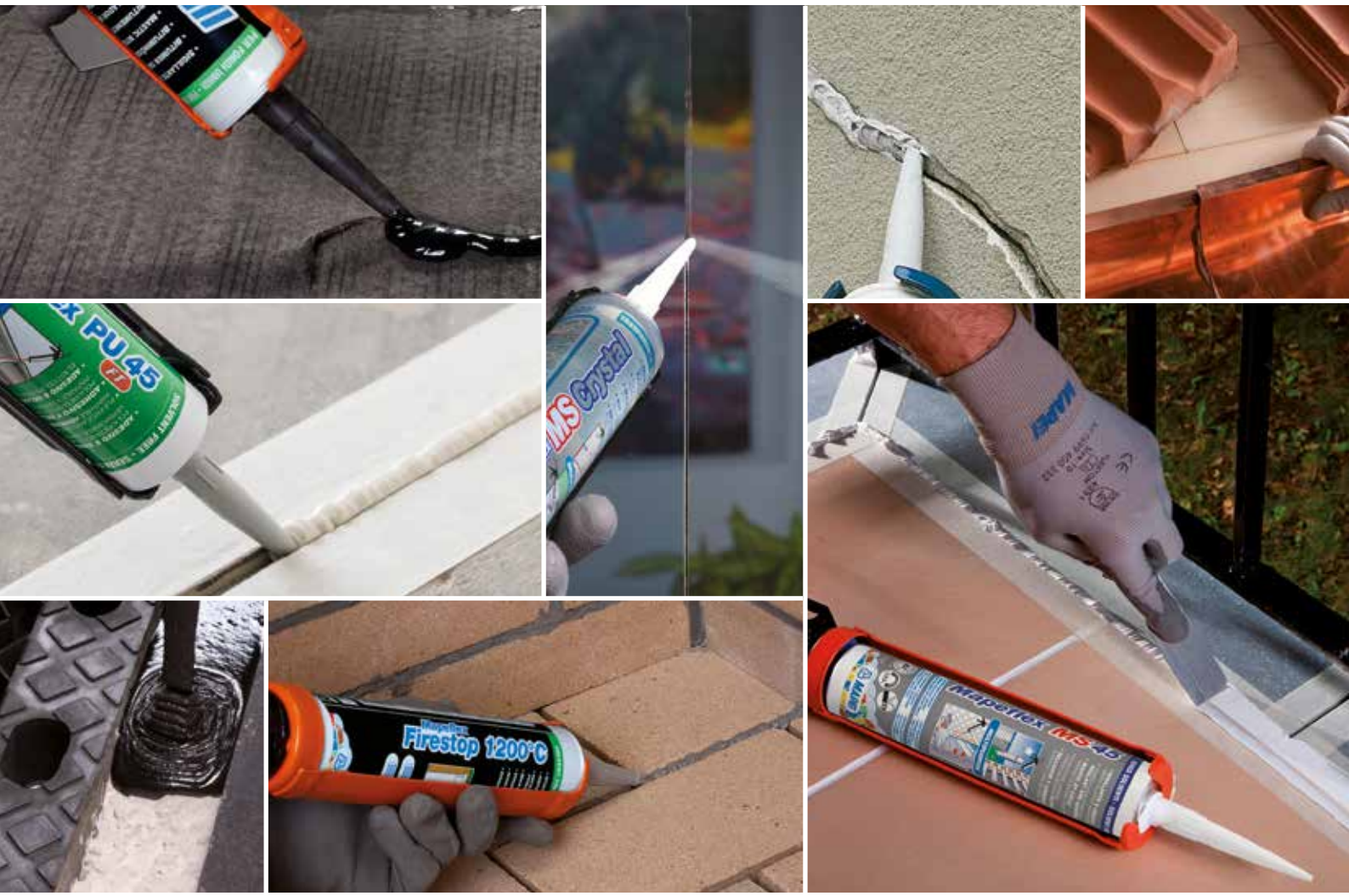
SELECTION CHART FOR ELASTIC SEALANTS AND ADHESIVES



MAPEI®

ADESIVI · SIGILLANTI · PRODOTTI CHIMICI PER L'EDILIZIA

WHAT SEALANTS **ARE USED FOR**

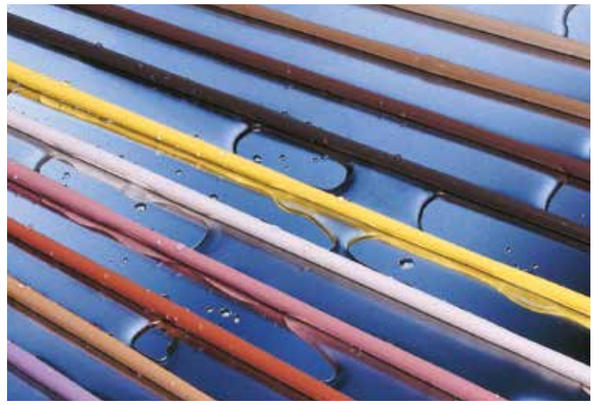
A multitude of building components are used to construct modern buildings. These components are often prefabricated and made from different types of material, which means they also have widely differing physical and mechanical characteristics and behaviour.
This is why, when assembling such components, a certain amount of **space should be left around their perimeter** so that differing levels of **thermal movement can take place unimpeded** to avoid uncontrolled deformation or damage. These spaces are known as **building joints**. To **waterproof joints against atmospheric agents** it is necessary to employ suitable products that are both adhesive and deformable: **elastic sealants**.

THE CHEMISTRY OF SEALANTS

Elastic sealants are chemical products that are intended to **guarantee the continuity of a waterproof seal** in internal and external surfaces in correspondence with the gaps or spaces that form the joints.
There are many specific sealants available **to meet all possible requirements**, and they are formulated with different types of polymers according to the varying mechanical, thermal and chemical loads and actions the joints are exposed to, the different types of building materials employed, the various application situations and conditions and the aesthetic results required.

USERS OF SEALANTS

Elastic sealants are used by all professionals working in the building industry whose work involves having to hermetically seal joints, cracks and gaps. Sealants also differ according to the specialisation of each different end user and various types are available, such as one-component and two-component sealants, thixotropic and hi-flow sealants, rapid and slow-curing sealants, and coloured or paintable sealants.



PRODUCT **FAMILIES**

The different polymers employed in the production of elastic sealants for building determine the typical performance characteristics of each product, having its strengths and weaknesses. Here below some of them.

ONE-COMPONENT POLYURETHANE SEALANTS

- Compatible with various substrates
- Flexible behaviour
- Paintable
- High tear resistance
- High bond strength
- Flexible formulations: ranging from high elastic modulus adhesives to low elastic modulus sealants

- Difficult extrusion at low temperatures
- Superficial ageing if exposed to UV rays

ACETIC SILICON SEALANTS

- Easy extrusion and workability
- Chemical resistance
- Thermal resistance 150-180 °C
- Flexible behaviour
- Also available in transparent
- Also available at low price

- Acid reaction, not compatible on mineral substrates without primers
- Corrosive, not compatible on oxidisable metals if applied without primers
- Odour, release of acetic acid
- Quality can be poor
- Not paintable

TWO-COMPONENT EPOXY-POLYURETHANE SEALANTS

- Compatible with various substrates
- High chemical and mechanical resistance
- High adhesion if used with primers
- Do not stain surfaces
- Can be sanded and smoothed

- Two-component
- Limited elasticity

NEUTRAL SILICONE SEALANTS

- Easy extrusion and workability
- Compatible with various building substrates
- Flexible behaviour
- Chemical resistance
- Thermal resistance 150-180°C
- Also available in transparent

- Poor resistance to tear and cut
- If not specific for use, they can stain stone surfaces
- Not paintable

ACRYLIC SEALANTS

- Easy extrusion and workability
- Compatible with damp substrates
- Paintable
- Low price

- Limited mechanical performance
- Plastic-elastic behaviour
- Volumetric shrinkage
- Must be protected from rain before complete hardening

HYBRID SEALANTS

- Compatible with various substrates
- Compatible with wet substrates during application
- Flexible behaviour
- Paintable
- Also available in crystal clear
- Limited dirt pick-up
- Flexible formulations: ranging from high elastic modulus adhesives to low elastic modulus sealants

- Low resistance to tear

MAPEI RANGE

Thanks to a deep knowledge of the needs of its final users, Mapei created a wide and specialised range of products, divided in different polymer families with performances, packagings, colours and prices that can meet all the needs of the most specialised and demanding users.

		ACETIC SILICON SEALANTS				NEUTRAL SILICON SEALANTS			ACRYLIC AND OTHER POLYMERS SEALANTS							POLYURETHANE AND EPOXY-POLYURETHANE SEALANTS									HYBRID SEALANTS			
		Mapesil U	Mapesil Z Plus	Mapesil AC	Mapesil 300°C	Mapesil BM	Mapesil LM	Mapesil GP	Mapeflex AC4	Mapeflex AC3	Mapeflex AC P	Mapeflex AC-FR 2	Mapeflex Firestop 1200°C	Mapeflex Blackfill	Ultrabond Super Grip	Mapeflex PU 35 CR	Mapeflex PU 40	Mapeflex PU 45 FT	Mapeflex PU 50 SL	Mapeflex PU 70 SL	Mapeflex PU 70 NS	Mapeflex PU 65	Mapeflex E-PU 21 SL	Mapeflex E-PU 30 NS	Ultrabond PU Strong	Mapeflex MS 45	Mapeflex MS Crystal	Ultrabond MS Rapid	Mapeflex MS 40
SEALING – internal	shutter boxes and fittings					◐	●	●	◐	◐	◐						◐	●									●	●		●
	glass and fittings	●	●	●			○	○															○				●			
	sanitary fittings, bathrooms, kitchens	○	●	●			●	●																			●			
	tiles and skirting	○	○	●			●	○																			●			
	stone coverings						●																							
	joints for pedestrian floors			●			●									●	○	●	●	●	○	●	●	●		●				○
	joints for vehicular floors															●		●	●	●	○	●	●	●		○				
	cracks and slits							○	●	●	●						○	●	●							●	●		●	
	structural, contraction and fillet joints					○	●	●									●	○	●	○	○		○	○		○			●	
	sterile environments, food, drinking water															●										○				
	production areas															●			○			○	●	●						
	paintable sealants								●	●	●	●				○	○	○	○				○	○		●	●		●	
SEALING – external	fittings and wall openings					○	●	●	○	○							●	●								●			●	
	glass and fittings	●	●	●			○	○																			○			
	fire-break, refractory, high temperature joints				●							●	●																	
	joints on façades						●	○	○		○						●	●								○			●	
	metalwork, roofs, coverings					●		●						●												●				
	seals between different materials	○	○	○		○	●	○	○	○	○	○		●		●	○	●								●			●	
	cracks and slits					○	○	○	●	○	●			●		●	●	●								●			●	
	swimming pools and damp environments			●			●																							
	balconies, terraces, flat roofs	○	○	●				●						●		●	○	●	○					●		●				
	car parks, airports, squares																	●	●	●		○	○	○		●				
	road joints																													
	canals, basins, hydraulic works															●	○	●	○	●	●					○				
	storage tanks, sewage plants															●	○	●	○	●	●		○	●		○				
	paintable sealants								●	●	●	●				●	●	●	●				●	●		●			●	
BONDING	skirtings, board coverings, wire casing, decorative elements														●			●								●	○	●	
	bathroom elements, worktops														●			●								●	○	●	
	plaques and signs														○			●								●	○	●	
	window sills, parapets														○			●								●	○	●	
	isolating sheets																	●								●	○	●	
	wooden panels and coverings														●			●								●	○	●	
	high-resistance bondings														●											●	○	●	
	ultra-fast bondings																													
	roof tiles																	●								●	○	●	

● ideal application ○ possible application

PRODUCT **CHARACTERISTICS**

		COMPONENTS	MOVEMENT IN SERVICE	SET TO FOOT TRAFFIC	SET TO VEHICULAR TRAFFIC	CHEMICAL RESISTANCE	THERMAL RESISTANCE	PAINTABLE	SANDABLE	DIRT PICK-UP	HI-FLOW	APPLICATION ON WET SUBSTRATES	PRIMER NEEDED	JOINTS >40 MM
ACRYLIC SEALANTS	Mapeflex AC3	1	7.5%	no	no	low	-30 / +80° C	yes	no	low	no	no	same product diluted in water	no
	Mapeflex AC4	1	12.5%	no	no	low	-30 / +80° C	yes	no	low	no	no		no
	Mapeflex AC-FR 2	1	10%	no	no	low	-20 / +80° C	yes	no	low	no	no		no
	Mapeflex AC P	1	12.5%	no	no	low	-30 / +80° C	yes	no	low	no	no		no
	Ultrabond Super Grip	1	n.a.	n.a.	n.a.	low	-20 / +80° C	yes	no	n.a.	no	no		n.a.
HYBRID SEALANTS	Mapeflex MS 40	1	25%	yes	no	medium	-40 / +70° C	yes	no	low	no	yes	FD	yes*
	Mapeflex MS 45	1	20%	yes	yes	medium	-40 / +90° C	yes	no	low	no	yes		yes*
	Mapeflex MS Crystal	1	20%	no	no	medium	-20 / +80° C	no	no	medium	no	yes		no
	Ultrabond MS Rapid	1	n.a.	n.a.	n.a.	medium	-40 / +90° C	yes	yes	n.a.	no	yes		n.a.
POLYURETHANE AND EPOXY-POLYURETHANE SEALANTS	Mapeflex PU 35 CR	1	20%	yes	yes	high	-30 / +80° C	yes	no	medium	no	no	Primer A Primer M	yes*
	Mapeflex PU 40	1	25%	yes	no	medium	-40 / +70° C	yes	no	medium	no	no		yes*
	Mapeflex PU 45 FT	1	20%	yes	yes	medium	-40 / +70° C	yes	no	medium	no	no		yes*
	Mapeflex PU 50 SL	1	25%	yes	yes	medium	-40 / +70° C	yes	no	medium	yes	no		yes*
	Mapeflex PU 65	2	5%	yes	yes	medium	-40 / +70° C	yes	yes	medium	yes	no	Primer M Primer PU60 Primer SN	yes
	Mapeflex PU 70 NS	2	25%	yes	yes	high	-30 / +70° C	yes	no	medium	no	no		yes
	Mapeflex PU 70 SL	2	25%	yes	yes	high	-30 / +70° C	yes	no	medium	yes	no		yes
	Ultrabond PU Strong	1	n.a.	n.a.	n.a.	medium	-30 / +80° C	yes	yes	n.a.	no	no		n.a.
	Mapeflex E-PU 21 SL	2	10%	yes	yes	high	-30 / +80° C	yes	yes	medium	yes	no	Primer EP Primer MF	yes
	Mapeflex E-PU 30 NS	2	10%	yes	yes	high	-30 / +80° C	yes	yes	medium	no	no		yes
ACETIC SILICON SEALANTS	Mapesil 300° C	1	20%	no	no	high	-50 / +300° C	no	no	high	no	no	Primer FD	no
	Mapesil AC	1	25%	yes	no	high	-40 / +180° C	no	no	high	no	no		no
	Mapesil U	1	20%	no	no	medium	-50 / +100° C	no	no	high	no	no		no
	Mapesil Z Plus	1	20%	no	no	medium	-30 / +120° C	no	no	high	no	no		no
NEUTRAL SILICON SEALANTS	Mapesil BM	1	25%	no	no	medium	-60 / +150° C	no	no	high	no	no	Primer FD	no
	Mapesil GP	1	20%	yes	no	medium	-40 / +120° C	no	no	high	no	no		no
	Mapesil LM	1	25%	yes	no	high	-60 / +150° C	no	no	high	no	no		no
OTHER POLYMERS	Mapeflex Blackfill	1	n.a.	no	no	low	-20 / +70° C	no	no	high	no	yes		yes
	Mapeflex Firestop 1200° C	1	n.a.	no	no	low	-20 / +1200° C	no	no	low	no	no		no

n.a. = non applicable.
yes* = sealant depth must not be greater than 20 mm.

COLOUR CHART

	100 WHITE	103 MOON WHITE	110 MANHATTAN 2000	111 SILVER GREY	112 MEDIUM GREY	113 CEMENT GREY	114 ANTHRACITE	115 RIVER GREY	116 MUSK GREY	119 LONDON GREY	120 BLACK	130 JASMINE	131 VANILLA	132 BEIGE 2000	133 SAND	134 SILK	135 GOLDEN DUST	137 CARIBBEAN	138 ALMOND	139 PINK POWDER	142 BROWN	141 CARAMEL	145 TERRA DI SIENA	143 TERRACOTTA	136 MUD	144 CHOCOLATE	149 VOLCANO SAND	174 TORNADO	170 CROCUS BLUE	172 SPACE BLUE	171 TURQUOISE	150 YELLOW	152 LIQUORICE	162 VIOLET	999 TRANSPARENT	CRYSTAL	WHITE	GREY WHITE	GREY	COPPER	DARK BROWN	BLACK	NEUTRAL	BEIGE	BROWN
Mapeflex AC3																																				●								
Mapeflex AC4																																				●			●					
Mapeflex AC-FR 2																																				●			●					
Mapeflex AC P																																				●								
Ultrabond Super Grip																																				●								
Mapeflex MS 40				●																																●								
Mapeflex MS 45						●																														●						○		●	●
Mapeflex MS Crystal																																			●										
Ultrabond MS Rapid																																				●								
Mapeflex PU 35 CR						●																																						
Mapeflex PU 40				●	●	●																														●								
Mapeflex PU 45 FT				●		●																														●						○		●	●
Mapeflex PU 50 SL				●																																									
Mapeflex PU 65																																										○			
Mapeflex PU 70 NS																																										○			
Mapeflex PU 70 SL																																						●				○			
Ultrabond PU Strong																																												●	
Mapeflex E-PU 21 SL						●																																				●			
Mapeflex E-PU 30 NS						●																																				●			
Mapesil 300° C																																										○			
Mapesil AC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
Mapesil U																																				●	●								
Mapesil Z Plus						●																														●	●								
Mapesil BM																																				●			●	●	●				
Mapesil GP																																				●	●	●	●	●	●				
Mapesil LM	●		●	●	●	●	●				●	●		●							●														●										
Mapeflex Blackfill																																									○			
Mapeflex Firestop 1200° C																																						●							

The chart contains colours from the standard range, coordinated with Mapei Coloured Grouts, as well as some special colours.
Displayed colours are indicative and can vary due to the printing processes involved.

PRODUCT **CERTIFICATIONS**

EN 15651-1 Sealants for façades	EN 15651-2 Sealants for glass surfaces	EN 15651-3 Sealants for sanitary joints	EN 15651-4 Sealants for pedestrian floors	Resistance to mould	Resistance to mould Mapei Mildew Block technology	GEV	OTHER CERTIFICATIONS	
F-EXT-INT class 7.5 P						EC1 Plus		Mapeflex AC3
F-EXT-INT class 12.5 P						EC1 Plus		Mapeflex AC4
F-INT class 7.5 P						EC1 plus	EN 13501-1 EN 13501-2	Mapeflex AC-FR 2
F-EXT-INT class 12.5 P						EC1 Plus		Mapeflex AC P
						EC1 Plus		Ultrabond Super Grip
F-EXT-INT-CC class 25 LM						EC1 Plus		Mapeflex MS 40
F-EXT-INT-CC class 20 HM			PW-EXT-INT-CC class 20 HM			EC1 Plus		Mapeflex MS 45
F-EXT-INT class 20 LM		XS1		●		EC1 Plus		Mapeflex MS Crystal
						EC1 Plus	FAST TRACK	Ultrabond MS Rapid
				●		EC1 plus	(EN 14187-4 - EN 14187-6 CSM (Cleanroom Suitable Material) contact with drinking water complies with HACCP	Mapeflex PU 35 CR
F-EXT-INT-CC class 25 LM			PW-EXT-INT-CC class 25 LM					Mapeflex PU 40
F-EXT-INT-CC class 20 HM			PW-EXT-INT-CC class 20 HM				FAST TRACK	Mapeflex PU 45 FT
			PW-EXT-INT-CC class 25 LM					Mapeflex PU 50 SL
							FAST TRACK	Mapeflex PU 65
								Mapeflex PU 70 NS
							Fed Spec SS-S-200 E BS 5212	Mapeflex PU 70 SL
							FAST TRACK EN 204-D4 Watt 91	Ultrabond PU Strong
								Mapeflex E-PU 21 SL
								Mapeflex E-PU 30 NS
						EC1		Mapesil 300° C
F-EXT-INT-CC class 25 LM	G-CC 25 LM	XS1		●	●	EC1 Plus		Mapesil AC
F-EXT-INT class 12.5 E		S1		●				Mapesil U
F-EXT-INT-CC class 12.5 E		XS1		●		EC1 Plus		Mapesil Z Plus
F-EXT-INT-CC class 25 LM	G-CC class 25 LM		PW-EXT-INT-CC class 25 LM			EC1 Plus		Mapesil BM
F-EXT-INT-CC class 12.5 E		XS1		●		EC1 Plus		Mapesil GP
F-EXT-INT-CC class 25 LM	G-CC class 25 LM	XS1	PW-EXT-INT-CC class 25 LM	●	●	EC1 Plus	ASTM C920 ASTM C1248	Mapesil LM
								Mapeflex Blackfill
								Mapeflex Firestop 1200° C

TYPICAL **APPLICATIONS**

Mapeflex PU35 CR

AGGRESSIVE LIQUIDS

ELASTIC POLYURETHANE SEALANT WITH HIGH CHEMICAL RESISTANCE

Main uses
- Depuration plants
- Safety tanks
- Chemical industries

Benefits
- Good hardness and elasticity
- High chemical resistance to a wide spectrum of substances
- Thixotropic, also for vertical application
- **Certified chemical resistance**
- Very low certified environmental emissions
- Paintable

Mapeflex PU35 CR

FOOD ENVIRONMENTS, CLEANROOMS, DRINKING WATER

ELASTIC POLYURETHANE SEALANT WITH HIGH CHEMICAL RESISTANCE

Main uses
- Food industry environments
- Cleanrooms, hospitals, laboratories
- Electronic industries
- Drinking water storage tanks

Benefits
- Good hardness and elasticity
- High chemical resistance to a wide spectrum of substances
- Thixotropic, also for vertical application
- Certified chemical resistance
- **Very low certified environmental emissions**
- Paintable

Mapeflex MS 45

ELASTIC SEALS AND BONDS

HYBRID SEALANT AND ADHESIVE WITH A HIGH MODULUS OF ELASTICITY

Main uses
- Sealing of door and window fittings perimeters
- Sealing cracks and slits
- Elastic bonds

Benefits
- Compatible with various materials, including when damp or wet
- Good bonding and flexible performances
- Odourless, very low certified environmental emissions
- Paintable with elastomeric paints
- Low dirt pick-up

Mapeflex PU 45 FT

INDUSTRIAL FLOORS

POLYURETHANE SEALANT AND ADHESIVE WITH HIGH MODULUS OF ELASTICITY

Main uses
- Industrial floors
- Warehouses and deposits
- Sidewalks

Benefits
- Fast hardening, no swelling
- High resistance to traffic
- Easy to apply
- High bond strength
- Paintable

Mapesil AC

DAMP ENVIRONMENTS AND SWIMMING POOLS

MOULD- RESISTANT PURE ACETIC SILICON SEALANT WITH LOW MODULUS OF ELASTICITY

Main uses
- Swimming pools
- Bathrooms and kitchens
- Sanitary fittings and showers

Benefits
- **Pure silicon for higher resistance and durability**
- **Extended resistance to moulds**
- **35 colours coordinated with Mapei grouts range**
- Low modulus of elasticity
- High thermal and chemical resistance
- Very low certified environmental emissions

Mapeflex pu 70 SL

AIRPORTS, SERVICE AREAS, CAR PARKS

HI-FLOW HYDROCARBONS RESISTANT POLYURETHANE SEALANT WITH A LOW MODULUS OF ELASTICITY

Main uses
- Airports
- Service areas and car parks
- Safety tanks

Benefits
- **Certified for use in airports**
- **Resistant to contact with hydrocarbons**
- High yield if applied with **Mapeflex SPP** pump
- Low modulus of elasticity

Mapesil LM

STONE FLOORS AND COVERINGS

NEUTRAL MOULD-RESISTANT PURE SILICON SEALANT WITH A LOW MODULUS OF ELASTICITY

Main uses
- Stone façades
- Stone floors and coverings
- Bathrooms,kitchens, swimming pools

Benefits
- **Certified for use on natural stone**
- High durability
- Low modulus of elasticity
- Resistant to moulds
- 10 colous coordinated with Mapei grouts range
- Very low certified environmental emissions

Mapeflex AC-FR 2

FIRE-BREAK JOINTS

ACRYLIC FIRE-RESISTANT SEALANT

Main uses
- Environments subject to the risk of fire
- Warehouses for flammable materials
- Public buildings

Benefits
- **Certified as EI fire resistant up to +240°C**
- **Certified for reaction to fire C-S2-d0**
- Easy to apply
- Paintable
- Very low certified environmental emissions

CONSUMPTION CHART LITRES OF SEALANT PER LINEAR METRE OF JOINT

recommended section

width in mm

depth in mm	5	10	15	20	25	30	35	40	45	50
5	**0.03**	0.05	0.08	0.10	0.13	0.15	0.18	0.20	0.23	0.25
10	0.05	**0.10**	**0.15**	**0.20**	0.25	0.30	0.35	0.40	0.45	0.50
12.5	0.06	0.13	0.19	0.25	**0.31**	0.38	0.44	0.50	0.56	0.63
15	0.08	0.15	0.23	0.30	0.38	**0.45**	0.53	0.60	0.68	0.75
17.5	0.09	0.18	0.26	0.35	0.44	0.53	**0.61**	0.70	0.79	0.88
20	0.10	0.20	0.30	0.40	0.50	0.60	0.70	**0.80**	0.90	1.00
22.5	0.11	0.23	0.34	0.45	0.56	0.68	0.79	0.90	**1.01**	1.13
25	0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	**1.25**

CONSUMPTION CHART LINEAR METRES SEALED PER 300 ML CARTRIDGE

recommended section

width in mm

depth in mm	5	10	15	20	25	30	35	40	45	50
5	**12.0**	6.0	4.0	3.0	2.4	2.0	1.7	1.5	1.3	1.2
10	6.0	**3.0**	**2.0**	**1.5**	1.2	1.0	0.9	0.8	0.7	0.6
12.5	4.8	2.4	1.6	1.2	**1.0**	0.8	0.7	0.6	0.5	0.5
15	4.0	2.0	1.3	1.0	0.8	**0.7**	0.6	0.5	0.4	0.4
17.5	3.4	1.7	1.1	0.9	0.7	0.6	**0.5**	0.4	0.4	0.3
20	3.0	1.5	1.0	0.8	0.6	0.5	0.4	**0.4**	0.3	0.3
22.5	2.7	1.3	0.9	0.7	0.5	0.4	0.4	0.3	**0.3**	0.3
25	2.4	1.2	0.8	0.6	0.5	0.4	0.3	0.3	0.3	**0.2**

CONSUMPTION CHART LINEAR METRES SEALED PER 600 ML SOFT CARTRIDGE

recommended section

width in mm

depth in mm	5	10	15	20	25	30	35	40	45	50
5	**24.0**	12.0	8.0	6.0	4.8	4.0	3.4	3.0	2.7	2.4
10	12.0	**6.0**	**4.0**	**3.0**	2.4	2.0	1.7	1.5	1.3	1.2
12.5	9.6	4.8	3.2	2.4	**1.9**	1.6	1.4	1.2	1.1	1.0
15	8.0	4.0	2.7	2.0	1.6	**1.3**	1.1	1.0	0.9	0.8
17.5	6.9	3.4	2.3	1.7	1.4	1.1	**1.0**	0.9	0.8	0.7
20	6.0	3.0	2.0	1.5	1.2	1.0	0.9	**0.8**	0.7	0.6
22.5	5.3	2.7	1.8	1.3	1.1	0.9	0.8	0.7	**0.6**	0.5
25	4.8	2.4	1.6	1.2	1.0	0.8	0.7	0.6	0.5	**0.5**

ACCESSORY ITEMS

DISPENSERS FOR SEALANTS

- Hand-held pro-grade guns
- Battery pro-grade guns
- Pneumatic pro-grade guns
- Battery peristaltic pump

PRE-FILLING FOR JOINTS

Foam polyethylene cords, available in various diametres, for pre-filling joints.

ADHESION PROMOTERS

Primers to increase the bond strength of sealants on different building materials.

EVERYTHING'S OK, WITH MAPEI

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