODUCT | APPLICATION | FIRE CLASS | TYPE / CONTENT | YIELD (ltr) | CURING | SEASON | ECT | PERFORMANSI DAN LINGKUNGAN TERBUKA |
|--|----------------------|------------|---------------------|-------------|--------|--------|-----|------------------------------------|
| BOSTIK P760 FOAM'N'FILL B1 | Filling & Insulation | B1 | Hand held 750 ml | 25-30 | 1C | | | |
| BOSTIK P765 FOAM'N'FILL PRO B1 | Filling & Insulation | B1 | Gun foam 750 ml | 40-45 | 1C | | | |
| BOSTIK P750 FOAM'N'FILL WINTER PRO B2 | Filling & Insulation | B2 | Gun foam 750 ml | 35-40 | 1C | | | |
| BOSTIK P745 FOAM'N'FIX B2 | Fixing & Filling | B2 | Hand held 400 ml | 10 | 2C | | | |
| BOSTIK P345 FOAM'N'FIX 2C B2 | Fixing & Filling | B2 | Hand held 400 ml | 10 | 2C | | | |
| BOSTIK P955 FOAM'N'FILL MAXI PRO B2 | Filling & Insulation | B2 | Gun foam 750 ml | 45-50 | 1C | | | |
| BOSTIK P755 FOAM'N'FILL FLEX PRO B2 | Filling & Insulation | B2 | Gun foam 750 ml | 40-45 | 1C | | | |
| BOSTIK P545 FOAM'N'FILL PRO B2 | Filling & Insulation | B2 | Gun foam 750 ml | 40-45 | 1C | | | |
| BOSTIK P520 FOAM'N'FILL WINTER B3 | Filling & Insulation | B3 | Hand held 750 ml | 25-30 | 1C | | | |
| BOSTIK P300 FOAM'N'FILL B3 | Filling & Insulation | B3 | Hand held 750 ml | 25-30 | 1C | | | |
| BOSTIK P715 FOAM'N'FILL MAXI WINTER PRO B3 | Filling & Insulation | B3 | Gun foam 870 ml | 55 | 1C | | | |
| BOSTIK P705 FOAM'N'FILL MAXI SUPER PRO B3 | Filling & Insulation | B3 | Gun foam 870 ml | 65 | 1C | | | |
| BOSTIK P525 FOAM'N'FILL WINTER PRO B3 | Filling & Insulation | B3 | Gun foam 750 ml | 35-40 | 1C | | | |
| BOSTIK P305 FOAM'N'FILL PRO B3 | Filling & Insulation | B3 | Gun foam 750 ml | 40-45 | 1C | | | |
| BOSTIK FP404 FIRE RETARDANT PU GUN FOAM | Fire Protection | B1 | Gun foam 750 ml | 40-45 | 1C | | | |
| BOSTIK FP404 FIRE RETARDANT PU FOAM | Fire Protection | B1 | Hand held 750 ml | 25-30 | 1C | | | |
| BOSTIK P605 FOAM'N'FILL FLEX AIRSTOP PRO B3 | Energy Saving | B3 | Gun foam 750 ml | 30-35 | 1C | | | |
| BOSTIK P975 FOAM'N'FIX EIFS PRO B1 | Panel Bonding | B1 | Gun foam 750 ml | | 1C | | | |
| BOSTIK P775 FOAM'N'FIX EIFS PRO B2 | Panel Bonding | B2 | Gun foam 750 ml | | 1C | | | |
| BOSTIK P575 FOAM'N'FIX EIFS PRO B3 | Panel Bonding | B3 | Gun foam 750 ml | | 1C | | | |
| BOSTIK P925 FOAM'N'FIX ROOF PRO B1 | Panel Bonding | B1 | Gun foam 750 ml | | 1C | | | |
| BOSTIK P535 FOAM'N'FIX STONE PRO B3 | Bonding | B3 | Gun foam 750 ml | | 1C | | | |
| BOSTIK P530 FOAM'N'FIX STONE B3 | Bonding | B3 | Hand held 750 ml | | 1C | | | |

4. Application areas



**BOSTIK P955
FOAM'N'FILL MAXI PRO B2**
Professional high yield B2 gun
grade polyurethane foam

See page 17 for more details.



**BOSTIK P715
FOAM'N'FILL MAXI WINTER PRO**
Professional winter grade
polyurethane foam with
high yield

See page 22 for more details.



**BOSTIK P605
FOAM'N'FILL FLEX AIRSTOP PRO**
Flexible high insulating airtight
polyurethane gun foam

See page 27 for more details.



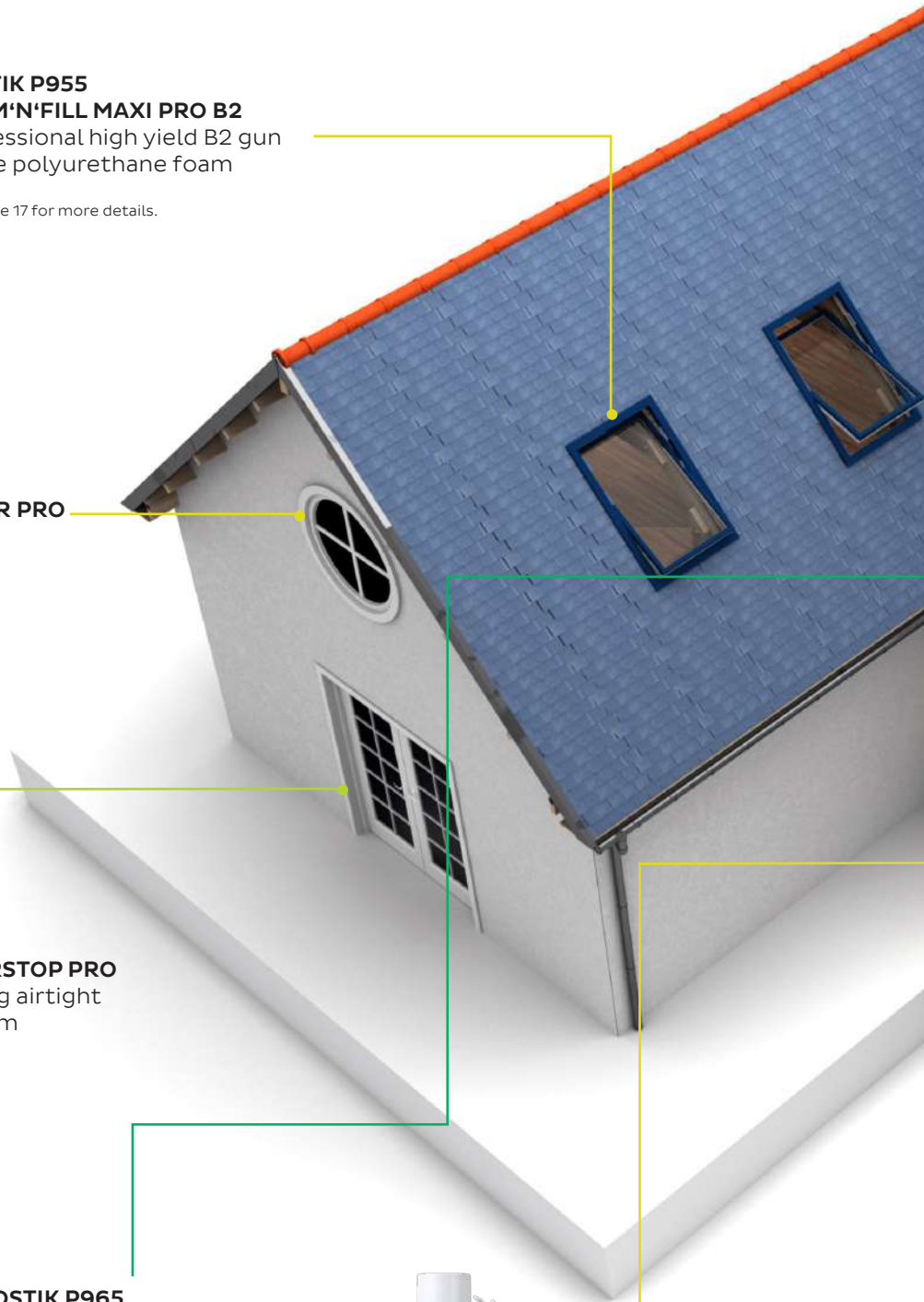
**BOSTIK P965
PANELTACK ROOF PRO B1**
Professional B1 foam adhesive
for external insulation panels
and roofing felts

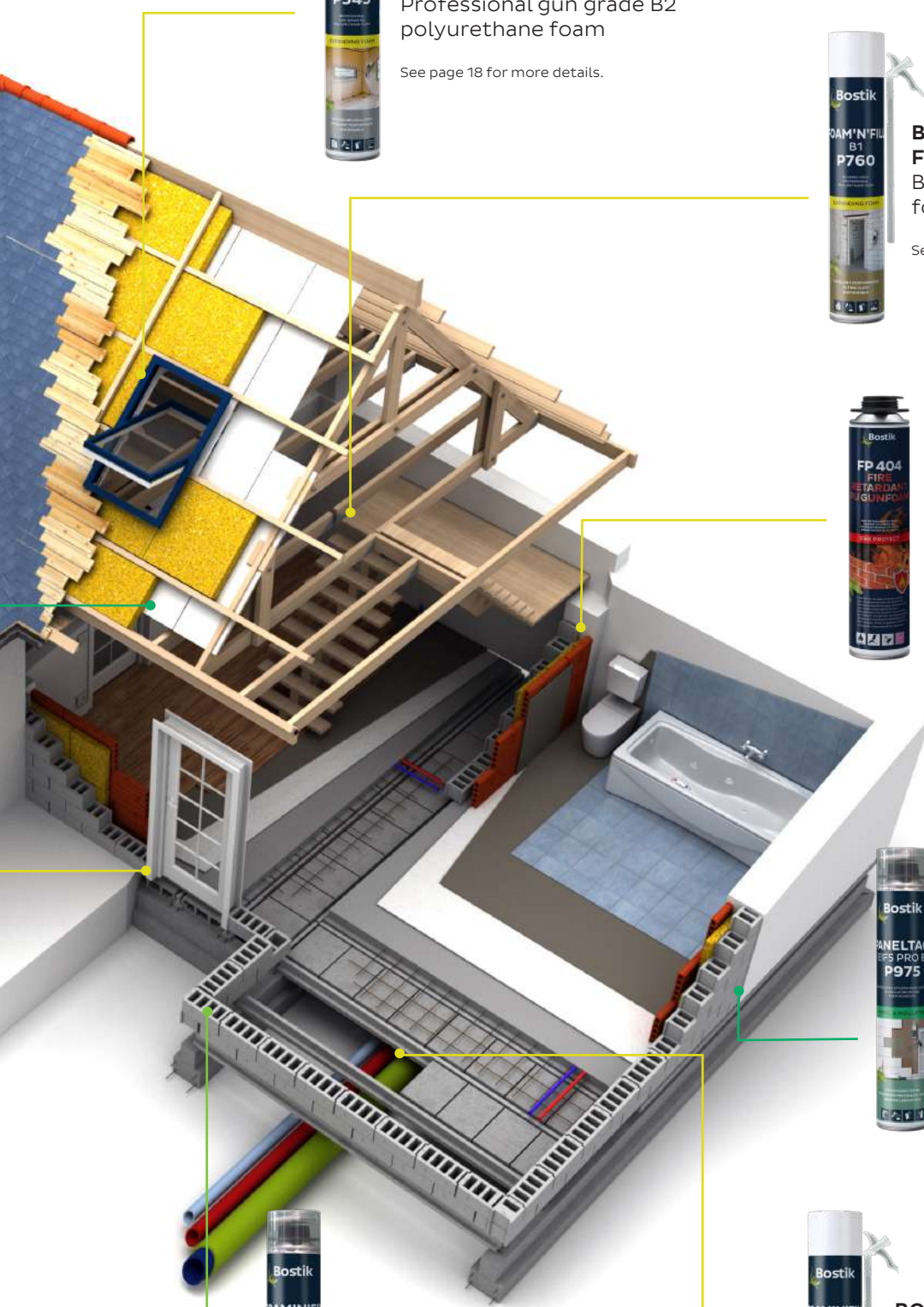
See page 29 for more details.



**BOSTIK P745
FOAM'N'FIX B2**
Fast curing 2C foam adhe-
sive for installing door and
window frames

See page 16 for more details.





**BOSTIK P545
FOAM'N'FILL PRO B2**
Professional gun grade B2
polyurethane foam

See page 18 for more details.



**BOSTIK P760
FOAM'N'FILL B1**
B1 hand-held polyurethane
foam

See page 14 for more details.



**BOSTIK P404
FIRE RETARDANT PU GUNFOAM**
Fire retardant polyurethane gun
foam

See page 15 for more details.



**BOSTIK P975
PANELTACK EIFS PRO B1**
Professional B1 foam
adhesive for external
insulation facade systems

See page 29 for more details.



**BOSTIK P535
FOAM'N'FIX STONE PRO B3**
High quality ready-to-use
powerful stone adhesive

See page 13 for more details.



**BOSTIK P300
FOAM'N'FILL B3**
B3 polyurethane foam

See page 21 for more details.

5. Portfolio

For professional construction workers Bostik is offering a wide portfolio to fulfil all needs and requirements at levels of innovation, technology, certifications and costs efficiency for sealing and bonding applications all the way to the most advanced type of job with smart innovative products and concepts.



5.1 B1 Hand Held and Gun Grade PU Foam

The Bostik Expanding Foam range can be divided into B1, B2 and B3 foams. B1 foams are foams with a low flammability according to the German DIN 4102 Part 1 norm. In this chapter we display the foams that conform to the B1 standard.





BOSTIK P760 FOAM'N'FILL B1

B1 hand-held polyurethane foam

Product description

BOSTIK P760 FOAM'N'FILL B1 is a 1-component hand held insulation and construction B1 polyurethane foam. BOSTIK P760 FOAM'N'FILL B1 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Yield 750 ml is 25-30 litre
- Fire behaviour B1
- Cutting time 60-80 minutes
- High contribution to noise reduction
- High thermal insulation
- 18 months shelf life
- EC1 Plus and A+ certified

Certificates

- DIN 4102-1 Reaction to fire
- EN 13501-2 Classification of fire resistance
- EC1 Plus
- A+ French VOC Regulation

| Colour | Packaging | Packed per |
|--------|---------------|------------|
| pink | can of 750 ml | 12 pieces |



BOSTIK P765 FOAM'N'FILL PRO B1

Professional gun grade B1 polyurethane foam

Product description

BOSTIK P765 FOAM'N'FILL PRO B1 is a 1-component professional insulation and construction B1 polyurethane foam. BOSTIK P765 FOAM'N'FILL PRO B1 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Yield 750 ml is 40-45 litre
- Fire behaviour B1
- Cutting time 20-40 minutes
- High contribution to noise reduction
- High thermal insulation
- 18 months shelf life
- EC1 Plus and A+ certified

Certificates

- DIN 4102-1 Reaction to fire
- EN 13501-2 Classification of fire resistance
- EC1 Plus
- A+ French VOC Regulation

| Colour | Packaging | Packed per |
|--------|---------------|------------|
| pink | can of 750 ml | 12 pieces |

5.2 B2 Hand Held and Gun Grade PU Foam

The Bostik Expanding Foam range can be divided into B1, B2 and B3 foams. B2 foams are foams with normal flammability according to the German DIN 4102 Part 1 norm. In this chapter we display the foams that conform to the B2 standard.





BOSTIK P750 FOAM'N'FILL WINTER PRO B2

Professional B2 winter grade polyurethane foam

Product description

BOSTIK P750 FOAM'N'FILL WINTER PRO B2 is a 1-component professional winter grade insulation and construction B2 polyurethane foam. BOSTIK P750 FOAM'N'FILL WINTER PRO B2 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Yield 750 ml is 35-40 litre
- Cutting time 20-40 minutes
- Applicable at -15°C
- Fire behaviour B2
- Winter grade gun foam
- High contribution to noise reduction
- High thermal insulation

Certificates

- EC1 Plus
- A+ French VOC Regulation

| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |



BOSTIK P745 FOAM'N'FIX B2

Fast curing 2C foam adhesive for installing door and window frames

Product description

BOSTIK P745 FOAM'N'FIX B2 is a 2-component mounting and insulation B2 polyurethane foam. BOSTIK P745 FOAM'N'FIX B2 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- 2-Component system, always a controlled curing
- Filling cavities and holes with insufficient access to moisture
- Fire behaviour B2
- Installation of door frames
- High contribution to noise reduction
- High thermal insulation
- Filling big gaps

Certificates

- DIN 4102-1 Reaction to fire
- EN 13501-2 Classification of fire resistance
- EC1 Plus
- A+ French VOC Regulation

| Colour | Packaging | Packed per |
|--------|---------------|------------|
| green | can of 400 ml | 12 pieces |

BOSTIK P345 FOAM'N'FIX 2C B2

Standard 2C foam adhesive for installing door and window frames

Product description

BOSTIK P345 FOAM'N'FIX 2C B2 is a 2-component mounting and insulation B2 polyurethane foam. BOSTIK P345 FOAM'N'FIX 2C B2 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Patented, most reliable system
- No post expansion
- 2-Component system, always a controlled curing

Certificates

- DIN 4102-1 Reaction to fire
- EC1 Plus
- A+ French VOC Regulation



| Colour | Packaging | Packed per |
|--------|---------------|------------|
| blue | can of 400 ml | 12 pieces |

BOSTIK P955 FOAM'N'FILL MAXI PRO B2

Professional high yield B2 gun grade polyurethane foam

Product description

BOSTIK P955 FOAM'N'FILL MAXI PRO B2 is a 1-component professional insulation and construction B2 high yield polyurethane foam. BOSTIK P955 FOAM'N'FILL MAXI PRO B2 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Yield 750 ml is 45-50 litre
- Cutting time 15-20 minutes
- High yield formulation
- Fire behaviour B2
- High contribution to noise reduction
- High thermal insulation
- Sustainable

Certificates

- DIN 4102-1 Reaction to fire
- ISO 717-1 Joint Sound Insulation
- DIN 12354-3 Joint Sound Insulation
- EC1 Plus
- A+ French VOC Regulation



| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 500 ml | 12 pieces |
| yellow | can of 750 ml | 12 pieces |



BOSTIK P755 FOAM'N'FILL FLEX PRO B2

Professional flexible and airtight polyurethane foam

Product description

BOSTIK P755 FOAM'N'FILL FLEX PRO B2 is a 1-component flexible thermal and sound reducing B2 polyurethane foam tested and approved for air loss up to 1050 Pa. BOSTIK P755 FOAM'N'FILL FLEX PRO B2 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Yield 750 ml is 40-45 litre
- Cutting time 30-50 minutes
- Flexible behaviour, will follow movements in construction
- Tested for air loss (up to 1050 Pa) and air permeability, applicable in passive and energy neutral houses
- Fire behaviour B2
- High contribution to noise reduction
- High thermal insulation

Certificates

- EN 1026 & EN 12114
- DIN 18542 Air Permeability
- DIN 4102-1 Reaction to fire
- DIN 12354-3 Joint Sound Insulation
- EC1 Plus
- A+ French VOC Regulation

| Colour | Packaging | Packed per |
|--------|---------------|------------|
| white | can of 750 ml | 12 pieces |



BOSTIK P545 FOAM'N'FILL PRO B2

Professional gun grade B2 polyurethane foam

Product description

BOSTIK P545 FOAM'N'FILL PRO B2 is a 1-component professional insulation and construction B2 polyurethane foam. BOSTIK P545 FOAM'N'FILL PRO B2 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Professional formula
- Fire behaviour B2
- High contribution to noise reduction
- High thermal insulation
- EC1 Plus and A+ certified

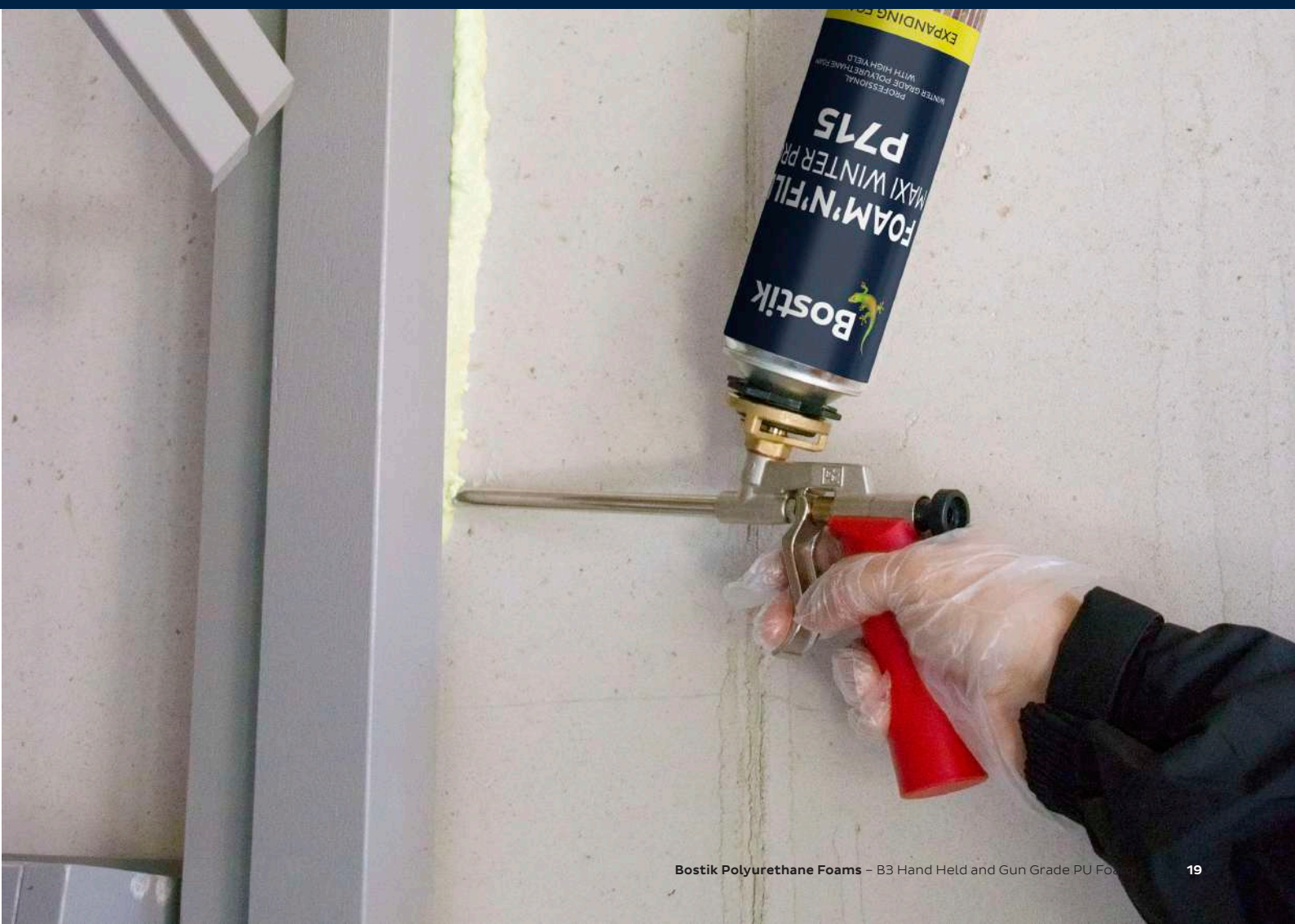
Certificates

- DIN 4102-1 Reaction to fire
- ISO 717-1 Joint Sound Insulation
- EC1 Plus
- A+ French VOC Regulation

| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |

5.3 B3 Hand Held and Gun Grade PU Foam

The Bostik Expanding Foam range can be divided into B1, B2 and B3 foams. B3 foams are foams with a high flammability according to the German DIN 4102 Part 1 norm. In this chapter we display the foams that conform to the B3 standard.





APPLICABLE AT -15°C+
EXCELLENCE PERFORMANCE
SUSTAINABLE

EXPANDING FOAM

B3 WINTER GRADE
POLYURETHANE
FOAM

FOAM 'N' FILL
WINTER B3
P520

BOSTIK P520 FOAM'N'FILL WINTER B3

B3 Winter grade polyurethane foam

Product description

BOSTIK P520 FOAM'N'FILL WINTER B3 is a 1-component winter grade polyurethane based 100% CFC free B3 expanding foam for general construction and home improvement applications. The material can be applied down to -15°C*. BOSTIK P520 FOAM'N'FILL WINTER B3 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Winter grade foam
- Yield 750 ml is 25-30 litre
- High contribution to noise reduction
- High thermal insulation
- EC1 Plus and A+ certified

Certificates

- EC1 Plus
- A+ French VOC Regulation



| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |

BOSTIK P300 FOAM'N'FILL B3

B3 polyurethane foam

Product description

BOSTIK P300 FOAM'N'FILL B3 is a 1-component professional polyurethane based 100% CFC free B3 expanding foam for general construction and home improvement applications. BOSTIK P300 FOAM'N'FILL B3 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- High contribution to noise reduction
- High thermal insulation
- EC1 Plus and A+ certified

Certificates

- EC1 Plus
- A+ French VOC Regulation



| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |



BOSTIK P715 FOAM'N'FILL MAXI WINTER PRO B3

Professional winter grade polyurethane foam with high yield

Product description

BOSTIK P715 FOAM'N'FILL MAXI WINTER PRO B3 is a 1-component high yield, thermal and sound reducing B3 polyurethane foam that is applicable in colder climates. BOSTIK P715 FOAM'N'FILL MAXI WINTER PRO B3 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Applicable in lower temperatures
- High yield formulation, up to 55 litre
- Fire behaviour B3
- High contribution to noise reduction
- High thermal insulation
- 18 months shelf life
- EC1 Plus and A+ certified

Certificates

- EC1 Plus
- A+ French VOC Regulation

| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |



BOSTIK P705 FOAM'N'FILL MAXI SUPER PRO B3

Professional B3 polyurethane foam with high yield

Product description

BOSTIK P705 FOAM'N'FILL MAXI SUPER PRO B3 is a 1-component high yield insulation and construction B3 polyurethane foam. BOSTIK P705 FOAM'N'FILL MAXI SUPER PRO B3 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- High yield up to 65 litre
- Cutting time 15-20 minutes
- Fire behaviour B3
- High contribution to noise reduction
- High thermal insulation
- 18 months shelf life
- EC1 Plus and A+ certified

Certificates

- EC1 Plus
- A+ French VOC Regulation

| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |

BOSTIK P525 FOAM'N'FILL WINTER PRO B3

Professional B3 winter grade polyurethane foam

Product description

BOSTIK P525 FOAM'N'FILL WINTER PRO B3 is a 1-component professional winter grade insulation and construction B3 polyurethane foam. BOSTIK P525 FOAM'N'FILL WINTER PRO B3 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Winter grade gun foam
- Yield 750 ml is 35-40 litre
- High contribution to noise reduction
- High thermal insulation
- EC1 Plus and A+ certified

Certificates

- EC1 Plus
- A+ French VOC Regulation



| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |

BOSTIK P305 FOAM'N'FILL PRO B3

Professional gun grade B3 polyurethane foam

Product description

BOSTIK P305 FOAM'N'FILL PRO B3 is a professional polyurethane based 100% CFC free B3 expanding foam for general construction and home improvement applications. BOSTIK P305 FOAM'N'FILL PRO B3 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- High contribution to noise reduction
- High thermal insulation
- EC1 Plus and A+ certified

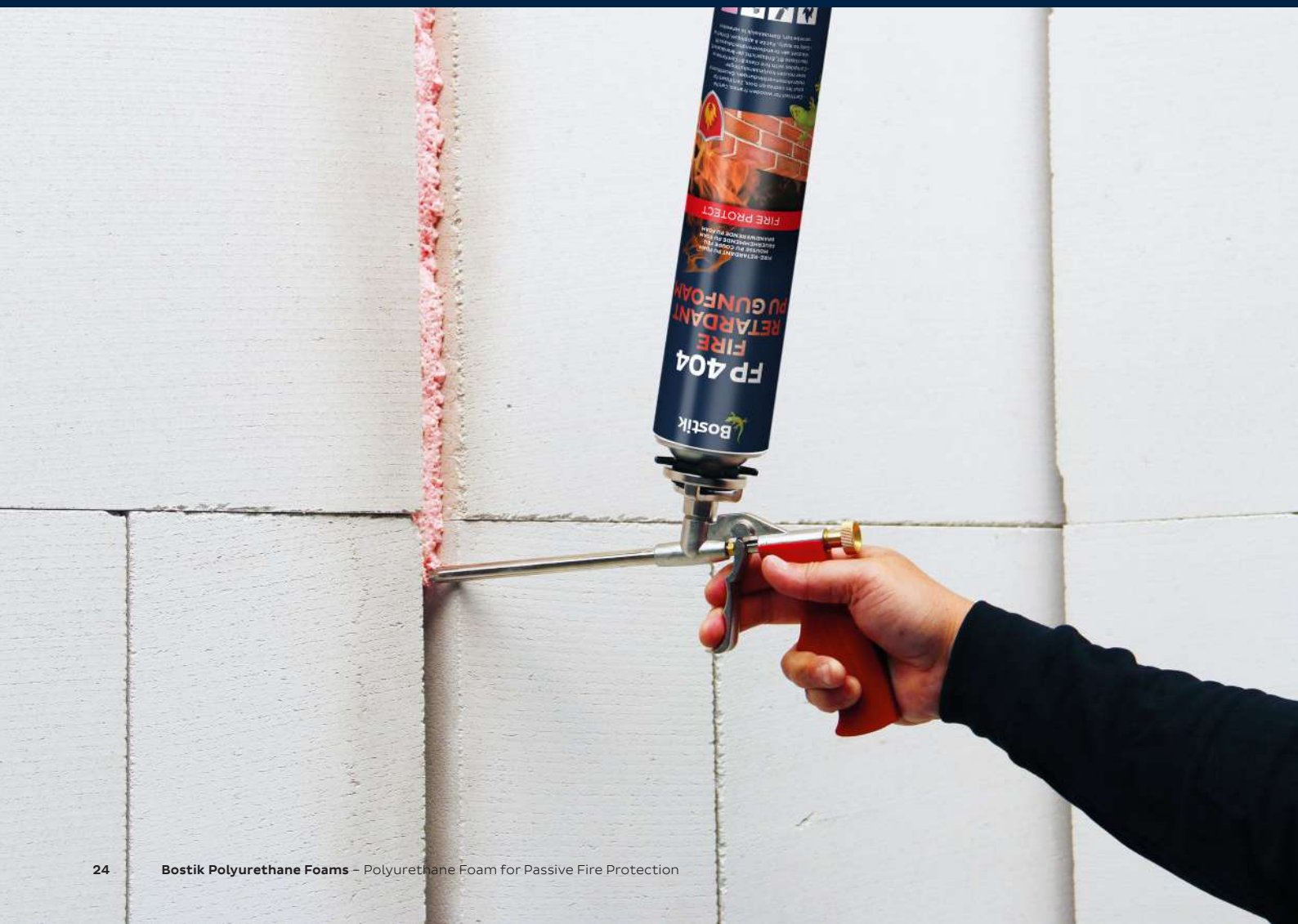
Certificates

- ISO 717-1 Joint Sound Insulation
- EN 1609 Water vapour partial immersion
- EN 12086 Water vapour transmission
- EN 12667 Thermal Performance
- DIN 12354-3 Joint Sound Insulation
- EC1 Plus
- A+ French VOC Regulation



| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |

6. Polyurethane Foam for Passive Fire Protection



BOSTIK FP404 FIRE RETARDANT PU GUN FOAM

Fire retardant polyurethane gun foam

Product description

BOSTIK FP404 FIRE RETARDANT PU GUNFOAM is a 1-component fire resistant polyurethane foam which offers fire resistance of up to 120 minutes. In combination with other Bostik FireProtect® products BOSTIK FP404 FIRE RETARDANT PU GUN-FOAM reaches up to 240 minutes of fire resistance! High thermal and acoustic insulation.

Most important characteristics

- Tested according to EN 1366-4
- For use in joints from 5 mm to 30 mm wide
- Combined with Bostik FP402 FIRESEAL SILICONE in joint from 5 mm to 40 mm wide
- Separately applied, fire resistant up to 2 hours, combined with other Bostik FireProtect® products up to 4 hours
- Fire behaviour B1
- Fast processing
- Tack free after 8 to 12 minutes

Certificates

- EN 1366-4
- EN 13501-2 Classification of fire resistance
- DIN 4102-1 Reaction to fire
- EC1 Plus
- A+ French VOC Regulation

| Colour | Packaging | Packed per |
|----------|---------------|------------|
| red/pink | can of 750 ml | 12 pieces |



BOSTIK FP404 FIRE RETARDANT PU FOAM

Fire retardant polyurethane foam

Product description

BOSTIK FP404 FIRE RETARDANT PU FOAM is a 1-component fire retardant polyurethane foam which offers fire resistance of up to 120 minutes. In combination with other Bostik FireProtect® products BOSTIK FP404 FIRE RETARDANT PU FOAM reaches up to 240 minutes of fire resistance! High thermal and acoustic insulation.

Most important characteristics

- Tested according to EN 1366-4
- For use in joints from 5 mm to 30 mm wide
- Combined with Bostik FP402 FIRESEAL SILICONE in joint from 5 mm to 40 mm wide
- Separately applied, fire resistant up to 2 hours, combined with other Bostik FireProtect® products up to 4 hours
- Fire behaviour B1
- Fast processing
- Tack free after 8 to 12 minutes

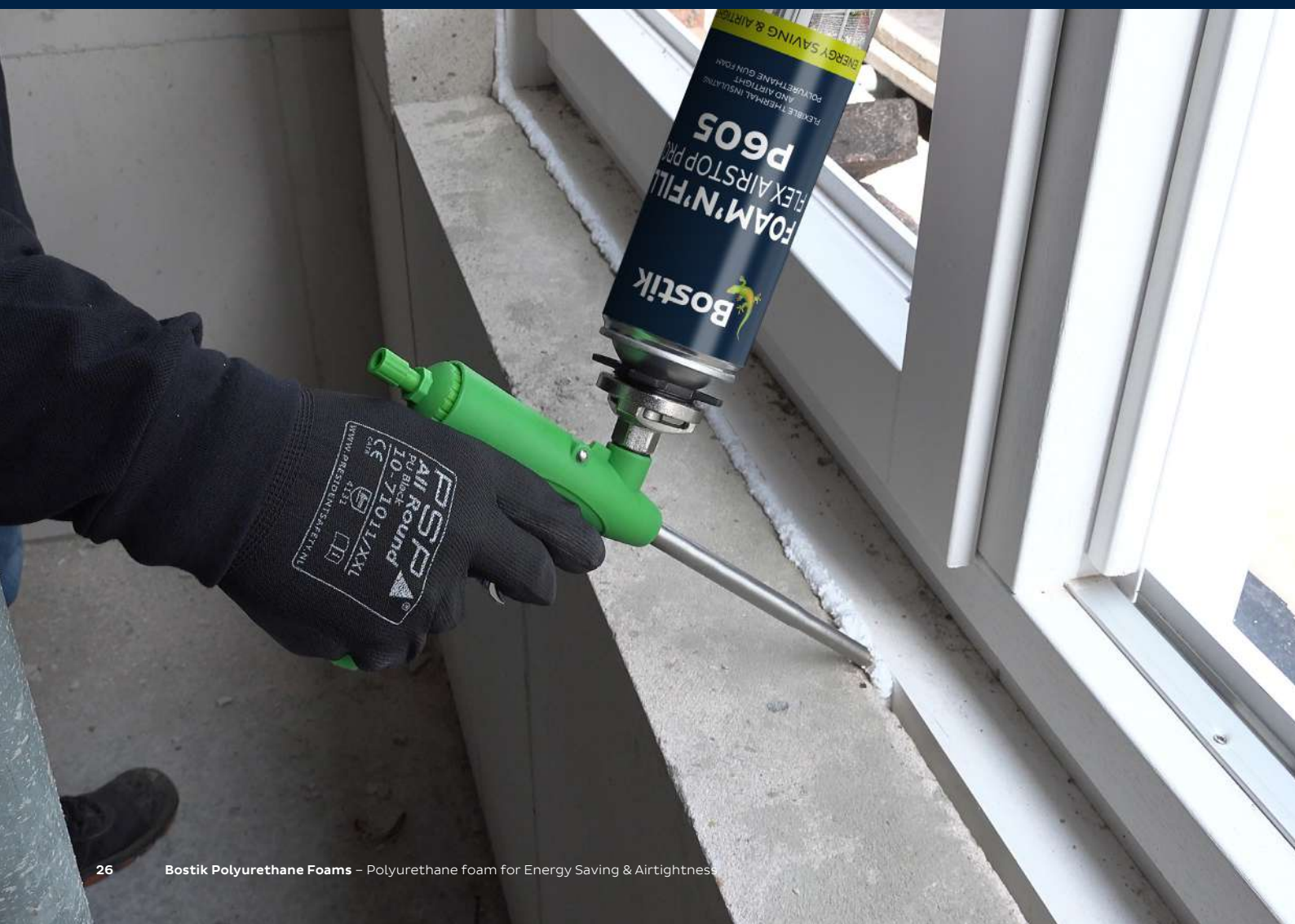
Certificates

- EN 1366-4
- EN 13501-2 Classification of fire resistance
- DIN 4102-1 Reaction to fire
- EC1 Plus
- A+ French VOC Regulation

| Colour | Packaging | Packed per |
|----------|---------------|------------|
| red/pink | can of 750 ml | 12 pieces |



7. Polyurethane Foam for Energy Saving & Airtightness



BOSTIK P605 FOAM'N'FILL FLEX AIRSTOP PRO

Flexible high insulating airtight polyurethane gun foam

Product description

BOSTIK P605 FOAM'N'FILL FLEX AIRSTOP PRO is a 1-component professional flexible thermal and sound insulation B3 polyurethane foam providing an extremely low air loss. BOSTIK P605 FOAM'N'FILL FLEX AIRSTOP PRO fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Extremely low air loss
- Most air tight foam available on the market, tested up to 1050 Pa
- Flexible formulation
- Applicable in joints with high movement
- Provides great sound reduction
- High Yield
- Excellent adhesion properties

Certificates

- EN 1026 & EN 12114
- EN 12086 Water vapour transmission
- EN 1609 Water vapour partial immersion
- ISO 10534- Sound absorption coefficient
- DIN 12354-3 Joint Sound Insulation
- DIN 18542 Air Permeability
- EC1 Plus
- A+ French VOC Regulation



| Colour | Packaging | Packed per |
|--------|---------------|------------|
| white | can of 750 ml | 12 pieces |

8. Polyurethane Foam Adhesive



BOSTIK P975 PANELTACK EIFS PRO B1

Professional B1 foam adhesive for external insulation façade systems

Product description

BOSTIK P975 PANELTACK EIFS PRO B1 is a one component low-expansion polyurethane adhesive for bonding and installation of facade insulation boards. BOSTIK P975 PANELTACK EIFS PRO B1 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- ETA 004:2000 tested, adheres without mechanical fixings
- Fire behaviour B1 – for use above 10 meters
- Efficient bonding of facade insulation panels
- Reduces labour time
- No need for electricity, water and mixing on building site
- Environmentally friendlier than traditional cement mortars
- High thermal insulation

Certificates

- EC1 Plus
- A+ French VOC Regulation
- ETA 004:2000
- Technical Approval of DIBT - Berlin under Certificate number Z.:33.9-1545
- Tested by IFBT GmbH - Institut für Fassaden und Befestigungstechnik under Nr. 13 - 233



| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |

BOSTIK P965 PANELTACK ROOF PRO B1

Professional B1 foam adhesive for external insulation panels and roofing felts

Product description

BOSTIK P965 PANELTACK ROOF PRO B1 is a one component low-expansion polyurethane foam adhesive for bonding and installation of thermal insulation roofing boards to vapour barriers as well as roofing felts. BOSTIK P965 PANELTACK ROOF PRO B1 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- ETA 006 tested and approved
- Fire behaviour B1
- Efficient bonding of thermal insulation boards and roofing felts
- Reduces labour time
- Quick curing time
- No need for electricity
- High thermal insulation

Certificates

- EC1 Plus
- A+ French VOC Regulation
- ETA 006



| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |



BOSTIK P775 PANELTACK EIFS PRO B2

Professional B2 foam adhesive for external insulation facade systems

Product description

BOSTIK P775 PANELTACK EIFS PRO B2 is a one component low-expansion polyurethane adhesive for bonding and installation of façade insulation boards. BOSTIK P775 PANELTACK EIFS PRO B2 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- ETA 004:2000 tested, adheres without mechanical fixings
- Fire behaviour B2 – for use above 10 meters
- Efficient bonding of facade insulation panels
- Reduces labour time
- No need for electricity, water and mixing on building site
- Environmentally friendlier than traditional cement mortars
- High thermal insulation

Certificates

- EC1 Plus
- A+ French VOC Regulation
- ETA 004:2000

| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |



BOSTIK P575 PANELTACK EIFS PRO B3

Professional B3 foam adhesive for external insulation facade systems

Product description

BOSTIK P575 PANELTACK EIFS PRO B3 is a one component low-expansion polyurethane adhesive for bonding and installation of façade insulation boards. BOSTIK P575 PANELTACK EIFS PRO B3 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- ETA 004:2000 tested, adheres without mechanical fixings
- Fire behaviour B3 – for use above 10 meters
- Efficient bonding of facade insulation panels
- Reduces labour time
- No need for electricity, water and mixing on building site
- Environmentally friendlier than traditional cement mortars
- High thermal insulation

Certificates

- EC1 Plus
- A+ French VOC Regulation
- ETA 004:2000

| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |

BOSTIK P535 FOAM'N'FIX STONE PRO B3

High quality ready-to-use powerful stone adhesive

Product description

BOSTIK P535 FOAM'N'FIX STONE PRO B3 is a high quality ready to use polyurethane adhesive for bonding various types of stone. It is the adhesive to use when no water and/or electricity is available and one needs to work in a fast, clean and efficient manner. BOSTIK P535 FOAM'N'FIX STONE PRO B3 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Quick & clean application (no mixing required)
- Stronger bond, tensile strength after one day > 7 N/mm²
- For use on multiple surfaces
- Simple, modern and labour friendly (lighter) application
- Lower adhesive consumption due to thin bonding thickness

Certificates

- EC1 Plus
- A+ French VOC Regulation



| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |

BOSTIK P530 FOAM'N'FIX STONE B3

High quality ready-to-use powerful stone adhesive

Product description

BOSTIK P530 FOAM'N'FIX STONE B3 is a high quality ready to use polyurethane adhesive for bonding various types of stone. It is the adhesive to use when no water and/or electricity is available and one needs to work in a fast, clean and efficient manner. BOSTIK P530 FOAM'N'FIX STONE B3 fulfils BREEAM specifications mentioned in chapter 'Health and Wellbeing', Hea 02 Indoor Air Quality, regarding volatile organic compound (VOC) emission levels (products).

Most important characteristics

- Quick & clean application (no mixing required)
- Stronger bond, tensile strength after one day > 7 N/mm²
- For use on multiple surfaces
- Simple, modern and labour friendly (lighter) application
- Lower adhesive consumption due to thin bonding thickness

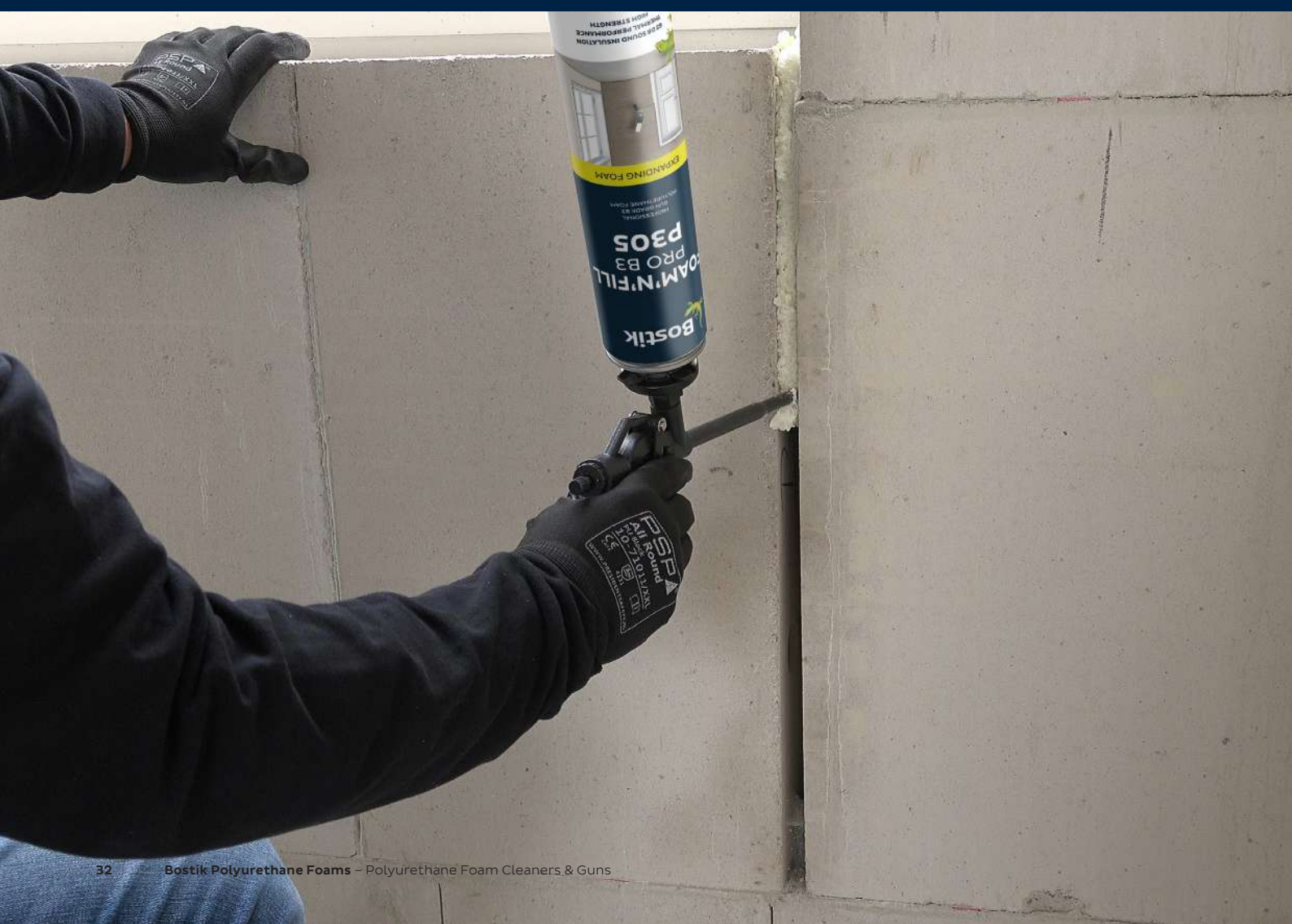
Certificates

- EC1 Plus
- A+ French VOC Regulation



| Colour | Packaging | Packed per |
|--------|---------------|------------|
| yellow | can of 750 ml | 12 pieces |

9. Polyurethane Foam Cleaners & Guns



BOSTIK P100 FOAM'N'CLEAN POWER

Powerful polyurethane foam cleaner

Product description

BOSTIK P100 FOAM'N'CLEAN POWER is a professional and powerful cleaner of stains and residues from both 1 and 2 component fresh polyurethane foam from basket, valve and surfaces.

Most important characteristics

- Powerful cleaner
- Fast working
- Easy to apply, can be connected to can and comes with spray nozzle

| Colour | Packaging | Packed per |
|-------------|---------------|------------|
| transparent | can of 500 ml | 12 pieces |



BOSTIK PU GUN NBS-M GOLD

Premium PU foam gun

Product description

BOSTIK PU Gun NBS-M Gold is the premium PU Gun by Bostik. Parts are replaceable. This gun is suitable for all Bostik PU-Gun foams.

Most important characteristics

- High quality
- Provides highest yield



BOSTIK PU GUN UNI NBS 9070

Premium PU foam gun

BOSTIK PU Gun Uni NBS 9070 is the premium PU gun by Bostik. Rugged and lightweight cast aluminium. Fully coated in PTFE for quick and easy maintenance and cleaning. Nickel-coated set screw on back closes the nozzle and/or adjusts the flow. High quality gaskets for long service life, over 400,000 cycles. Parts are replaceable. This gun is suitable for all Bostik PU-Gun foams.

Most important characteristics

- Easy to use
- Easy to clean



BOSTIK PU GUN ULTRA GUN ECONOMY

Standard PU foam gun

BOSTIK PU Gun Ultra Gun Economy is a standard PU gun with ergonomic handle. The adapter is fitted with a nickel coating and a PTFE bearing to prevent adhesion of PU foam. The set screw on the back closes the nozzle and/or adjusts the flow. Parts are not replaceable. This gun is suitable for all Bostik PU-Gun foams.



BOSTIK DUAL PU-APPLICATOR

Dual Applicator for PU-adhesives

BOSTIK Dual PU-Applicator reduces application time by 50%. The application width of the two adhesive beads can be adjusted by cutting the applicator. Standard width is 110 mm.

Most important characteristics

- Apply 2 strips of adhesive simultaneously
- Save 50% application time
- Compatible with almost every PU-Gun
- Adjustable application width: can be adjusted by cutting the applicator



10. FEICA Test Methods

FEICA's OCF manufacturers drive improvement in the sector

OCF manufacturers represented in FEICA have their own Technical Working Group within FEICA, creating a strong voice for the industry in Europe and driving forward continuous improvement within the sector. All the members are committed to delivering high-quality products and accurate and reliable information in the most transparent way. To underline this commitment they have signed a Declaration of Intent, which sets out their shared values and principles of cooperation.

FEICA OCF Test Methods

TM 1002 :2014

Joint Yield of an OCF canister

TM 1003 :2013

Foam Yield of an OCF canister foam

TM 1004 :2013

Dimensional Stability of an OCF canister foam

TM 1005 :2013

Cutting Time of an OCF canister foam

TM 1006 :2013

Sagging Behaviour of an OCF canister foam

TM 1007 :2013

Volume by Water Displacement

TM 1008 :2013

Brittleness of an OCF canister foam

TM 1009 :2013

Curing Pressure of an OCF canister foam

TM 1011 :2013

Compression Strength of an OCF canister foam

TM 1012 :2013

Shear Strength of an OCF canister foam

TM 1013 :2015

Movement Capabilities

TM 1014 :2013

Tack Free Time of an OCF canister foam

TM 1015 :2015

Open Time

TM 1018 : 2015

Tensile Strength

TM 1019 :2014

Free Foamed Density

TM 1020:2017

Determination of the long term Thermal Conductivity of an OCF Canister Foam

TM 1002:2014**Determination of the density of foam in a joint to calculate the Joint Yield of an OCF Canister Foam**

This test method describes how to determine the apparent density of an OCF sprayed in a joint and how to calculate from this the theoretical foam volume (yield) in running meters of the whole can. The liquid foam is sprayed into a joint with fixed dimensions. The weight and dimensions of the cured foam gives the foam density. By measuring the amount sprayed we can calculate the theoretical foam yield. The yield of an OCF canister is often important to customers buying the product. Information on labels concerning yield are often derived from laboratory tests that were completed under ideal circumstances, i.e. to obtain the highest possible yield. The purpose of this test procedure is to determine a realistic, achievable foam yield of a PU-foam canister when it is used in joints. The value should be reported in metres for a joint with specific width and height. Since numerous joint dimensions can be calculated, the specific width (a) and height (b) of the joint in mm, has to be mentioned together with the result.

TM 1003: 2013**Determination of the Foam Yield of an OCF Canister Foam**

This test method describes how to determine the total foam volume for the whole OCF canister. The full canister is emptied into a box with defined dimensions. The foam volume (yield) is determined by water displacement of the cured foam. The yield of canister PU-foam is often an important issue for customers buying the product. Information on labels concerning yield are often derived from laboratory tests that were completed under ideal circumstances, i.e. to deliver the highest possible yield. This test method was developed to be reproducible for measuring the free-foamed volumetric yield.

TM 1004:2013**Determination of the Dimensional Stability of an OCF Canister Foam**

This test method describes how to determine the dimensional stability (shrinkage or expansion) of cured foam under extreme and typical conditions. The foam is dispensed in the gap between two boards. After full curing, the dimensional stability of the foam is determined by measurement of the distance between the panels over several days and weeks. Typically OCFs tend to shrink within the first few days after curing due to gas release from the closed cells. The vanishing propellant leaves an under-pressure in the cells resulting in a shrinking of cell size, therefore the whole foam shrinks. This effect is usually compensated over several days by the slower permeation of air. Shrinking foam can affect the sealing of joints by separation from the surfaces or deformation of the joints. The degree of shrinkage depends not only on the OCF formulation, but also on the environmental conditions like humidity.

TM 1005:2013**Determination of the Cutting Time of an OCF Canister Foam**

This test method describes how to determine the hardening time of a liquid OCF (froth) until it can be cut. The liquid foam is dispensed in defined strings on a horizontal surface. After a certain time for curing, the string is cut. The cutting time is reached when the cut surface is not sticky anymore, the knife remains clean without pre-polymer residues and the cells are not squeezed. The cutting time is the time after which the foam is still not entirely hardened (not to confuse with "load time"), but the time after which the foam is not liquid anymore and can be processed. The cutting time is linked to the curing time, which could be understood as another expression for the same property. The measured value depends strongly on the dispensed string diameter as well as the humidity, temperature and the processing and tools. The cutting time gives an indication about the water transport inside the foam body, therefore about the foam quality. Basically the shorter the cutting time the better, as the foam structure suffers from long curing.

TM 1006:2013**Determination of the Sagging Behaviour of an OCF Canister Foam**

This test method describes how to evaluate the sagging behaviour and determine the biggest joint possible before a liquid OCF (froth) slips off. The foam is sprayed into vertical joints of different dimensions. The joints are enlarged until the foam slips off. One of the most important physical properties of an OCF is the ability to set itself in a cavity and thus fill up joints. This property is dependent upon the temperature of both the canister, the environment and the dimensions of the joints, particularly vertical joints. The typical factors for sagging are low temperatures and wide joints. This method has two objectives:

- a. To judge the sagging behaviour of an OCF at given conditions: canister and ambient temperature and the joint width.
- b. To define the maximum joint width for the usability of the OCF at given temperatures where the foam does not slide down.

TM 1007:2013**Determination of the Volume by Water Displacement**

This test method describes how to determine the real volume of cured foam, respecting eventual cavities inside the foam structure. A test sample, preferably prepared according to TM 1003, is cut in several pieces and immersed underwater. The displaced quantity of water or the lifting power shows the foam volume. The yield of the foam can be determined in various ways; as joint yield or as free foamed yield. In a curing process the foam is changing its dimensions and the final shape of the cured foam is irregular, thus the problems with determination of the foam's volume may appear. Purpose of this procedure is to describe the water displacement test method to measuring the irregular shaped foam's yield.

TM 1008:2013**Determination of the Brittleness of an OCF Canister Foam**

This test method describes how to determine the degree of brittleness of cured foam at a given temperature. The brittleness is measured on a cylindrically shaped string of hardened foam after a certain time by pressing the foam by finger at preferably low ambient temperatures. The degree of brittleness is given in marks from creaking, breaking of the surface up to pulverizing the foam. Polyurethane based OCF have the tendency to become brittle during the curing phase, mainly at cold temperatures. This property usually disappears irretrievably at warming. Though the foam becomes flexible at higher temperatures, the brittleness may remain permanent in cold conditions and affect the applicability of the foam. The lower the brittle point, the better the foam quality.

TM 1009:2013**Determination of the Curing Pressure of a OCF Canister Foam**

This method describes how to determine the generation of pressure during the curing process of an OCF. The liquid foam (froth) is dispensed into the gap between two parallel plates, which are connected to a pressure measuring device. The pressure build up is measured during the whole curing process until the maximum level is reached. The hardening of polyurethane based OCFs comes along with volume growth and pressure build-up of the dispensed froth. This pressure is intended to assure adhesion to the substrates; however it might deform joints when too high. Basically the pressure can be absorbed by the temporary installation of clamps or spacers. In cases where this is not possible it is important to take OCF with low curing pressure.

TM 1010:2016**Determination of the post expansion of an OCF Canister Foam**

This method describes how to measure the expansion of a freshly dispensed liquid foam (froth) during the curing phase. The foam is dispensed into a linear joint up to a defined level. The foam expands during the curing phase to its final volume. The post expansion is the volume increase expressed as a percentage of the original dispensed froth. The evaporation of propellants and, in case the of polyurethanes, the generation of CO₂, expands the froth to a larger volume. This expansion can cause waste of foam and other unwanted effects, which are hard to anticipate. By calculating the post expansion factor, the consumer can estimate the necessary filling degree of the froth to avoid overexpansion.

TM 1011:2015**Determination of the Compression Strength of An OCF Canister Foam**

This test method describes how to determine the compressive strength of a cured foam. It gives an indication of the foams resistance against area distributed pressure. The maximum endurable stress is determined. The test specimen is prepared by foaming between two wooden plates. After the full curing the specimen is compressed by a tensile testing machine to at least 10% of its initial thickness. The compressive strength is obtained at 10 % compression. One of the main application areas of OCF is the thermal insulation and sound damping in connection joints. The foam in those joints has to absorb the movement of the construction elements caused by temperature change, wind load etc. and therefore has to provide a certain strength and flexibility to withstand repetitive compression-tensile cycles. The strength can be measured by applying a compression force to a piece of the foam. The result is proportional to the extent of compression. A typical value is compression by 10%.

TM 1012:2013**Determination of the Shear Strength of an OCF Canister Foam**

This method displays the behaviour of a foam system towards shear forces. It shows the strength and the bonding power of the foam as the sandwich element between wooden plates. The test is conducted according to EN 12090. The foam is dispensed in the gap between two boards. After full curing, the boards are moved in opposite but parallel directions to each other (sheared) while the applied force is measured. The shear strength is an important property of the foam, needed to evaluate its fixing power, particularly for the fixation of doorframes. It is useful to calculate the necessary area of fixation (for given door wing weight) or vice versa. This test also indicates the breaking point of the fixation, which can be either within the foam (cohesion failure) or between foam and the bonded surface (adhesion failure).

TM 1013:2017**Determination of the Movement Capability of an OCF Canister Foam**

This test method describes how to determine the movement capability of cured foam. The result gives an indication of the degree of flexibility of the cured foam. At least two identical test specimens are prepared by foaming between two wooden plates. After fully curing, one of the specimens is alternately compressed and stretched for a total of 1000 cycles (by a tensile testing machine). Additionally the compressed/stretched sample is evaluated visually. After that, both specimens – the tested one and the control – are stretched until the samples fracture. Tensile force and elongation at fracture can be measured and compared. One of the main application areas of OCF is thermal insulation and sound damping in connecting joints. Those joints have to absorb the movement of the construction elements caused by temperature change, wind load, etc., and have to provide certain flexibility to ensure a long service life. The elongation is measured by stretching a piece of foam.

TM 1014:2013**Determination of the Tack Free Time of an OCF Canister Foam**

This test method describes how to determine the tack free time of a liquid OCF. The liquid foam is dispensed in a string on a horizontal surface. After a certain time for curing, the surface of the string is touched with a small rod or tube. The tack free time is reached when the surface doesn't stick anymore. In general the tack free time is the time that adhesion on the surface has stopped. The tack free time is subjected to temperature and humidity conditions. It is usually prolonged by lower temperature or / and lower humidity.

TM 1018:2015**Determination of the Tensile Strength of an OCF Canister Foam**

This test method describes how to determine the maximum stress a cured foam can withstand while being stretched before breaking. The result gives an indication of the elasticity of the cured foam. All test specimens are prepared by foaming between two wooden plates. After one way, two additional wooden plates are adhered as a tearing device. After fully curing, the specimen is stretched by a tensile testing machine, gradually increasing the distance at a set speed until the sample fractures. The tensile strength is the maximum force withstood by the specimen. The tensile strength is an important property of a foam. It is used to evaluate its fixing power, particularly for the fixation of doorframes. It allows the calculation of the necessary area of fixation for a given door wing weight and vice versa. This test also indicates the breaking point of the fixation, which can be either within the foam (cohesion failure) or between the foam and the bonded surface (adhesion failure).

TM 1019:2014**Determination of the Free Foamed Density of an OCF Canister Foam**

This test method describes how to determine the density of a cured OCF for identification purposes only. In general, density is a property used for product identification purposes. It is also an indication of the yield and strength of the product. Normally, the lower the density the higher the yield and the lower the strength. To measure the joint yield of a foam canister one should determine the density and yield in running metres according to FEICA TM 1002:2014. The liquid foam is dispensed in a string on a horizontal surface. After 24 hours for curing, the density of the cured product is measured using a balance and a measuring cylinder.

TM 1020:2017**Determination of the long term Thermal Conductivity of an OCF Canister Foam**

This method describes how to determine the long term thermal conductivity of a cured OCF foam, dispensed from a pressurised can, with a sample subjected to accelerated ageing procedure. The test specimen is prepared by foaming into a mould made of two wooden plates and spacers. After curing, the two sides of the mould are open and the foam sample removed. The sample is then cut into the desired dimensions, depending on the measuring device to be used of e.g. 300 x 300 mm or 200 x 200 mm. The test is carried out on the basis of EN 12667 with a mean temperature of 10°C. One of the most important characteristics of polyurethane foam is its very good thermal insulation. When OCF foam is used as sealing and insulation of windows and external doors; low insulation value is of great importance.

11. Service & Support



11.1 Explanation DIN 4102-1 vs EN 13501-1

| CLASSIFICATION | ADDITIONAL CLASSIFICATION | | EN 13501-1 | DIN 4102-1 |
|--|---------------------------|-------------------------------|------------------|------------|
| | no smoke production | no flaming droplets/particles | | |
| non-combustible without burning elements | X | X | A1 | A1 |
| non-combustible with burning elements | X | X | A2 - s1 d0< | A2 |
| flame resistant | X | X | B, C - s1 d0 | B1 |
| | | X | A2, B, C - s2 d0 | |
| | | X | A2, B, C - s3 d0 | |
| | X | | A2, B, C - s1 d1 | |
| | X | | A2, B, C - s1 d2 | |
| normally inflammable | | | A2, B, C - s3 d2 | |
| | X | | D - s1 d0 | B2 |
| | | | D - s2 d0 | |
| | | | D - s3 d0 | |
| | X | X | D - s1 d2 | |
| easily inflammable | | X | D - s2 d2 | |
| | | X | D - s3 d2 | |
| | | | E | |
| | | | E - d2 | |
| | | | F | B3 |

The fire-technological properties of building materials are defined in:

- not combustible
- flame retardant
- normal flammability

The classifications are carried out according to DIN 4102-1 (A1, A2, B, B1, B2 and B3) as well as DIN EN 13501-1 (A1, A2, B, C, D, E, F). Polyurethane foams are mainly familiar under B1, B2 and B3 tested accordingly DIN 4102-1. Below a table to display the meaning of the test and to show the equivalent of the EN 13501-1 in relation to the DIN 4102-1.



Fire behaviour:

- Class A1 (highest level)
- Class A2 (not burnable materials)
- Class B (inflammable materials)
- Class C (normal flammable materials)
- Class D (normal flammable materials)
- Class E (normal flammable materials)
- Class F (not classified materials)

Smoke development:

- Class S1 (very limited smoke development)
- Class S2 (limited smoke development)
- Class S3 (no demands on smoke development)

Burning droplets:

- Class d0 (no burning droplets or particles)
- Class d1 (limited burning droplets)
- Class d2 (no demands on burning droplets)

B1 Test according to DIN 4102-1

Test Procedure according to DIN 4102 part 15 and 16 B1. The material must pass the classification B2.

The purpose of the test according to DIN 4102-1: 1998-05 section 6.1 is the classification of building materials (except floor coverings) on the basis of their fire behaviour. For more information, see DIN 4102-1: 1998-05 section 1.2. The test shows the fire of an object in a room (eg a paper basket in a room corner). Under this load, the spread of fire may not extend substantially outside the primary firing area and the

heat emission must be limited. The fire shaft test, which is normally carried out on test specimens from four specimens of 190 mm in width and 1000 mm in height, shall be deemed to have passed if, during the test

- a) the mean value of the residual lengths of each sample body is at least 15 cm and no sample has a residual length of 0 cm;
- b) the average smoke gas temperature is not exceeded by 200° C in any test.

B2 Test according to DIN 4102-1

The scope of the test according to DIN 4102-1: 1998-05 section 6.2 is the classification of building materials by their fire behaviour. The test represents the stress of a small, defined flame (matched flame). Under these conditions, the flammability and spread of the flame must be limited within a certain time. For more information, see DIN 4102-1: 1998-05 section 1.2. The test is considered to have passed if none of the five samples:

- a) Reach a flame height above 150 mm with a 20 mm flame which is exposed to the edge of the samples for 15 seconds
- b) and in the event of surface exposure (specimen size = 90 mm width x 230 mm length), the flame tip reaches the measuring mark within 20 seconds.

B3 Test according to DIN 4102-1

Not tested.

11.2 Application guidelines PU foams

General application guidelines PU Gun Foams

- Read the technical data sheet of the polyurethane foam regarding the recommended canister and application temperature. This can differ per product.
- Hold the canister with the valve turned upwards and affix an applicator gun with NBS-thread to the canister. We recommend a NBS Gold (see instructions in the gun box).
- Shake the canister vigorously prior to use at least 30 times.
- Turn canister upside down and apply the foam.
- To regulate the flow of the foam, loosen the valve at the back of the handle.
- Half fill the cavity and, in case of low humidity, lightly spray the foam with water. The foam will expand to fill the rest.
- Protect eyes, wear gloves and protective gear.
- Floor-covering and furniture to be covered with paper or plastic foil.
- Joints wider and deeper than 4cm should be filled in multiple layers. Wait 15-30 minutes between applications. Before each application lightly spray with water.
- Only use in well ventilated areas.
- Store canister upright between +5°C and +25°C.
- Pressurized container! Protect from sunlight and do not expose to temperatures exceeding +50°C. Do not pierce or burn, even after use.
- Contains flammable propellants. Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition. No smoking.
- Once you have completed the job, close the valve at the back of the handle and store the canister with gun upright.

General application guidelines Hand Held PU Foams

- Read the technical data sheet of the polyurethane foam regarding the recommended canister and application temperature. This can differ per product.
- Remove cap and screw the straw firmly onto the valve.
- Shake the canister vigorously prior to use at least 20 times.
- To apply foam, turn the canister upside down and press the adaptor. Half fill the cavity and, in case of low humidity, lightly spray the foam with water. The foam will expand to fill the rest.
- Protect eyes, wear gloves and protective gear.
- Floor-covering and furniture to be covered with paper or plastic foil.
- Joints wider and deeper than 4cm should be filled in multiple layers. Wait 15-30 minutes between applications. Before each application lightly spray with water.
- Only use in well ventilated areas.
- Store canister upright between +5°C and +25°C.
- Pressurized container! Protect from sunlight and do not expose to temperatures exceeding +50°C. Do not pierce or burn, even after use.
- Contains flammable propellants. Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition. No smoking.
- Once completed the job, close the valve at the back of the handle and store the canister with gun upright.



Half fill the cavity and, in case of low humidity, lightly spray the foam with water.



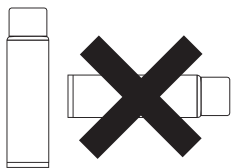
The foam will expand to fill the rest.



Once the polyurethane foam has been expanded and has exceeded its cutting time (can be found at each technical data sheet of the polyurethane foams) the polyurethane foam excess can be cut.

Storage

Always store the canisters upright, this will avoid a sticky valve.



Place the boxes always in a shaded environment at a temperature between +5°C and +25°C. Higher temperature during storage may reduce shelf life. If canister is reaching its shelf life shake canister with more power. Polyurethane is temperature sensitive during storage, thus at lower a more robust shaking is recommended. When a valve will not open after horizontal storage don't force to open the valve! Always handle cans and box with care, use two hands to carry the box.

Safety First

Polyurethanes are extremely versatile, but for health and safety reasons materials with the lowest possible free isocyanate content are desirable. Always protect eyes and wear gloves and working clothes.

11.3 Installation of internal door frames

Fixing interior doors with 2C foams

Installation of the interior door frames can be bonded with polyurethane foams accordance with the following guidelines:

- Maximum door weight of 40 kg
- Wetted surface by the foam on the back site of the door frame minimum 30%
- Foam adhesive width between 8 and 25 mm
- A minimum of 6 foam adhesive bonds per door frame
- Minimum curing time of the foam adhesive of at least 2 hours between applying the adhesive and removing the frame spreader.



Remarks:

- Post expansion might occur at low temperatures during applications.
- Can temperature may never exceed 25°C.

Installation Guidelines:

- Most of all, before starting with installation of the door, check door manufacturer's instructions.
- Use spacers and wedges for temporary fixing and adjusting.
- Use dedicated frame spreader with integrated clamps to prevent deformation of the frame.
- The spacers must be positioned at the height of both hinges and the lock.
- Measure the width inside the doorframe at the top, middle and bottom. The distance should be the same everywhere. Check both top corners, they should be right-angled.
- Before applying PU Foam the door should be levelled and checked whether it opens properly.
- The door frame and the bottom should be protected with paper or masking tape in order to prevent soiling.
- The 2C foam should be sprayed in the joint between wall and doorframe in the positions of the spacer on both sides, usually total in 6 spots.
- After fully curing of the 2C foam, the void between door frame and walls will be filled with 1C PU Foam.
- DO NOT remove spacers in this phase or add spacers as described during the application of the 1C PU Foam.
- The spacers must not be removed before the foam is fully cured, wait at least 3 h, depending the ambient conditions. Within the rooms with very dry air the 24 h waiting time may be needed.

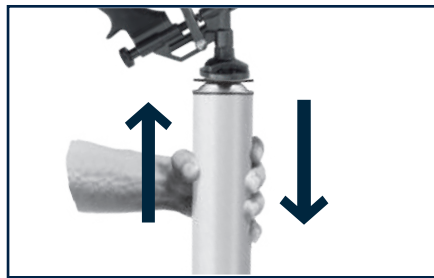
11.4 Installation of external insulation facade systems

- Keep the canister with the valve upwards and fix a applicator gun with NBS-thread onto the canister. We recommend a NBS Gold (see instructions in the gun box).
- Shake the canister vigorously prior to use at least 30 times.
- To regulate the flow of the foam, loosen the valve at the back of the handle. Protect eyes and wear gloves and working clothes.
- To apply the foam adhesive, turn the canister upside down and press the adaptor.
- Apply the adhesive on the insulation boards, on the contour, 5 cm away from the edge and inside the contour, in successive strings with 30 cm distance in between.
- The recommended diameter of the strings applied with a gun is 10–12 mm.
- Fasten the polystyrene sheets in the final position in about 6–10 min, before the adhesive starts to cure. Any irregularity can be corrected within max. 10 minutes of bonding, depending on temperature and humidity.
- The insulation boards at the base of the wall must be supported from the bottom, to avoid their slipping off the wall until the adhesive cures and the sheets are fastened (5–24 hours).
- Fill the spaces between the insulation boards with the foam adhesive, to obtain an effective and continuous insulation.
- Store canister upright between +5°C and +25°C.
- Pressurized container! Protect from sunlight and do not expose to temperatures exceeding +50°C. Do not pierce or burn, even after use.
- Contains flammable propellants. Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition. No smoking.
- Once completed the job, close the valve at the back of the handle and store the canister with gun upright.

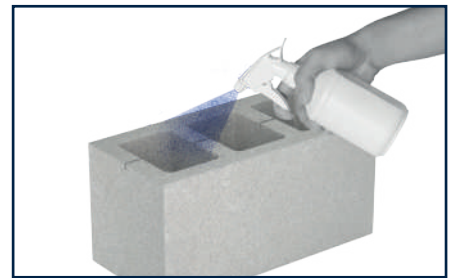
11.5 Application of BOSTIK P535 FOAM'N'FIX STONE PRO B3



Turn gun on canister / turn straw on canister



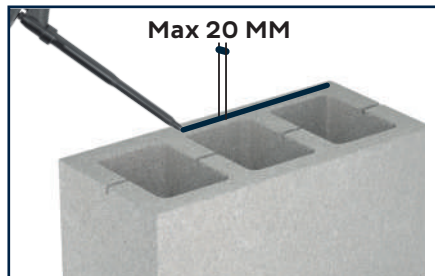
Shake the can vigorously before use at least 30 times and flush through



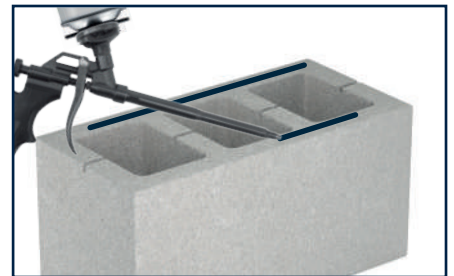
Slightly pre-moisture the surfaces if needed



Unlock/open the screw at the back-end of the gun for only 1/3 to apply the BOSTIK FOAM'N'FIX P535 STONE PRO B3 as controlled as possible



The intention is that at least 80% of the block surface is covered with BOSTIK FOAM'N'FIX P535 STONE PRO B3



To improve your speed, Bostik is able to offer also a so called BOSTIK DUAL APPLICATOR to mount at the top of the barrel and thus apply two beads in one go. (see page 33)

11.6 Explanation of the icons

The brand new packaging of the Bostik Expanding Foam range comes with icons that tell something about the properties of the product. Below we explain in detail what these icons mean.



Outside and indoor use

The pu foam can be used indoors and outside.



Outside use

The pu foam can be used outside.



Indoor use

The pu foam can only be used indoors.



Gloves

Gloves must be worn when using the product.



Gap filling properties

The hand held pu foam has excellent gap filling properties



Gap filling properties

The gun grade pu foam has excellent gap filling properties



Excellent adherence

The adhesive foam has excellent adhesion properties at vertical bondings



Excellent adherence

The adhesive foam has excellent adhesion properties at horizontal bondings



Cutting of the foam

The foam can be cut within 15 to 20 minutes after application.



Cutting of the foam

The foam can be cut within 20 to 40 minutes after application.



Cutting of the foam

The foam can be cut 60 minutes after application.



Sprayable

The pu foam cleaner can be used as a spray.



Cleaning of pu foam guns

The pu foam cleaner can be used to clean all pu foam guns.



Universal cleaner

The pu foam cleaner can be used as a spray.



Winter grade

The pu foam can be used in low temperature environments up to -15°C.



Bonding stone

The pu foam adhesive is extremely suitable for bonding stone and brick



Gun foam yield

The pu gun foam has a maximum yield of 30 liters.



Gun foam yield

The pu gun foam has a maximum yield of 40 liters.



Gun foam yield

The pu gun foam has a maximum yield of 45 liters.



Gun foam yield

The pu gun foam has a maximum yield of 50 liters.



Gun foam yield

The pu gun foam has a maximum yield of 55 liters.



Gun foam yield

The pu gun foam has a maximum yield of 65 liters.



Fast curing

The pu foam cures very fast



PU foam yield

The hand held pu foam has a maximum yield of 10 liters.



PU foam yield

The hand held pu foam has a maximum yield of 30 liters.



PU foam yield

The hand held pu foam has a maximum yield of 40 liters.



PU foam yield

The hand held pu foam has a maximum yield of 45 liters.



PU foam yield

The pu gun foam has a maximum yield of 10 square meters.



PU foam yield

The hand held pu foam has a maximum yield of 10 square meters.





11.7 Technical Training

End-users expect up-to-date knowledge and technical support from shop-employees. Bostik supports with training programs focusing on products and applications. We co-develop training programs with producers and resellers to combine the knowledge of paint products with knowledge on dedicated Bostik products.



Better results through Knowledge

Polyurethane Foams is a serious market segment which deserves a dedicated approach. Bostik constantly gathers knowledge about Polyurethane Foams upstream and downstream, from chemical supplier to end-user. The collection of this knowledge is a continuous process and provides us with the latest insights.



Centre of Excellence

In our state of the art Centre of Excellence we share knowledge with our customers, partners and colleagues from all over the world. We are pleased to receive our partners and end-users to provide them with the latest knowledge and new insights. This new information enables our partners to achieve higher efficiency and better results.

Bostik professional product portfolio

The rest of the Bostik professional product portfolio you can find at bostik.com and read more about them in the product application brochures





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