



Technical Data Sheet

DOWSIL™ 896 PanelFix

One-part silicone with immediate initial strength for panel bonding applications

Features & Benefits

- Instant Green Strength directly after application
- High strength silicone sealant
- One-part moisture curing
- Low squeeze-out
- UV- and weather-resistant
- Primerless adhesion to a wide range of substrates
- Neutral cure
- Low odor
- Elastic bonding silicone
- No creep under high temperature
- Temperature stability up to 150°C
- Fast & easy panel bonding
- Safe assembly due to fast strength build up
- High longevity
- Factory bonding and on-site application
- Compatible & approved package: silicone & tape
- CE marked according to EN 12004
- BBA Certificate No 16/5306

Applications

DOWSIL™ 896 PanelFix is an elastic one-part neutral curing silicone sealant specifically designed for panel bonding applications that require high durability and fast handling. It provides immediate strength directly after application. DOWSIL™ 896 PanelFix is a silicone which shows primerless adhesion to a variety of substrates such as anodized and mill finish aluminum, and mineral substrates and provides high strength once fully cured. DOWSIL™ 896 PanelFix is not suitable for structural glazing applications.

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Test ¹	Property	Unit	Result
As supplied – uncured state			
CTM 97B	Specific gravity	g/ml	1.53
ASTM D2202	Flow (sag or slump)	mm	0
ASTM C 679	Tack-free time (23°C, 50% R.H.)	minutes	15–20
CTM 663A	Curing Time (23°C, 50% R.H.)		
	- after 24 hours	mm	1.9
	- after 72 hours	mm	3.2
CTM 1430	Immediate strength	Pa	> 1400
As cured after 7 days at +23°C 2 mm sheet (ISO 37)			
CTM 99A	Durometer hardness, Shore A	Points	46
CTM 137A	Modulus at 100% elongation	MPa	1.0
CTM 137A	Tensile strength at break	MPa	1.8
CTM 137A	Elongation at break	%	> 450
Properties after 28 days cured at 50% RH and +23°C			
ISO 8339	Elongation at break	%	> 100
	Tensile strength	MPa	> 1.0
	Allowable design strength – Windload	kPa	140
	Allowable design strength – Deadload	kPa	30
	Service temperature range	°C	-50 to +150
	Application temperature	°C	+5 to +40

1. CTM: Corporate Test Method, copies of CTM's are available on request.
ASTM: American Society for Testing and Materials
ISO: International Standardization Organization

Description

DOWSIL™ 896 PanelFix is a one-part, neutral curing alkoxy silicone sealant specifically designed for non-glass facade applications to structurally bond two substrates together. Neutral alkoxy silicones cure at room temperature on exposure to water vapor in the air, giving off a small amount of alcohol (Methanol).

Approvals/ Specifications

Panels bonded with the DOWSIL™ 896 PanelFix System consistently meet industry standards and requirements.



The DOWSIL™ PanelFix System has been certified by the British Board of Agrément (BBA), Agrément Certificate Number 16/5306.

DOWSIL™ 896 PanelFix has also been assessed by ETA 17/0689 according to European Assessment Document EAD 15-25-0005-0606.

Green Strength

DOWSIL™ 896 PanelFix provides high durability and immediate Green Strength directly after application. Once applied and fully cured, DOWSIL™ 896 PanelFix is able to withstand dynamic and permanent loads.

Please come back to our technical service experts to calculate and define the correct joint dimension according to the final service life conditions.

The property of instant Green Strength can eliminate or decrease the usage of tapes for pre-fixing depending on the panel sizes. It is therefore able to enhance productivity, can save time and labor cost. DOWSIL™ 896 PanelFix provides very good durability and is superior to organic sealants due to its UV- and temperature resistance. The immediate Green Strength is about 4–5 times higher than standard sealant which gives additional safety during the production and assembly process.

High humidity level and higher temperatures accelerate the cure process and lead to earlier skin formation.

Green Strength is continuously building up during cure. Adhesion to the substrates is developed at the same time as product cures. Although the strength build up is quite fast, the sealant will develop its final properties once completely cured. It is recommended to install the units only, once fully cured. In case the panels are installed before complete cure, a suitable mounting aid such as DOWSIL™ Panel Fix Tape, may be required. A further requisite for a high quality bonding application consists in an appropriate joint dimension. Depending on parameters such as panel weight, panel sizes, but also sub-structure materials and temperatures, joint dimensions may vary. The joint thickness depends on the expected movement and the joint width depends on the applied dynamic and permanent loads. More specific information about bonding is available from our Technical Service. For each bonding project separately and depending on customer requirements, your local construction industry technical service will provide a tailor-made solution.

For further information please contact your local technical service engineer, who can help determining the required joint dimensions.

Color

DOWSIL™ 896 PanelFix is available in white and black colors.

How to Use

DOWSIL™ 896 PanelFix is a ready to use silicone sealant. It provides excellent strength and adheres to a wide range of most common panel bonding materials such as mineral substrates and metal (anodized aluminum, stainless steel, etc.).

DOWSIL™ 896 PanelFix can be used for manual applications using a manual gun for cartridges or sausages. It is also suitable for semi- or even fully automated robotized applications.

Due to its low stringing, and High Green Strength, DOWSIL™ 896 PanelFix provides good ease of use, workability and a higher compressive strength in an uncured state.

There is far less squeeze out as seen with standard sealants.

How to Use (Cont.)

As it is a moisture curing sealant, the reaction starts at the surface exposed to moisture and cures in depth. The deeper the joint is, the longer it takes the sealant to cure completely. The initial Green Strength takes over initial loads, but to provide full strength and movement capability with elastic recovery it needs to be fully cured. Moisture has to migrate further to the already cured skin and as this skin becomes thicker, the reaction slows further down. The combination of initial Green Strength overlapping with the strength build up during cure makes the DOWSIL™ 896 PanelFix superior versus standard one part and silicone sealants.

As one-part silicones need moisture to cure, the joint depth is limited to 14–15 mm as a maximum. Joints deeper than that will not completely cure. The deeper the joint is, the longer it takes to fully cure.

Cleaning

Substrates must be clean prior to application to ensure adhesion durability. All surfaces must be clean from contaminants and residues such as grease, oil, dust, water, frost, surface dirt, old sealants or glazing compounds and protective coatings. Solvent should be wiped on and off with clean, oil- and lint-free cloths.

DOWSIL™ R-40 Cleaner is recommended for cleaning of non-porous substrates. The ventilation time at room temperature should be at least 1 minute. Please contact your local technical service expert for more information.

Priming

For each project separately, it is essential that adhesion to all concerned surfaces should be tested before application. If adhesion requires priming, a primer such as DOWSIL™ 1200 OS is in general recommended for metal substrates and DOWSIL™ Primer P for mineral substrates. When priming, the ventilation time at room temperature is indicated on the primer label.

Priming should be done within 4 hours after cleaning. If there is a greater time delay, cleaning process has to be repeated again. Project specific priming regulation needs to be discussed and approved by your local technical department. Please contact your local technical service engineer for further assistance.

Panel Bonding Application

DOWSIL™ 896 PanelFix offers good adhesion to most common substrates in the non-glass façade application such as mineral substrates and metal (e.g. anodized aluminum, stainless steel, etc.). Because of the variety of different substrates, compositions and suppliers, we strongly recommend to make a project specific test. Please contact your local technical laboratory services to assist with this tests to prove long-term adhesion and durability. In a cured state, DOWSIL™ 896 PanelFix is compatible with most commonly used facade components. It is compatible to Dow neutral curing construction sealants.

It is important when selecting components within panel bonding application to ensure adhesion and compatibility by carrying out appropriate tests. Our laboratory service is ready to assist you.

How to Use (Cont.) Panel Bonding Application (Cont.)

As a one-part neutral curing system, moisture vapor/humidity is required for cure. Substrates have to be put together within the above stated tack free time before skin formation.

Masking and Tooling

Areas adjacent to joints may be masked to ensure a neat sealant line. Do not allow masking tape to touch clean surfaces to which the silicone sealant is to adhere. Tooling should be completed in one continuous stroke before skin building. Masking tape should be removed immediately after tooling.

Maintenance

No maintenance is needed once sealant has been properly applied and cured. If panels need to be replaced or sealant becomes damaged, sealant joint has to be cut back as much as possible. DOWSIL™ 896 PanelFix will adhere to cured silicone sealant which exhibits a clean knife-cut or abraded surface.

Equipment Cleaning

Once sealant is used in conjunction with a dispensing equipment, dispensing system needs to be air-tight and moisture tight as otherwise sealant will start to cure over time. Normally there is no specific cleaning required as it is a one-part silicone sealant. Material which stays uncured in the nozzle, will start to cure. To avoid that, nozzle should be covered with a moisture tight material such as metal.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT CONSUMER.DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life and Storage

When stored at or below 30°C in the original unopened containers, DOWSIL™ 896 PanelFix has a usable shelf life of 12 months from the date of production.

Packaging Information

For manual application this product is provided in 310 ml cartridges and 600 ml sausages. Other container sizes on request possible.

Limitations

DOWSIL™ 896 PanelFix must not be used for structural glazing applications in façade or as a sealant for insulating glass units.

Because of the risk of incompatibility, DOWSIL™ 896 PanelFix must not come into contact with, or to be exposed to, sealants that liberate acetic acid.

Limitations (Cont.)

Prior to use DOWSIL™ 896 PanelFix in fully automated bonding applications, it is recommended to contact your local construction industry technical service. Each project shall be specifically and separately approved by Dow. Project approval involves the following prerequisites:

- Joint dimensioning and print reviews
- Successful laboratory adhesion and compatibility testing to all relevant building components in direct or indirect contact with the bonding sealant
- Observance of professional sealant application and workmanship standards

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Health And Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, consumer.dow.com or consult your local Dow representative.

consumer.dow.com

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

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