

Summary of test results carried out by the Polymers Development Centre, Athlone, Ireland

Tensile Test Summary - silicone elasticity tests performed are presented in table 1 below. The test samples were 30mm lengths of Sealux strips filled and fixed onto tiles with SEALUX-N silicone.

Test time	Silicone brand	Typical load before failure	Typical deflection at failure
2 Weeks	SEALUX-N	50-55N	12-15mm

Conclusion

Analysing the product itself and evaluating SEALUX-N after 2 weeks cure, it can be seen in table one that a downward movement of 12-15mm is required to fail the seal on the simulated bath/shower tray surface. A force of 50-55N is required to do this. This deflection of 12-15mm is far more than the product is expected to be exposed to.

Tile/Strip Shear Test Summary - silicone adhesion tests performed are presented in table 2 below. The test samples were 30mm lengths of Sealux strips fixed onto glazed tiles with SEALUX-N silicone.

Test time	Silicone brand	Typical load before failure	Typical deflection at failure
24 Hours	SEALUX-N	100-200N	2-3mm
2 Weeks	SEALUX-N	600-700N	3-5mm

Conclusion

As seen in table two the tensile force required to fail the seal is markedly lower than the shear force needed of 600-700N to fail the seal with a sideways load, which indicates that failure in this mode is unlikely as all the primary downward movement will be taken up by the silicone bond in tensile mode.

In the shear mode in most instances, the silicone seal was strong enough to produce a deformation in the product itself, demonstrating the high level of adhesive bonding produced.

Sealux-N and Sealux strip environmental exposure tests.

The test conditions were deliberately aggressive i.e. materials were fully immersed, test mediums were undiluted, and temperatures were elevated. In addition to this, the exposure period was for 500 hours - this would equate to thousands of applications of soap, shampoo, bleach, disinfectant etc.

The purpose of such an analysis was to accelerate (and perhaps exaggerate) any potential problems. The results of such an analysis need to thus be carefully interpreted in order to relate to more typical product conditions. The test pass/fail criteria were the ability of the strips and silicones to maintain a seal after exposure.

Conclusion

However, from the results obtained with the above study, it can be stated that;

1. SEALUX-N and the strips performed satisfactorily, maintaining an excellent bond and seal throughout all tests.
2. The shower seal itself, consisting of PVC profiles exhibited no adverse reactions with the other materials or mediums exposed to and the retained their integrity throughout the tests.

Clarification note from Sealux Limited

The Polymer Development Centre, Athlone, founded in 1992 is an ILAB accredited laboratory and is one of the network of Materials Ireland Research.

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