

IMPROVED BONDING PROCESS CONTROL SUPPORTED BY SIKA EASY DETECTION OF PRE-TREATMENTS

INTRODUCTION

Within the last few decades, adhesive bonding technology has given engineers new opportunities to optimize and innovate their constructions and final products. The use of adhesives has become a real alternative to traditional joining techniques such as welding and riveting. Bonding of materials involves a sequence of operations, all of which need strict control and complete procedural documentation. Sika constantly tries to help customers improve their processes. With the implementation of DIN 6701 for the Rail manufacturing market and its sub-suppliers as well as the introduction of DIN 2304 for the general manufacturing industry the topic of safer and controllable processes became even more important. Hence, customers strive for comply with those standards and implement control and safety mechanism to ensure proper bonding.



CHALLENGE IN CONTROLLING SURFACE PREPARATION PROCESSES

For reliable performance, bonding substrates must provide a constant surface quality and must be clean and potentially primed prior to the application of a sealant or adhesive. Practicing cleaning steps or using clear primers is a challenge for process control as it is not easy to tell if the product is applied or not. The same can apply for black primers when applied on ceramic coatings or very dark colored surfaces like paint or plastics. The difficult detection can cause uncertainties or lead even to safety concerns in case of a forgotten pre-treatment step. This applies to both manual process and automated processing, e.g. In case of a malfunction of an automated application



SIKA'S SOLUTION

Sika has developed a series of pre-treatment products, which can be easily detected with UV light thanks to the addition of luminescent dyes. The treated surface will temporarily illuminate if exposed to UV light. This allows visual inspection to control whether a primer has been applied or not, without need to use black or colored primers that may lead to contamination of vehicle interiors or exteriors if spilled or dropped. Thus, these solutions provide a possibility for visible detection and align well with process control and safety requirements as per DIN 6301 and DIN 2304.

Sika's standard clear primer solutions are now available with detection feature. The products contain "LUM" in the product name and co-exist with the standard versions. Before implementing adhesion tests on current bonding substrates need to be done.

PORTFOLIO OVERVIEW

PRODUCT	DESCRIPTION
Sika®Aktivator-100 LUM	Improves adhesion on substrates such as float glass, ceramic screen prints and paints
Sika®Aktivator-205 LUM	Activates non-porous substrates such as metals, plastics, glazed ceramics and paints
Sika®Aktivator-306 LUM	Enhances adhesion on substrates such as coil coated, powder coated, stove enamel and other painted or primed surfaces
Sika®Primer-207	Used on a broad range of substrates like glass, ceramic coatings, plastics, painted surfaces, E-coats and metals

For details consult the corresponding Product Datasheet and ask your Sika contact about availability in your country.

DETECTION OF THE PRE-TREATMENT AND APPLICATION QUALITY

A vision system can be used to automatically verify coverage and location of Sika LUM pre-treatments. Sikas System Engineering Department can provide guidance for system integrators. In manual sealing and bonding processes, the Sika LUM pre-treatments can be detected using a simple UV torch that provides the required wavelength of 320nm – 420nm. Depending on the product and surface quality, the application quality can be checked besides of an existing or potentially non-existing application. The pre-treatment is fluorescing under UV light as seen with the naked eye.



Visual detection by eye



Detection with Cognex IN-Sight camera



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Global Marketing & Product Manager
Supporting the Bus & Rail Industry with sealing, bonding and fire protection solutions.

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www.sika.com/transportation
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LEGAL NOTE

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