



Den Braven

High Initial Tack

How to determine the initial strength

Technical Bulletin TB122016-023



KNOWLEDGE



EDUCATION

BETTER RESULTS
THROUGH
KNOWLEDGE



Technical Bulletin TB122016-023



Introduction

The market for constructive sealants is fast growing. More and more mechanical fasteners are replaced by constructive elastic bonds. Constructive bonding has many advantages over mechanical fastening and very few disadvantages. High modules polyurethane and hybrid sealants are the most common sealants used for this purpose. Compared to mechanical fasteners these sealants are often stronger and don't cause corrosion on metals. Other benefits of using these high module sealants: makes drilling unnecessary, reduces sound transmission and can also provide a watertight seal.

Initial Tack

Once a constructive sealant for has been chosen for bonding to vertical and horizontal surfaces, support of the building materials is necessary during the curing time of the sealant. High tack polyurethane and hybrid sealants are developed to make a heavy adherence application on both vertical and horizontal surfaces possible, even without support materials. Many cartridges available on the market now do show impressive figures of the initial tack or grip capacity of the product. Den Braven offers the Zwaluw High Tack, but is not participating this rat race of figures. Although it is possible for Den Braven to test and calculate the initial strength per square meter of this product, it always will stay a theoretical figure.

Moisture Curing Products

High tack sealants are mostly one component moisture curing products. These type of products can only cure if moisture is able to reach the product. If a one component moisture curing product is applied between two non-porous substrates, and the surface is completely covered with the sealant, the product will not cure. For correct bonding the product must be applied in vertical beads. Always make sure that the centre-to-centre distance/spacing between these beads is 100mm to 200mm. This will provide correct ventilation between both bonded surfaces so the material is able to cure and accumulation of water can be avoided.

Calcluation

We often see that people start calculating the initial tack based upon strength versus square meter. Unfortunately it is not as simple as it looks. On the following page we illustrate the impact of the leverage effect. In all instances the object is the same weight and an equal amount of sealant is used. These four images display four different forces working on the object.



Image #1. This is the most ideal situation and might work as long as the weight of the substrate that is bonded doesn't pass the maximum initial tack.

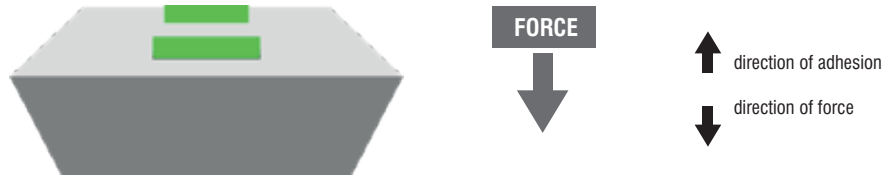
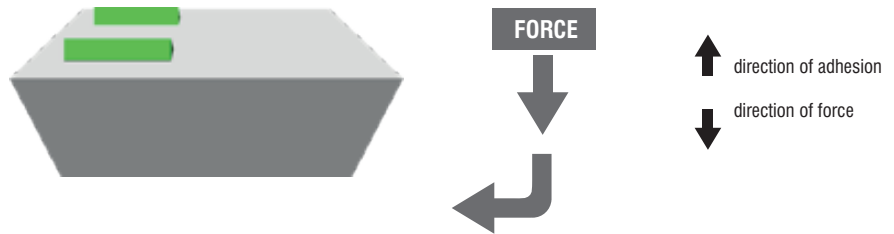
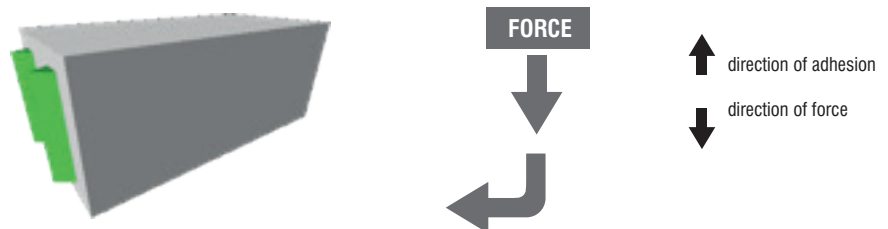
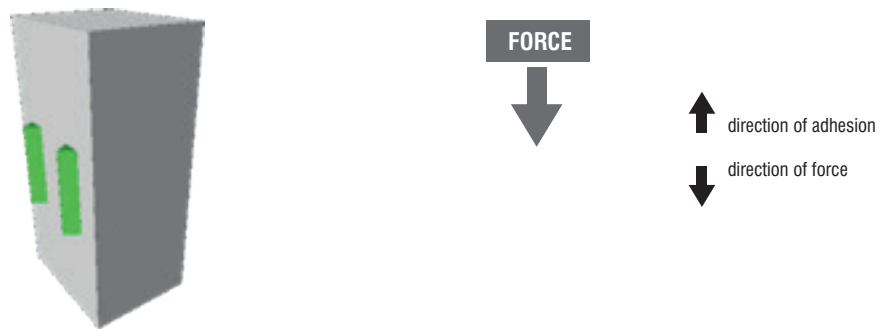


Image #2. Although the object in dimension and weight and the amount of applied adhesive, is exactly the same as in figure one, a higher force will work on the sealants which might cause a failure in the expectation.



Images #3 and #4. Same explanation as images number one and two.



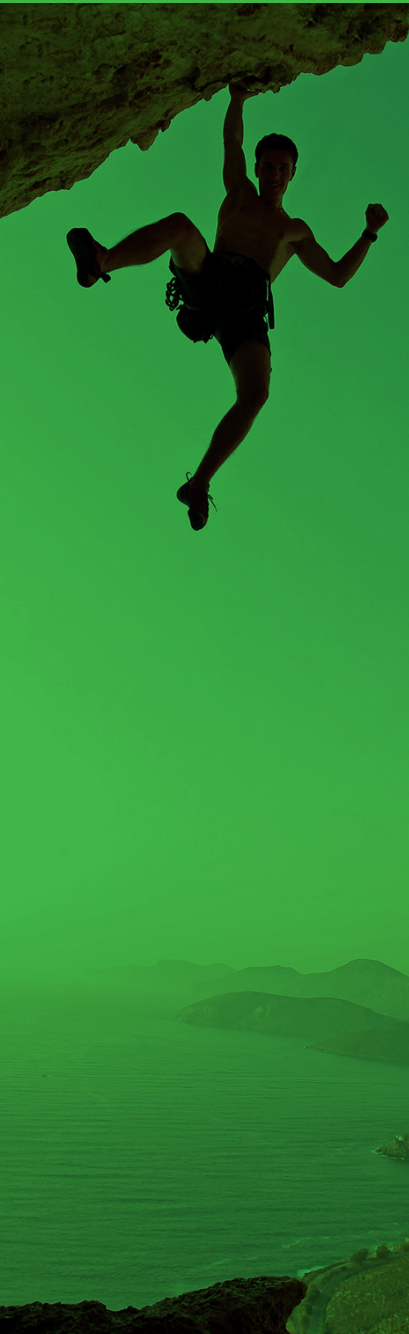


Image #5. The use of a low(er) or high(er) viscous sealant/adhesive can also make a difference in correct adhesion. This image shows a rough(er) surface with a low(er) viscous product. A low(er) viscous sealant will level more and does not have the ability to follow the uneven surface.



The application of a low(er) viscous product with the ability to follow the uneven structure of the surface. A low(er) viscous product equals a lower initial tack.

Image #6. The use of a low(er) or high(er) viscous sealant/adhesive can also make a difference in correct adhesion. This image shows a rough(er) surface with a higher(er) viscous product. The result may be that the required surrounded surfaces for an optimum strength will not be reached.



The application of a high(er) viscous product with the disadvantage of not having the ability to follow the uneven structure of the surface. A high(er) viscous product equals a higher initial tack.

General Application Guidelines Zwaluw High Tack

- Although Zwaluw High Tack is one of the strongest constructive elastic sealants available we always recommend testing prior to the application
- Prepare always both surfaces, clean them thoroughly and follow the surface preparation as mentioned in the technical data sheet Zwaluw High Tack
- Apply the Zwaluw High Tack with the attached V-shaped nozzle

Apply the Zwaluw High Tack in an 90° angle to one of the two surfaces

- Always apply the Zwaluw High Tack beads vertically for optimum ventilation and to avoid water accumulation
- Always ensure centre-to-centre distance/spacing between the Zwaluw High Tack beads is 100 to 200 mm
- If in doubt, use of support is recommended

Disclaimer

All information in this document and in all our other publications (including electronic ones) is based on our current knowledge and experience and is the exclusive (intellectual) property of Den Braven. No part of this document may be copied, shown to third parties, reproduced, communicated to the public or used in any other way without Den Braven's written consent. The technical information in this document serves as an indication and is non-exhaustive. Den Braven is not liable for any damage, either direct or indirect, due to (editorial) errors, incompleteness and/or incorrectness of this document. This includes, but is not limited to, incompleteness and/or incorrectness due to technological changes or any research conducted between the date of publication of this document and the date on which the product is acquired. Den Braven reserves the right to amend the wording of this document. Den Braven cannot be held liable for any damage, either direct or indirect, due to the use of the product depicted in this document. The user must read and understand the information in this document and other documents relating to the products prior to the use of the product. The user is responsible for performing all the requisite tests to make sure that the product is suitable for its intended use. We have no influence in what way the product is applied and/or any circumstances relating to events occurring during storage or transport and therefore we do not accept any liability for damage. All deliveries are made exclusively in accordance with our general terms of conditions which have been filed at the Dutch Chamber of Commerce.