

FOAM

THE FACTS!

BUILDING TRUST





## POLYURETHANE FOAMS

Polyurethanes (PU's) are a particularly versatile group of polymers used in various areas of our daily life. The biggest use is as different forms of foam materials and products, which can be flexible, semi-flexible or rigid; their densities can also vary greatly. The vast majority of these are not normally in our sight, as the foam is used for different types of insulation and fillings inside refrigerators, freezers, furniture, car bodywork and seats, building walls and roofs or other components for example. Others are visible such as those used for packaging, footwear and cleaning sponges. Polyurethane foams can therefore be seen to have many different applications and some of their most useful properties relate to insulation, cushioning and stability.

## CONTENT

Polyurethane Foams

- 
- 04** Foam Classification

---

  - 05** PU Foams in Construction

---

  - 06** Foam Characteristics

---

  - 07** Methods of application

---

  - 08** Sika Boom® Product Matrix

---

  - 10** Sika Boom®

---

  - 11** Sika Boom-G®

---

  - 12** Sika Boom®-FR

---

  - 13** Sika Boom®-G Dispenser

---

  - 14** Sika Boom®-Cleaner

---

  - 15** Sika Boom®-G Dispenser gun maintenance

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# FOAM CLASSIFICATION

There are many ways to classify polyurethane foams including in terms of: their physical characteristics and performance, their component parts, their insulation properties and applications, plus also importantly for many applications their flexibility.

## FLEXIBLE FOAMS

These have countless applications and are present in our every daily life. They are widely used for their cushioning and shape recovery properties in furniture and bedding, plus they are used extensively all around our cars, homes, work and leisure places, because of their excellent thermal and acoustic insulation properties.

Flexible foams are also used in our clothing and accessories, plus the luggage, footwear and textile industries, plus for cleaning applications flexible

PU sponges have largely replaced natural materials because of their capacity and durability, plus to protect the environment.



## RIGID FOAMS

Rigid polyurethane foams are mostly used as insulation products when either low or high temperature insulation is needed. These materials are produced as insulation panels, composite or sandwich wall and roof panels, plus many different liquid applied foams for refrigeration or heating appliances and countless applications in building construction and refurbishment works.

In recent years the materials have had a strong growth in the construction industry as both an insulation material, but also for the liquid applied materials because of their expanding properties that mean it is ideal for the rapid and secure installation of window and door frames etc., where it easily fills gaps between the frames and the structure as well as sealing and insulating around them efficiently at the same time.



## PU FOAMS IN CONSTRUCTION

Polyurethane foams have become an indispensable part of the modern building industry due to their easy application, fast installation possibilities and relatively low cost. They also provide excellent thermal and acoustic insulation, plus they are extremely corrosion and rot resistant. This is why these foams are used extensively in new energy efficient and sustainable buildings.

All polyurethane foams have excellent adhesion to most common building materials including concrete, cement mortar and render, fibre-cement, plaster, masonry, wood and many different plastics. In addition, the foams have a high chemical resistance, including to a wide variety of acids and alkalis such as sulphuric, nitric and hydrochloric acids, and caustic soda etc. As a result, construction professionals and DIY enthusiasts have all found these polyurethane foams to be extremely versatile and useful at helping them to insulate, install, assemble, fill, model, protect and isolate in all manner of different applications. In aerosol cans they are particularly easy to use and portable, so that in one step for example, you can fix a window frame and seal the gap.

The polyurethane foams are produced in a chemical reaction, which is triggered by moisture or by the controlled mixing of two components when materials with the highest performance are required.

## ONE COMPONENT PU FOAMS

With one component systems, the chemical components are pre-mixed in the can and when they are applied, this material reacts with any available moisture such as the humidity in the air and starts to cure.

To accelerate the hardening and expansion process and to provide the optimum quality, it is recommended both before and after the application, to spray the substrate with clean water.

These foams cure inwards from the surface in contact with moisture.



# FOAM CHARACTERISTICS



## FLEXIBILITY

The flexibility of the cured foam has an important role in sustainable and energy efficient buildings. Large windows are more exposed to the wind and high temperature fluctuations than small windows, the frames expand and contract according to the temperature. The smaller windows may tolerate rigid foams, however larger windows and any that are installed on the weather-side of the building, demand that a flexible foam is used to safely accommodate the movement and maintain a secure seal and bond.

The flexibility of the foam is the sum of elongation at break and compression strength. For conventional rigid foams this is around 10%, whilst for modern flexible and elastic foams the range is between 25 to 45%.

## EXPANSION RATE

For some people, the expansion rate of a PU fixing foam was once a significant measure of quality. Today, for window and door frame applications we know that volume expansion by more than 50% is definitely not desirable. This is because above this level it is now known the hardened foam can impart excessive stress and pressure on the units and the surroundings. The newly "low expansion foams" are used more and more in windows and doors installation due to their low pressure on the frames.

## CURING BEHAVIOR

The curing behaviour of the foam is important. High quality one component foams will harden evenly from the outside to the inside and high humidity will accelerate this process. Wetting the surface prior to application of the foam will achieve faster curing. Under normal conditions, the material forms a skin in about ten minutes and after 20 minutes it is no longer tacky. Within only around an hour, the curing process should be complete and work can continue.

## SOUND INSULATION / SOUNDPROOFING

Sound insulation can require detailed specifications and approvals, which are usually issued by certified Testing Houses and Institutes.

Conventional PU foams will have a sound insulation value of approximately 57 decibels (dB), whilst special sound insulation foams can be up to 63 dB.

## FOAM APPLICATION

POLYURETHANE FOAMS HAVE MANY DIFFERENT APPLICATIONS AND OVER TIME BOTH THE FOAMS AND THEIR APPLICATION TECHNIQUES HAVE BEEN IMPROVED TO CONTINUALLY INCREASE PERFORMANCE. AS PREVIOUSLY STATED THERE ARE MANY DIFFERENT TYPES OF FOAM THAT ARE USED IN CONSTRUCTION, ACCORDING TO THE REQUIREMENTS OF EACH APPLICATION.



## GAP FILLING FOAMS

Standard gap filling foams are used where gaps or holes in a structure have to be closed, for example around ducts or wall openings for service pipes and other penetrations. The main advantages are that it can be quickly and easily applied, it bonds well to most building materials and can quickly be covered by plaster and other finishing's. During application these foams can also seal into small cracks and other cavities.



## WINDOW AND DOOR FRAME FIXING FOAMS

For window and door frame fixing, a different type of foam is needed. During installation, the foam's structure and adhesion on the substrate can indicate the materials quality and performance characteristics. A frame can be considered as permanently sealed if all of the technical aspects including the foams flexibility, sound insulation and expansion rate are considered.

## SPECIAL PU FOAMS



## FIRE RETARDANT FOAM

Fire retardant foam was developed for the filling and sealing of joints which require fire resistance, such as around fire doors and pipe penetrations or ductwork etc.. Specific certification is required for fire retardant foam (e.g. Class B1 according to German DIN 4102, and compliance with British BS 476: part 20, EN 1366-4).

# Sika Boom® PRODUCT MATRIX

		Sealing						Bonding				Fixing			Special products										Accessories	
		Windows and doors	Pipe penetrations	Cable ducts	Hollow spaces	Connection joints	Thermal insulation boards (EPS, XPS)	Cork board	Mineral wool	Plaster board	Showers & bathtubs	Heavy windows & door frames	Multi-positioning	Fast curing	High initial tack	Low expansion	High expansion	Sound reduction	Thermal insulation	Fire retardant	Winter use	HFC/CFC free	Cleaner for uncured foam	Application gun		
Manual application	Sika Boom®	x	x	x	x	x						x				x	x	x			x					
Gun application	Sika Boom® G	x	x	x	x	x										x	x	x			x					
	Sika Boom® FR	x		x	x	x										x	x	x	x			x				
Accessories	Sika Boom® G Dispenser																							x		
	Sika Boom® Cleaner																					x				

# Sika Boom®

Multi-position expanding PU foam



## USE

For fixing, insulating and filling against sound, cold, draught, etc.

For insulating and filling of construction joints around windows and door frames, pipe entries, air conditioning systems, ductwork, roller blind housings, etc.

## CHARACTERISTICS & ADVANTAGES

- Easy application in every position due to the multi-positioning dispenser
- Reusable
- High expanding rate
- High insulation properties
- Effective sound dampening
- Ageing resistant
- No ozone-layer-damaging propellant
- Can be used until -10 °C

## Colour

Sand yellow

## Packaging

250 ml can, 500 ml can, 750 ml can

# Sika Boom®-G

High-expanding, gun-applied polyurethane fixing foam



## USE

Fixing, insulating and filling against sound, cold, draught, etc.

For insulating and filling of construction joints around windows and door frames, pipe entries, air conditioning systems, ductwork, roller, blind housings, etc.

## CHARACTERISTICS & ADVANTAGES

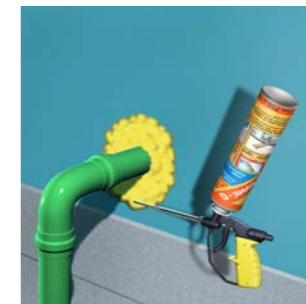
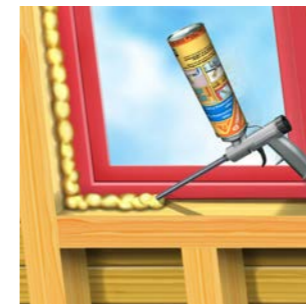
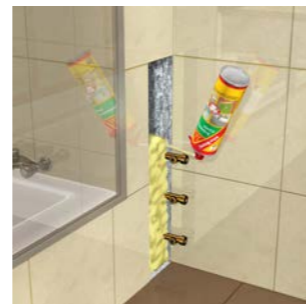
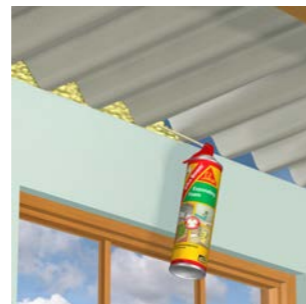
- Extrusion quantity is very controllable
- Easy dosage and regular application
- Very high yield
- No curing in the gun during application
- High expanding rate
- High insulation
- Effective sound dampening
- Ageing resistant
- No ozone-layer-damaging propellant

## Colour

Sand yellow

## Packaging

750 ml can



# Sika Boom®-FR

High yield fire rated PU foam



## USE

- For insulating between brickwork and cladding
- Ideal for sealing gaps where fire protection is needed
- Tested to BS476 Part 20: fire rated up to 5 hours fire protection
- B1 classification

## CHARACTERISTICS & ADVANTAGES

- High yield – up to 58 litre
- Easy application by gun
- Fast curing
- Excellent temperature insulation
- Effective sound dampening
- Age resistant
- CFC/HFC free

## Colour

Pink

## Packaging

750 ml can

# Sika Boom®-G DISPENSER

Foam dispenser for professional use



## USE

This tool easily fills wide and narrow gaps. Even the smallest and most difficult to access gaps can be reached with the extension tube attached.

## CHARACTERISTICS & ADVANTAGES

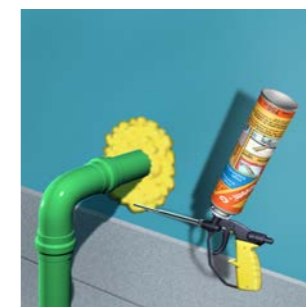
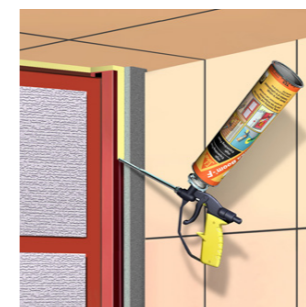
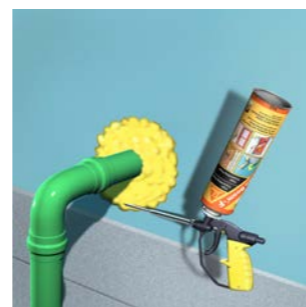
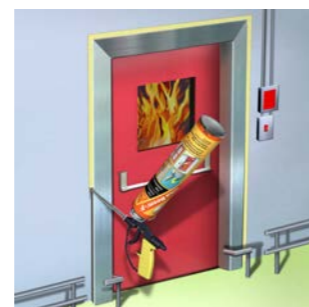
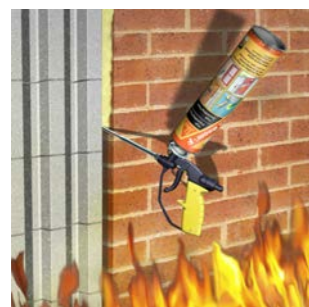
- Easy to assemble and handle
- Extrusion dosage is easily controllable
- Constant application
- Very easy to clean (with Sika Boom®-Cleaner)

## Colour

Yellow/black

## Packaging

One unit blister pack



# Sika Boom®-Cleaner

Cleaner for uncured PU foam and the Sika Boom-G dispenser

# HOW TO....

Get the most from your Sika Boom®-G High Yield Expanding Foam, and Dispenser gun.

## USE

Highly active cleaner for the regular cleaning of Sika Boom application guns and the elimination of non cured foam residues on different kind of substrates.

## CHARACTERISTICS & ADVANTAGES

- Very easy handling
- Packaging allows two different kind of application:
  - Cleaning of Sika Boom®-G Dispenser:
    - Cleaner can be screwed directly to the application gun
  - Removing uncured PU-foam from different kind of substrates:
    - With an adaptor you can use Sika Boom®-Cleaner as an Aerosol Spray



## Colour

Clear

## Packaging

500 ml can





## 1. PREPARATION & LOADING

- If present, remove the plastic cap from the can.
- With new guns, check the valve is not sticking shut by gently pushing down on the spring-loaded ball to break the seal.



Shake a new can of Boom foam for at least 1 minute.



Make sure the valve regulator is turned off by turning it clockwise.



With the can facing away from your body, screw the can onto the Sika Boom-G Gun. Make sure the can is "hand tight". You may hear a hiss as the can attaches to the adaptor.



## 2. TRIGGER PRESSURE = A VARIETY OF FOAM BEAD SIZES

- Open the valve regulator by turning it anti-clockwise.
- You can have the valve regulator fully open and adjust the volume of foam by using the trigger, or you can set the valve regulator to a desired position.



A light trigger squeeze = a fine bead of foam



A tighter trigger squeeze = a wider bead of foam



...you get the picture - the more you squeeze, the more comes out!

## 3. REMOVING THE CAN FROM THE DISPENSER GUN AFTER USE

- If present, remove the plastic cap from the can.
- With new guns, check the valve is not sticking shut by gently pushing down on the spring-loaded ball to break the seal.



Hold the can away from your body, unscrew the can from the dispenser gun.



- Continue to squeeze the trigger to ensure all the foam inside the gun is extruded.
- Turn the valve regulator off by turning it clockwise.



(You will be surprised how much foam is still in there!)

## 4. CLEANING THE DISPENSER GUN AFTER USE

- ALWAYS store the can with gun attached in an upright position!



- You will need a can of Sika Boom-Cleaner to clean out any remaining foam residue from your dispenser gun.
- Cured foam can only be removed mechanically!
- If attaching a new can of foam, do this now following the "Preparation & Loading" instructions above.



- To clean your dispenser gun and store ready for use next time, screw on the can of Sika Boom-Cleaner (ensuring the can is facing away from you).
- Open the valve regulator by turning it anti-clockwise.

#### 4. CLEANING THE DISPENSER GUN AFTER USE...continued



Squeeze the trigger continuously until solvent comes out the nozzle. Continue squeezing the trigger until the spray is clear.



Turn the valve regulator clockwise to close, and remove the Sika Boom-Cleaner can from the gun.

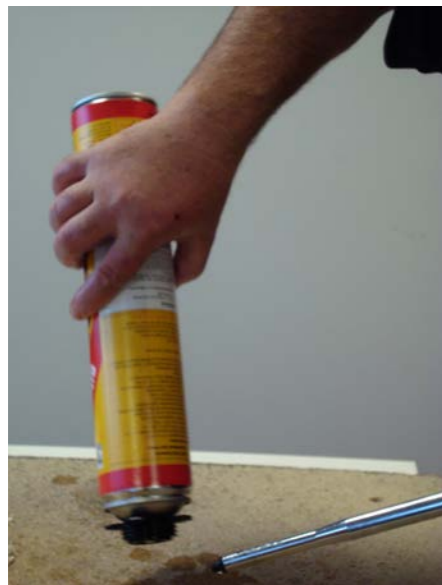
#### AND AN EXTRA TIP...



If you haven't used all the foam in your Sika Boom-G can, make sure you clean that up too!



While you've got the Sika Boom-Cleaner still attached to your dispenser gun, gently squeeze the trigger and spray cleaner over the top of the Sika Boom-G can to remove any foam residue. Shake the Sika Boom-G can upside down to allow any surplus cleaner to drain away.



Shake the Sika Boom-G can upside down to allow any surplus cleaner to drain away.





## FOR MORE Sika Boom<sup>®</sup> INFORMATION:



### WHO WE ARE

Sika AG, Switzerland, is a globally active specialty chemicals company. Sika supplies the building and construction industry as well as manufacturing industries (automotive, bus, truck, rail, solar and wind power plants, façades). Sika is a leader in processing materials used in sealing, bonding, damping, reinforcing and protecting loadbearing structures. Sika's product lines feature high quality concrete admixtures, specialty mortars, sealants and adhesives, damping and reinforcing materials, structural strengthening systems, industrial flooring as well as roofing and waterproofing systems.

Our most current General Sales Conditions shall apply.  
Please consult the Data Sheet prior to any use and processing.



**SIKA (NZ) LTD**  
PO BOX 19192  
Avondale · Auckland  
1746 · New Zealand

**Contact**  
Phone 0800 745 269  
Fax 0800 745 232  
[www.sika.co.nz](http://www.sika.co.nz)

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