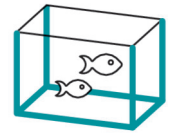


OTTOSEAL® S 28 SPECIAL

The aquarium and glass block silicone



1-component silicone sealant based on acetate

For indoor and outdoor application

S 28

Characteristics

- ▶ Suitable for freshwater and saltwater aquariums
- ▶ Complies with OECD 203 - Offers the highest possible safety standard for highly sensitive life forms
- ▶ High adhesive power
- ▶ Excellent weathering, ageing and UV-resistance

Fields of application

- ▶ Manufacture of all-glass aquariums and terrariums
- ▶ Bonding of glass blocks

Standards and tests

- ▶ According to DIN 32622, pt. 4.4.2.2 (Glass Aquaria)
- ▶ Non-toxic for fish according to OECD 203 (Acute Toxicity Test - tested by the Institute Fresenius, 65232 Taunusstein, Germany)
- ▶ Meets the requirements for fire behavior according to EN 13501: Class E
- ▶ French VOC-emission class A+
- ▶ Suitable for applications according to IVD instruction sheet no. 35 (IVD = German industry association sealants)



Technical properties

Skin-forming time at 23 °C/50 % RH [minutes]	~ 10
Curing in 24 hours at 23 °C/50 % RH [mm]	~ 2 - 3
Curing in 7 days at 23 °C/50 % RH [mm]	~ 7 - 8
Processing temperature from/to [°C]	+ 5 / + 35
Density at 23 °C according to ISO 1183-1 [g/cm³]	~ 1,0
Viscosity at 23 °C	pasty, stable
Shore-A-hardness according to ISO 868	~ 25
Permissible movement capability [%]	25
Stress expansion modulus at 100 % according to ISO 37, type 3 [N/mm²]	~ 0,5
Tensile expansion according to ISO 37, type 3 [%]	~ 575
Tensile strength according to ISO 37, type 3 [N/mm²]	~ 1,4
Temperature resistance from/to [°C]	- 40 / + 180
Shelf life at 23 °C/50 % RH for cartridge/foil bag [months]	12

These data are not suitable for the issue of specifications. Please contact OTTO-CHEMIE before issuing specifications.

Pretreatment

The adhesive surfaces must be cleaned and any contamination such as release agents, preservatives, grease, oil, dust, water, old adhesives/sealants and other substances impairing adhesion must be removed. Cleaning of non-porous substrates: Clean

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SEALING & BONDING

with OTTO Cleaner T (no flash-off time required) and a clean, lint-free cloth. Cleaning porous substrates: Clean surfaces mechanically, e.g. with a steel brush or a grinding disc, to remove loose particles. The adherent surfaces have to be clean, free from fat, dry and sustainable.

Primer table

The demands on elastic sealings and bondings depend on the respective exterior influences. Extreme fluctuations in temperature, tensile or shear forces, repeated contact with water etc. demand high requirements of a bonding. In such cases it is advisable to apply primer according to the recommendations of our technical department (e. g. +/OTTO Primer 1216) in order to achieve a resilient bonding.

Aluminium	1216
Aluminium (permanent water stress)	1216
Aluminium anodized	1216
Aluminium, anodised (permanent water stress)	1216
Glass	+
Ceramic, glazed	+
Ceramic, glazed (permanent water stress)	1216
Ceramics, unglazed	1215
Ceramic, unglazed (permanent water stress)	1218

+ = good adherence without primer

- = not suitable

T = Test/pilot test advised

Important information

Before applying this product the user has to ensure that the materials in the area of contact (solid, liquid and gaseous) are compatible with it and also amongst each other and do not damage or alter (e. g. discolour) each other. As for the materials that will be used at a later stage in the surrounding area of the product the user has to clarify beforehand that the substances of content or evaporations do not lead to an impairment or alteration (e. g. discolouration) of the product. In case of doubt the user should consult the respective manufacturer of the material.

While curing small amounts of acetic acid are released.

Ensure good ventilation during application and curing.

The required vulcanization time prolongs with increasing thickness of the silicone layer. One-component silicones are not suitable for full-area bonding, unless there are specific structural conditions that require such full-area application. If one-component silicones are to be used for thickness layers of more than 12 mm please contact our technical department beforehand.

Not suitable for the bonding and sealing of acrylic glass aquariums.

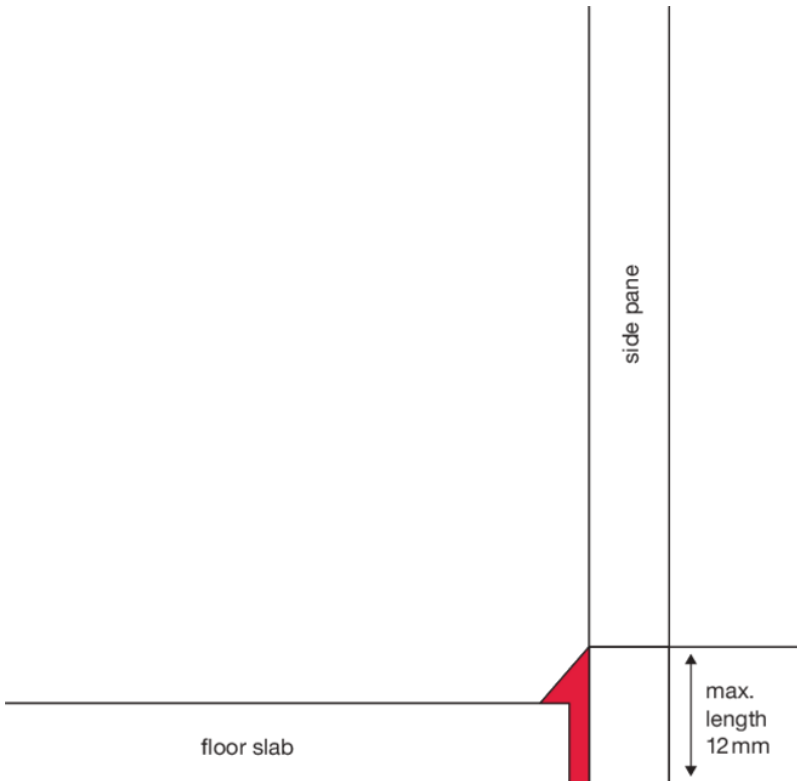
Application information

The necessary strength of glass of the floor slab and side panes depends on the dimensions of the aquarium (see DIN 32622). All-glass aquariums with a water volume in excess of 300 l are to be structurally reinforced such as by an all-round frame so that the silicone only has a sealing function.

1. Aquariums with a layer thickness of the sealant/adhesive of up to 12 mm; - Cleaning adhesive surfaces with OTTO Cleaner T with a clean cloth or rag - The minimum joint width on the base plate is 2 mm and the maximum joint width is 5 mm (note: on side panes the adhesive joint can have bigger dimensions) - Vibrations caused, for example, by transportation or handling as well as any other stress on the adhesive joint of the freshly bonded aquarium has to be avoided. Otherwise there is a risk of the sealant/adhesive losing its adhesion on the glass and/or of cracks in the silicone. - Transport may only take place after the sealant/adhesive has completely cured. - Generally speaking, a loss of adhesion of the sealant/adhesive on the glass ("shrinkage bubble") can be avoided by a preliminary coating of the bonding area and by filling up the joint with the sealant/adhesive layer-by-layer, as described under point 2. - The vulcanization can take several days, depending on the thickness of the layer and the ambient conditions. - In thick layers a slower the curing speed per day has to be considered. - The curing time can take up to 2 weeks, depending on the dimension of the joint and the ambient conditions. - Before the first filling with water, the sealant/adhesive must be fully cured. - Before the first filling with water, the basin has to be rinsed with clear water in order to remove the last residues of the splitting product (acetic acid) set free during vulcanization.

2. Aquaria with a sealant/adhesive layer of more than 12 mm: Cleaning of the bonding surfaces with OTTO Cleaner T and a clean cotton cloth - Coating of the bonding surfaces: on the area of the side pane and bottom plate designated for the bonding a silicone film of approx. 1 - 2 mm strength is applied using a scraper. - Once the coating has cured (approx. 24 hours), the joint is filled up to a silicone layer of maximum 10 mm - Curing time at least 5 days - Afterwards the rest of the joint is filled and left to cure for at least another 7 days. - Vibration because of transportation or handling as well as any other stress on the joint of the freshly bonded aquarium has to be avoided because of the risk of the sealant/adhesive losing its adhesion on the glass or of cracks in the silicone. Transport may only take place after the sealant/adhesive has completely cured. - The vulcanization can take several days, depending on the thickness of the layer and the ambient conditions. In thick layers a slower the curing speed per day has to be considered. - Before the first filling with water the adhesive/sealant has to be completely cured. - Before the

first filling with water the basin has to be rinsed with clear water in order to remove the last residues of the splitting product (acetic acid) set free during vulcanization.



For correct dimensioning of the adhesion joint we advise a minimum joint width of 2 mm, depending on the strength of the glass. At a strength of 8 mm we advise adhesion joints with a width of 2 - 3 mm and at a strength of 12 to 15 mm a width of 3 - 4 mm.

Due to the many possible influences during and after application, the customer always has to carry out trials first. We recommend to store our products in unopened original packagings dry (< 60 % RH) at temperatures of +15 °C up to +25 °C. If the products are stored and / or transported at higher temperatures / air humidity for longer periods (some weeks), a diminution of durability or a change of material characteristics may arise. Please observe the recommended shelf life which is printed on the packaging.

Packaging

Glossy colors

	310 ml cartridge	400 ml aluminium foil bag	20 l hobbock	200 l drum
● black	S28-04-C04	S28-07-C04	on request	on request
○ transparent	S28-04-C00	S28-07-C00	on request	on request
Pieces per packaging unit	20	20	1	1
Pieces per pallet	1200	900	16	2

Due to typographical reasons the colours shown below may differ from the original colours of the products.

Safety precautions

Please observe the material safety data sheet. After curing, the product is odourless.

Disposal

Information about disposal: Please refer to the material safety data sheet.

Warranty information

The above information and our technical application advice, whether verbal, in writing or by means of tests, are provided to the best of our knowledge, but are non-binding, including with regard to any third-party property rights. The information in this publication does not exempt the processor from carrying out their own tests on our products with regard to their suitability for the intended processes and purposes. The application, use and processing of our products and the products manufactured on

the basis of our technical application advice are beyond our control and are therefore the sole responsibility of the processor. If the application for which our products are used is subject to an official authorisation requirement, the user is responsible for obtaining these authorisations. We reserve the right to adapt the product to technical progress and new developments. For the rest, we refer to our General Terms and Conditions, in particular with regard to any liability for defects. You can find our GTC at www.otto-chemie.de.