

INTRODUCTION

PRO-SEAL 201 is a higher modulus one component polyurethane sealant / adhesive offered in viscous paste form which, when fully cured, becomes a highly durable elastomer. It offers reduced turnover times as a result of quicker skinning and curing.

Primary use, as an elastic sealer:

- Against water ingress.
- As a barrier to galvanic corrosion reaction between different substrates.

Typical uses include sealing of:

- Joints, gaps, cracks and other openings or imperfections,
- keel joints,
- windows, portholes and hatches,
- deck fittings, such as cleats, clutches, winches, instruments,
- through hulls,
- rudder plates and pin fittings, outboard plate fittings.

Secondarily, as a non-structural adhesive:

Thick-layer bonding, highly durable to expansion / contraction, with vibration dampening & noise reduction properties.

SUITABLE SUBSTRATES

- GRP / FRP,
- gelcoat,
- wood,
- glass & organic glass,
- aluminum, stainless steel and other metals,
- anti-corrosive & protective coatings.

FEATURES

- One component,
- cures with humidity,
- fast setting, reduced tack-free / handling time,
- accelerated, suitable for application in confined spaces with no air circulation, e.g. keel joints,
- also for vertical or overhead application,
- strong adhesion properties without priming,
- no bubbling or swelling during curing,

TECHNICAL DATA SHEET

- minimal shrinkage during the cure cycle,
- once cured, remains elastic down to -40 °C,
- resistant to microorganisms and fungus,
- available in grey.

PRO-SEAL 201 is compatible with most anti-corrosive coatings. In fact, such coatings will limit the spread of corrosion under the adhesive layer, known as 'bond line corrosion', and will thus improve long term adhesion strength.

LIMITATIONS

Not suitable for:

- Application on substrates subject to stress cracking,
- continuous exposure to fuels, solvents, acids and caustic substances,
- continuous exposure to high temperatures.

In the case of translucent substrates, which do not block UV, the bond area must be shielded from it.

Newly fabricated polyester or vinylester GRP parts require a long time, even weeks, to fully cure. During this time, a degree of shrinkage is expected. If such a part is bonded, before full cure, it is possible that the joint will be distorted, as shrinking proceeds, and preloaded with unnecessary stresses. In such cases, it is advised that curing is allowed to proceed before assembly or, alternatively, that parts are heat-treated (tempering) in order to stabilize the shrinking process.

Similarly, in the case of newly applied thermoplastics and coatings containing solvents, which haven't been fully diffused, the contact area may be compromised as these proceed to be released.

CURING SPEED

An indicative tack-free time is about 0.5 hours at 15 °C and 65% RH.

Curing progress in mm from uncovered surface to substrate:

PRO-SEAL 201: Curing speed.	
days	15 °C - 65% RH, mm
0.5	1.5
1	2.5
1.5	3.0
2	3.5
3	4.5
4	5.5

5	6.5
6	7.0

[Determined in controlled laboratory conditions. To be used as a guide only.]

The above table can help you estimate curing and handling times. However, the general setup needs to be taken into account when estimating these. It is important to visualize how humidity will be able to reach the full depth of the application. Polyurethane sealants cure primarily with humidity. While one can expect a layer 2 mm deep to cure in 24 hours, a 2 mm bond layer between two panels will require multiple days to cure fully as the humidity now has to reach the center of the layer through the sealant from the edges of the bond layer. Polymerization speed slows down with depth, as shown in the table above. When a sealant is applied in such closed inaccessible setups, if possible, leave empty strips every 20 mm.

Under conditions of low humidity, curing can be assisted by spraying a very thin mist of water.

PRODUCT DATA

PRO-SEAL 201: Properties.	
Specific weight <i>uncured, approx., ISO 2811</i>	1.9 kg/lt
Service temperature	-40 to 80 °C
Hardness <i>Shore A, ISO R868</i>	60
Max elongation <i>EN-ISO-527-3</i>	600%
Modulus <i>100% elongation, EN-ISO-527-3</i>	0.8 N/mm ²
Resilience <i>DIN 52458</i>	80%
Thermal Resistance <i>100 days @ 80 °C, EOTA TR011</i>	passed
AWT <i>2,000 hours, ASTM G53</i>	passed
Hydrolysis, H ₂ O <i>30-day cycle @ 60-100 °C</i>	elasticity unaffected
Hydrolysis, HCl <i>pH=2.0, 10 days @ RT</i>	elasticity unaffected
Hydrolysis, 8% KOH <i>15 days @ 50 °C</i>	elasticity unaffected

SURFACE PREPARATION

The application surface must be free of dust, salt, water, grease, oil, wax, silicone, rust and other contaminants deposited over time or during the repair process. Cured sealants and adhesives must be removed.

In the case of oily / greasy substrates, use **PRO-CLEAN X**, the xylene based cleaner. Ensure that no residues remain, either from the initial contaminants or from the cleaner. Note that new or refurbished metal parts most often have an oily/greasy layer, often imperceptible, for protection or as a result of manufacturing and should therefore be cleaned accordingly.

For surfaces free of grease and oils, the recommended way of cleaning it is by dry cloth assisted by vacuum dust extractor or compressed air (free of compressor oils). Use a large cloth, apply very lightly and change sides continuously so as to remove dust instead of pressing it on the substrate. Low grade grinding will help with more persistent residues and improve adhesion. Avoid using wet or waxed tissues.

Do not apply on substrates lacking cohesion. In such cases, unsound parts of the application surface must be removed and, if required, sealed using the primer PRO-PRIME 101.

While priming is usually not required, it often increases adhesion strength further. The recommended primer for PRO-SEAL products is **PRO-PRIME 901**. N.B.: It is important to wait for solvents in primers to fully evaporate before application.

When using as adhesive, you are advised to prepare suitable spacers in order to ensure a uniform thickness bondline of proper size. In case these cannot be removed after curing, they should have a similar hardness to the cured PRO-SEAL 201. Cutting pieces of cured PRO-SEAL 201 is the recommended option.

Use masking tape to limit the area of application (to be removed after application before the skinning phase of curing).

APPLICATION

Cut the nozzle at the point where its size matches the required bead size:

- For joint sealing, extrude a round bead and either tool using spreader/ shaped tab / finger with disposable glove and soap solution, or, once fully cured, use knife to cut off the excess.
- For adhesion applications, a triangular bead is usually recommended.

Extrude the bead in such a way that you don't entrap air in the layer. When sealing fittings, it is advisable to slightly tighten them (1/4 turn) again after the first day.

If using as adhesive, please refer to our "**General Notes on Elastic Bonding**" guide.

LONG-TERM PERFORMANCE: STRESS LOADS, CHEMICALS, CORROSION, AGING, ETC.

The main factors affecting the service life of PRO-SEAL 201 are:

- The joint design and the existence of continuous stresses,
- long-term high temperature exposure,
- long-term exposure to chemicals.

The time factor is critical. While short to medium term exposure to loads, high temperatures and chemicals can be expected, long-term exposure to these will accelerate the aging process of the sealant. In the case of a new build, the preferred course of action for avoiding such long-term exposures would be to re-design the joint. For existing builds, the inspection and maintenance schedule has to be adjusted accordingly.

PRO-SEAL 201 has very good resistance to fresh and salt water, and maintenance products, e.g. low acidity cleaning agents and oils. Exposure to fuels, solvents, acids and caustic substances should be avoided.

PACKAGING

600 ml soft aluminium tube.

15 x 600 ml boxes.

STORAGE & SHELF LIFE

At least 12 months from the date of manufacture in the original sealed. Store away from excessive heat and humidity.

QUALITY CONTROL

PRO-SEAL 201 is produced under ISO 9001/14001/45001.

SAFETY

Use personal protection. Avoid any physical contact with the uncured substance.

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