

Sealant compatibility PvB-films

Sealant compatibility - Publication from TROSIFOL

Sealants play a vital role in a number of applications in glazing systems, such as expansion or interface joints. The use of laminated glass as monolithic or as part of an insulated unit in a façade or roof would not normally involve direct contact between the edge of the laminated glass and the sealant, unless of course it is a requirement of the design. Here, solid gaskets as well as curing sealants find their use. There are basically 5 main product types:

- Butyl (1-Part Systems)
- Acrylics (1-Part Systems)
- Polysulfide (1-Part or 2-Part Systems)
- Polyurethane (1-Part or 2-Part Systems)
- Silicones (1-Part or 2-Part Systems)

Each of these products classes and their formulae differ in their chemical compositions such as the content of plasticiser, solvent, binding agent and filler. In the case of surface contact between the sealant and the laminated glass edge, the chemical compatibility of the two materials becomes significant when viewed over the long-term.

In laboratory conditions it is the criteria such as chemical longevity of the sealant, reactions with Polyvinylbutyral (PvB) under temperature change, moisture and long-term load that play an important role. The following edge defects can generally occur:

- Edge bubbles (frequency, depth of penetration)
- Discolouration at edges
- Delamination of PvB from glass or sealant from glass edge.

A series of test samples of laminated glass (size typically 300 x 300 mm or smaller) are placed with the original edge into a

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metal U-channel which has been filled with uncured sealant or gasket and allowed to stand for a number of days. The test sample is then released from the u-channel and tested as follows:

- 70°C Heat soak test in ventiated box for up to 10 Weeks and/or
- 50°C/98 % RH in Steam test up to 10 Weeks and/or
- Climate cycling test, e.g. 80°C/100% RH, subsequently –30°C/no moisture control, at least 3 cycles

The test sample is then inspected for the above mentioned defects and evaluated. The test and evaluation can be carried out in the laboratory of the sealant manufacturer if necessary. The technical department of TROSIFOL can provide a list of previously tested sealants. TROSIFOL accepts no responsibility for self-tested sealants/PvB-combinations, for recommendations of sealant manufacturers for compatibility, for changes in the compatibility resulting from changes in unknown formulae or for new products which have not undergone compatibility testing.

(Source: TROSIFOL, www.trosifol.com)