



CONSTRUCTION SILICONE

Insulating Glass, Facade,
Curtain Wall
Window & Door



MF881

Two Component
Silicone Structural Sealant

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Insulating Glass, Structural Glazing, Facade, Curtain Wall System

◆ APPLICATIONS

TG-SEALANT MF881 is a two-component neutral cured silicone sealant specifically developed for the manufacturing of high performance insulating glass units used in residential and commercial use of curtain wall systems and used in structural glazing applications such as factory glazing of curtain wall units and modules for unitized and panelized systems .

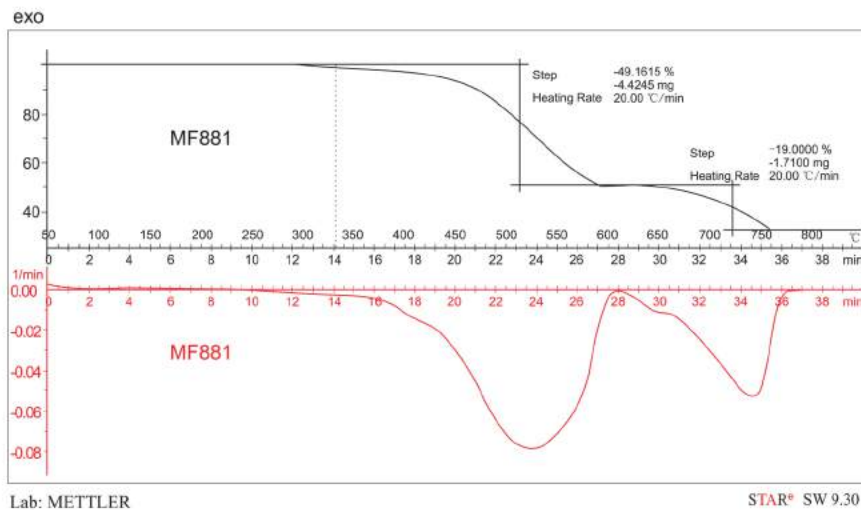
◆ FEATURES

- Excellent adhesion to a wide range of substrates including coated , enamelled and reflective glasses, anodised and polyester paint coated aluminium and stainless steel.
- Excellent temperature stability: - 60°C to 180°C.
- High level of mechanical properties.
- High elasticity and high modulus .
- Joint movement: ±25%.
- Resistant to ozone.

◆ TYPICAL PROPERTIES

TEST ITEMS		MEASURED VALUE
Base (Com A)	Appearance	White / Grey Ropy Paste
	Density	1.41 g/cm ³
	Viscosity	170,000 mPa.S
Catalyst (Com B)	Appearance	Black/ White Ropy Paste
	Density	1.03 g/cm ³
	Viscosity	80,000 mPa.S
As mixed		
Mixture By weight (A:B = 12:1)	Appearance	Black / White / Grey
	Density	1.40 g/cm ³
	Viscosity	340,000 mPa.S
	Application Time (23°C, 50%)	30-50 mins
	Tack-free Time (23°C, 50%)	30-60 mins
Sag	Placed Vertical (50 °C)	0
	Placed Horizontal	No deformation
Hardness	Shore A- 24h	35
	Shore A-14 days	44
As cured - after 14 days at T 23°C and 50% R.H.		
Tensile Adhesion Strength	23°C	0.97 MPa
	90°C	0.85 MPa
	- 30°C	1.84 MPa
	After Water Immersion	1.01 MPa
	After Water-UV Immersion	0.97 MPa
	Adhesive Failure Area	0%
	23°C Elongation Under Max. Tensile Strength	140%
Temperature Resistance	- 60~ 180°C	
Resistance to UV-Ozone	Continuous irradiation under water-UV 2500 hrs, No change.	
Moisture Vapour Transmission Rate (MVTR)	17.7 [gr/m ² .24hrs.2mm] - EN1279/4	
Gas Permeation Rate (Ar)	755 x 10 ⁻³ [gr/m ² .hrs] - EN1279/4	

Fig. 1 TG-SEALANT MF881 Thermogravimetric Analysis Curve.



◆ MIXING AND DISPENSING INSTRUCTIONS

TG-SEALANT MF881 has to be mixed homogeneously and air-bubble free in the correct ratio. TG-SEALANT MF881 should be mixed in a ratio of 12:1 base to curing agent by weight, or equivalent 8.5:1 by volume for optimal properties. At this mix ratio, the sealant typically exhibits a working time of 30~50 minutes and allows units to be handled within 3 hours. Slight variations in mixing ratio can be tolerated, but these should not exceed 11:1 to 14:1 by weight to ensure minimum properties are obtained. To obtain the ultimate physical properties from TG-SEALANT MF881 Silicone Structural Sealant it is recommended that the base and curing agent are thoroughly mixed using an airless mixing system found on most existing commercially available two-part silicone dispensing machines. Neither hand mixing nor the use of hand-held power mixers are satisfactory due to their incorporation of air into the material during mixing that would result in altered physical properties of the cured sealant. Most commercially available metering and mixing equipments are suitable.

Part A is stable in air, Part B is moisture-sensitive, must only be exposed briefly to air.

◆ CURING

When mixing TG-SEALANT MF881 A base + TG-SEALANT MF881 B catalyst approximately in a 12:1 weight ratio, the material will become tack-free at about 50 minutes under ambient conditions of T 23°C, 50% R.H. Under these conditions approximately 70% of strength should develop within 24 hours. Development of full properties requires full evaporation of cure by-products and will normally be achieved within 7 days. Full properties will take additional time in colder climates or deeper SSG cavities. The speed of reaction mainly depends on the temperature, the higher temperature the faster curing process. Heating above 50°C is not advisable as it may lead to bubble formation.

◆ APPLICABLE STANDARDS

- ASTM C920
- EU Specification: EN1279 - part 2, 4
- China Specification: GB16776 -2005
- IGCC-IGMA Approved.

◆ SURFACE PREPARATION - IGU:

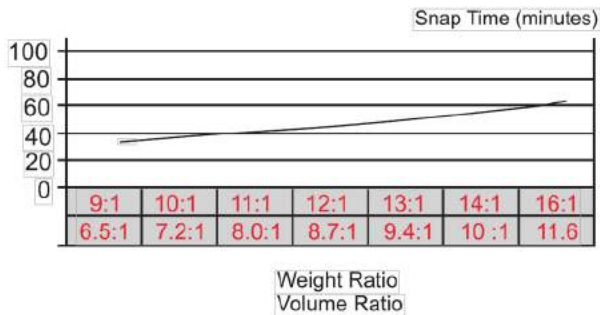
GLASS / SPACER - To achieve good adhesion, surfaces must be clean, dry and free from oil, grease and dust.

◆ SURFACE PREPARATION - SGS:

Clean all joints and glazing pockets, removing all foreign matter and contaminants such as grease, oil, dust, water, frost, surface dirt, old sealants, or glazing compounds and protective coatings. Metal, glass and plastic surfaces should be cleaned by mechanical or solvent procedures. Where used, solvent (non-water alcohol / acetone) should be wiped on and off with clean, oil- and lint-free cloths.

Advice on specific applications and surface pre-treatment methods is available from the Technical Service Department of TG-SEALANT.

Weight Ratio	Volume Ratio
9:1	6.5:1
10:1	7.2:1
11:1	8.0:1
12:1	8.7:1
13:1	9.4:1
14:1	10 :1
16:1	11.6



◆ APPLICATION LIMITS

It is important when selecting components for a project that adhesion and compatibility tests are carried out, and found to be successful, before the project starts. TG-SEALANT MF881 adhesion with glass and Alu. spacer must be tested in advance and compatibility of gaskets, backer rods, setting blocks and other accessory materials with TG-SEALANT MF881 better to be tested in advance.

Regarding facade structural glazing, primer is not usually required when using TG-SEALANT MF881. However, it is essential that adhesion be tested prior to use. Specific primer recommendations will be made by TG-SEALANT on a project basis. Please contact TG-SEALANT for further advice.

◆ LIMITATIONS

TG-SEALANT MF881 should not be used for structural applications without the prior written approval of TG-SEALANT QC Department. Each project should be specifically and separately approved by TG-SEALANT.

Project specific approval involves the following prerequisites:

- Joint dimension and print reviews.
- Successful laboratory adhesion and compatibility testing to all building components.
- Observance of professional sealant application and workmanship standards.
- Users should always consult TG-SEALANT Technical Service Department for adhesion recommendation.

TG-SEALANT shall not be held liable for any possible claims arising from structural glazing use of TG-SEALANT MF881 for projects which have not been specifically approved by TG-SEALANT.

For projects which have been approved, TG-SEALANT will issue a structural adhesion warranty on a case by case basis at the user's request. It is the user's exclusive responsibility to ensure project compliance with local building regulations. Because of the risk of incompatibility, TG-SEALANT MF881 should not come into contact with, or be exposed to sealants that liberate acetic acid. This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

◆ FIRST AID INFORMATION

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. Wash contaminated clothing and clean shoes before reuse.

Inhalation: Remove person to fresh air. If signs/symptoms develop, get medical attention. **If swallowed:** Do not induce vomiting unless instructed to do so by medical personnel. Give person two glasses of water. Never give anything by mouth to an unconscious person.

Keep out of reach children. Refer to Material Safety Data Sheet (MSDS) and Technical Data Sheet (TDS) for details.

🔥 SHELF LIFE AND STORAGE

12 months from the date of production below 30°C.

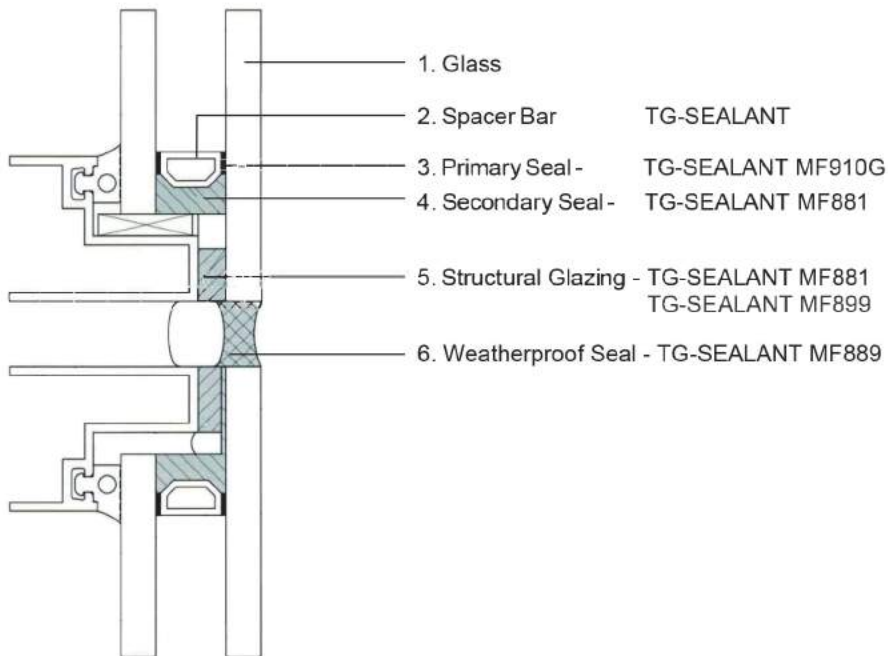
🔥 COLORS

Black / Grey / White

🔥 PACKAGING

Com A 265kg/drum	Com A 25kg/pail
Com B 19 kg/pail	Com B 300ml/cartridge x 7 pcs.

Fig. 2 Typical Section of Structural Glazing with Symmetric Insulating Glass Unit



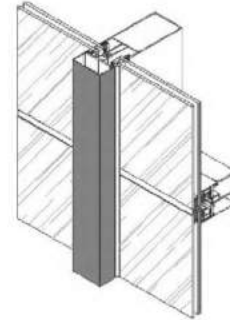
Joint Design--Correct Planning is Essential

In structural glazing, the adhesive joints should be planned and arranged according to optical requirements, but they should also take into consideration changes in the adjacent parts under the effects of temperature and the movement capability of the silicone sealant. The joint design thus combines shape with functionality.

Important

Seven criteria must be observed:

1. The joint seal must be able to freely accommodate tensile and compressive movements between the joint edges. Three-sided adhesion of the sealant must be avoided, because it inevitably results in damage to the joint.
2. The ratio of joint bite C_s to joint thickness t_s should be at least 1:1 and at most 3:1.
3. The minimum joint bite is always 6mm, irrespective of the calculated value.
4. The joint thickness t_s should be at least 6mm.
5. Always round the result up, never down.
6. The structural joints must not be subjected to external loads as a result of forces such as settlements, shrinkage, creep or permanent stress caused by gaskets etc.



Calculating the joint bite C_s

Joint bite C_s as a function of the wind load in supported constructions:

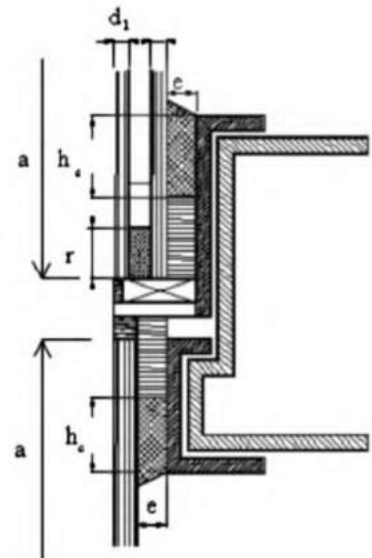
$$C_s = \frac{wa}{2000 f_1}$$

C_s -- minimum bite of the adhesive joint (mm)
 a -- length of the short edge of the glass pane or of the element (mm); with irregularly dimensioned glass element: longest of the short glass panes ¹⁾

w -- maximum wind load to be received (kN/mm^2).

f_1 -- maximum adhesive stress for supported construction, $0.2 \text{ N}/\text{mm}^2$.

¹⁾ If the sides of the glass panes are of varying length, then the length of the longest side is used for the calculation.



Calculating the joint thickness t_s

$$t_s \geq \frac{us}{\sqrt{\delta(2+\delta)}} \quad \textcircled{1}$$

t_s -- minimum thickness of the adhesive joint (mm). us -- relative displacement in length of glass panel to adapter frame (mm), relative displacement yield from support construction lateral displacement can be calculated according

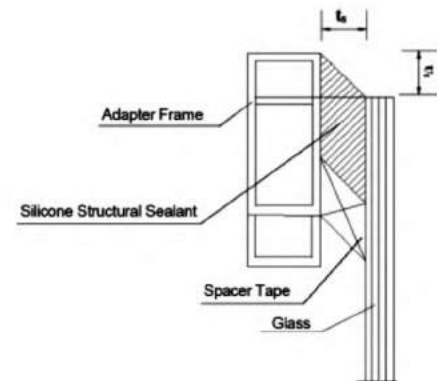
$$us = \theta hg \quad \textcircled{2}$$

to formula $\textcircled{2}$, take into account displacement from temperature difference if necessary.

θ -- elastic layer displacement angle limit value (rad) of support construction subject to wind load standard value.

hg -- glazing height = vertical dimension a or b .

-- adhesive deformation tolerance, elongation subject to tensile stress of $0.14 \text{ kN}/\text{mm}^2$.



Silicone Structural Sealant Joint Thickness Drawing