

SILICONE JOINTS IN POOLS - TECHNICAL INFORMATION

JOINTING OF SWIMMING POOLS - PROCESSING, MAINTENANCE, REFURBISHMENT

Elastic joints for underwater application fields need to be processed with silicon sealants resistant to extreme stress. Therefore great care has to be taken choosing and processing the material in order to obtain a functional joint.

MAXISIL P provides a special silicone for the jointing of swimming pools, meeting the high demands ideally: MAXISIL P.

1. PROCESSING

Some conditions have to be met before the actual jointing can be done:

Firstly, the dimensions and arrangements of elastic joints have to be carried out in a way that movements (compression and extension) of up to 25 % of the width of the joints can be compensated.

The width of the joints should ideally be between 10 and 15 mm to be able to compensate movements adequately. A joint of 12 mm, for example, will have a practical movement capability of up to 3 mm.

It is necessary to limit the depth of the joint to 6 to 8 mm by using suitable filling materials. By doing so, an adhesion on three flanks is avoided. An adhesion on three flanks will take place if the used silicone sealant MAXISIL P is sticking to the bottom of the joint.

Suitable filling materials are, for example, foils of polyethylene preventing adhesion with the silicone or a back-up foam rod which needs to have closed cells and do not absorb water (see diagram 1). ROBERTS DESIGNS offers in its product range back-up foam rods in different diameters designed for this sort of application.

Secondly, to ensure adhesion of MAXISIL P to the flanks of the joint, these have to be cleaned thoroughly. All loose and dusty kind of dirt, residues of mortar as well as oily and greasy stains have to be removed. The flanks of the joint have to be dry as moisture on the flanks' surface has the effect of a releasing agent.

Thirdly, having prepared the joints as described above, a treatment of the dry flanks with OTTO Primer 1218 should take place, especially of joints that will be underwater.

OTTO Primer 1218 is a one-component epoxy resin solution. It has to be shaken well before applying it undiluted with a paintbrush on the flanks of the joints. In order to avoid staining with the primer the edges of the joints should be covered beforehand.

Allowing a flash-off time of OTTO Primer 1218 (see technical data sheet) MAXISIL P is applied to fill up the joints minding that the flanks have to be covered amply. Please note that surpluses of the sealant have to be removed within approximately 6 minutes before the skin formation takes place. The removal should be carried out with a smoothing tool moistened with an appropriate smoothing agent. MAXISIL P should be allowed a curing time of 4 days but preferably two weeks.

2. MAINTENANCE

The silicone sealant MAXISIL P is equipped with fungicides to prevent the forming of microorganisms. The fungicidal protection has to be supported by a permanent addition of chlorine to disinfect the water. Certain procedures have to be complied with to run a swimming pool correctly in order to keep the amount of microorganisms contained in the water low. This helps to avoid the possible forming of mildew on the sealing material (see chart 1 on the following page).

An extensive circulation of the complete water volume is of particular importance. An insufficient water circulation has the result that certain water areas are constantly provided with an insufficient amount of disinfectant. By means of a constantly low concentration of disinfectants the forming of mildew in these areas is supported.

SILICONE JOINTS IN POOLS - TECHNICAL INFORMATION

The controlling of the pH-value in newly built swimming pools is of particular importance as joints filled with cement set free alkaline compounds, especially during the first year.

Following these directives makes it possible to keep the amount of microorganisms contained in the water of swimming pools low. The fungicidal equipment of MAXISIL P is successfully supported by maintaining a high water quality.

The risk of an infestation by mildew on elastic joints can be reduced efficiently, but even with the best possible disinfection the water still contains a certain amount of microorganisms. The formation of mildew on elastic joints can therefore not be definitively excluded.

Unfortunately, joints infested with mildew are often seen in public shower areas. In those places the microorganisms find best conditions to multiply, such as warmth, high humidity, little daylight and insufficient ventilation. Microorganisms feed on organic substances like residues of products used for personal hygiene that can normally be found on the joints. The strongest fungicides are ineffective if these sort of organic substances remain on the joints, as the mildew cannot be reached through the dirt layer between silicone and mildew.

If water remains on the silicone joint constantly the fungicides are rinsed out of the silicone much faster (this holds true for every silicone equipped with fungicides).

In this cases the joints have to be treated regularly with a standard disinfectant, like for example "Sagrotan", in order to compensate the high load of microorganisms on the silicone.

MAXISIL P with its fungicide equipment is the ideal sealant for this kind of application.

3. REFURBISHMENT

Joints in wet or underwater applications are exposed to a high impact of microorganisms.

They are classified as joints which have to be maintained regularly, following DIN Norm 52460. It states that joints in wet areas or underwater areas have to be maintained regularly (e.g. annually) and, if necessary, have to be refurbished to avoid consequential damage.

The silicone joint in a swimming pool will need to be replaced as soon as deterioration is identified. In a well maintained pool it is expected to last around 5-7 years.

MAXISIL P with its fungicidal equipment, which is supported by constant adding of chlorine to disinfect the water, offers a very good protection against the forming of mildew. Unfortunately, fungicides are ineffective against some sorts of microorganisms. Such no fungicide additive is able to protect sufficiently against the mildew species „alternarius alternata“. The concentration of chlorine added to the water of swimming pools has been constantly reduced during the last years, therefore the possible infestation with mildew has increased. Nowadays, the disinfection of the swimming pool water is frequently achieved by using alternative methods instead of adding constantly of a certain amount of chlorine. But it has to be considered that the efficiency of the disinfection of the swimming pool water is reduced noticeably. Still, it is comprehensible that it is tried to find an alternative to the use of chlorine because of its typical smell.

Should, due to an infestation by mildew, a total refurbishment of the joints underwater be necessary, then it is very important to remove the existing silicone completely from the infested joints. To remove the surface layers of the infested silicone only is by no means sufficient, as especially the spores of the mildew are able to grow deep into the silicone. A thorough removal of

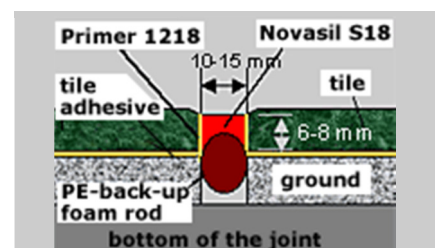


Diagram 1: scheme of a swimming pool joint

SILICONE JOINTS IN POOLS - TECHNICAL INFORMATION

the remaining silicone and an after treatment with MAXISIL Anti-Mildew spray is highly recommended to remove the spores completely. The joints treated with the MAXISIL Anti-Mildew spray should afterwards be rinsed with water and be left to dry. Then the new jointing with MAXISIL P can take place.

The pool can be refilled with water when the sealant is completely cured. A treatment with chlorine should already take place during the first filling, preferably an intermittent treatment during the first two days with an amount of 2 mg/l chlorine. The pH value should be kept between 7.0 and 7.2 during this time to obtain the highest possible grade of disinfection of the water.

Please do not hesitate to contact our Technical Service, phone number (03) 5986 6366, if we can be of any further assistance.