



SIKA AT WORK

SCHWEIZERISCHE BUNDESBAHNEN

PROOF OF RELIABILITY AND DURABILITY OF
SIKA BONDING AND SEALING SYSTEMS

BUILDING TRUST



SIKA BONDING AND SEALING SYSTEMS

CONFIRMATION OF THE EFFECTIVE PRODUCT PERFORMANCE ON 20-YEAR OF FULLY BONDED TRAIN MASKS

Sika and SBB collaborated on a joint project to evaluate the efficiency of 20-year-old bond lines in two trains - an ICN train RABde 500, and on a single-deck train IC Bt (first series, built between 1996 and 1997) based on the EC implemented measures including the color and park guiding concept created a pleasant and welcoming atmosphere.

23 years after being put into service, the well-known ICN trains of the Swiss railway were inspected from top to wheel in order to guarantee safety. For many joints, Sika products such as Sikaflex®-254, Sikaflex®- 265, and Sikaflex®-268 were used for train assembly. The same approach was applied for the 26-year-old single deck train IC Bt, but the mask was bonded with Sikaflex®-250 BD-1/B and sealed with

Sikaflex®-252 in red color. This project aimed to estimate the risk of keeping the adhesive joints for 20 years and more. It was in this context that the question regarding the adhesion performance of the sealant after 20 years of use and the condition of the joints arose. For this reason, SBB disassembled the trains. Sika could be present during the removal of a driver's cabin. Samples of the joints were collected and tested within Sika testing facilities. The position of the collected samples was documented in detail so that conclusions about the environmental impact on the specific samples could be drawn.

It was notable that no adhesion loss was observed. On visual inspection, the adhesive joint seemed to be in good condition. However, it was not the case for the sealant (which was on the roof after ten years). Through DSC (differential scanning calorimetry), no relevant differences between the different samples and reference material could be observed.

On examining the samples that showed slight surface degradation, high amounts of anions were found by IC (Ion chromatography). These could have been residues of used cleaning agents. In addition, a very high concentration of copper was detected by ICP (Inductively coupled plasma). The high copper presence could have been a result of the abrasion of the powerline caused by the pantograph.

Mechanical measurements showed a retainment of 60-90% of strength and 50-70% of elongation at break. These are excellent results considering that the measurements had to be performed on samples sliced out of joints with a razor blade. Overall it can be stated that the analyses of these samples confirmed the high quality and durability of these Sika products. This success story helps our customers to estimate potential risks and verifies their confidence in our expertise and our products.

Mr. Olivier Bicart-Sée, European Adhesive Engineer at SBB in Yverdone, confirms this statement: "Yes, it is true. That findings confirm that the duration of life of the Sika adhesive is at least 20 years. But in our case, after 20 years, we were very close to the admissible values calculated for the ICN train. It is why we had to replace it."

Mr. Andreas Brand, European Adhesive Engineer at SBB in Olten, confirms: "A safe operation well over 20 years is possible without replacing the adhesive."





The bonding and sealing systems offered by Sika have evolved even further today. The new systems are more versatile and show better performance. The Sikaflex®-268 system has established itself as the industry benchmark. Sika is ready for the next stage of the evolution of these solutions. The new system Sikaflex®-668 is based on the new Purform® technology. It demonstrated the same benefits as Sikaflex®-268, but the formulation shows enhanced exposure performance with ultra-low diisocyanate content and is also phthalate-free.



Sikaflex®-668

- Glass Assembly Adhesive
- Polyurethane (Purform®)
- Ultra-low diisocyanate content
- Phthalate free
- Available as 1C, Bulk Booster and PowerCure Option

All in One Solution for Glass Bonding and Gap Filling



Sikaflex®-668 PowerCure

- Accelerated Cure
- Glass & Assembly Adhesive
- Polyurethane (Purform®)
- Ultra-low diisocyanate content
- Phthalate free

Ideal Solution for Commercial Vehicle Glass Bonding and Replacement

(This article has been written with the approval of SBB)
Our most current General Sales Conditions shall apply. Please consult the most current local Product Data Sheet prior to any use.



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