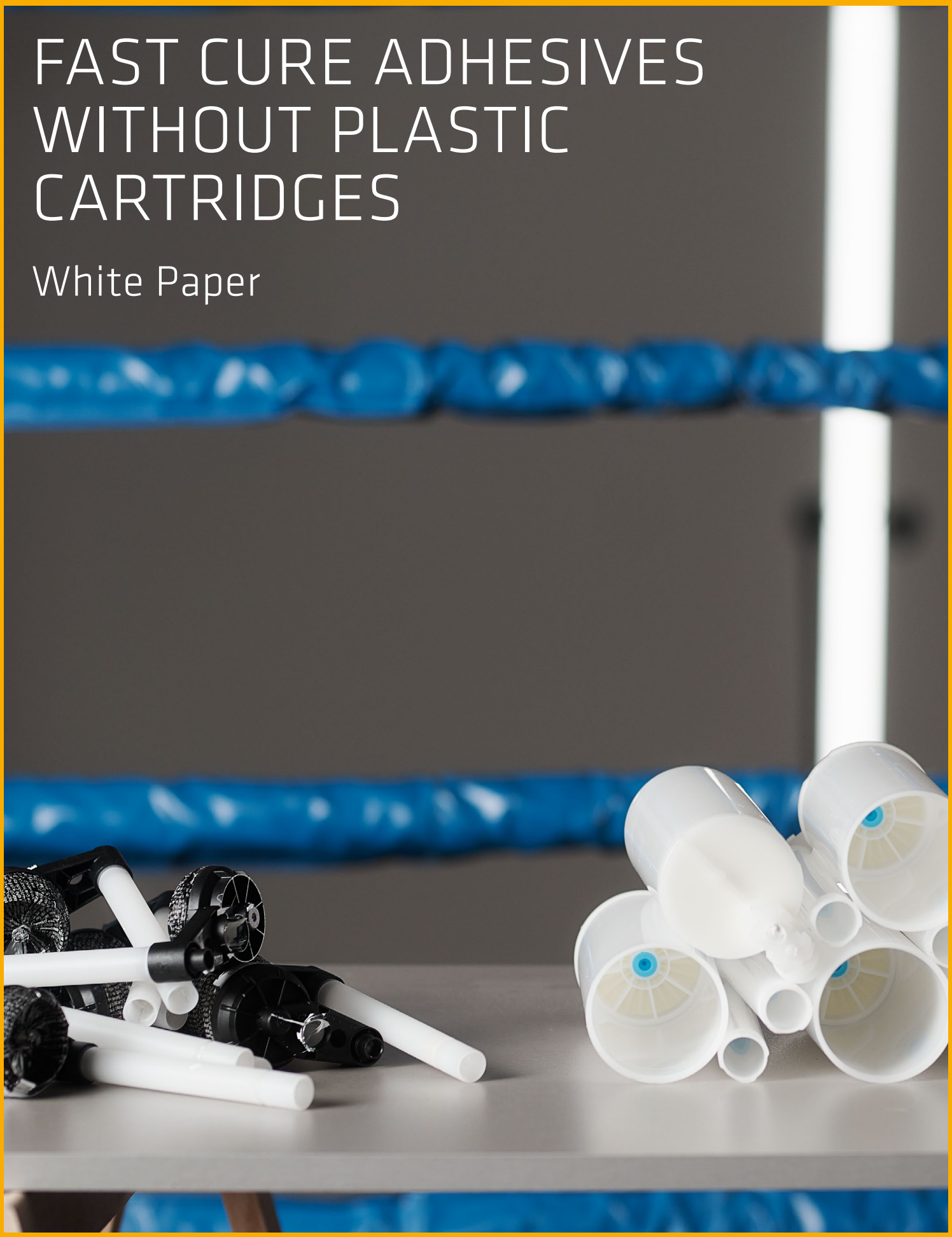
FAST CURE ADHESIVES WITHOUT PLASTIC CARTRIDGES

White Paper



BUILDING TRUST

When using fast cure 2C adhesives, packaging waste becomes a concern for many users. PowerCure adhesives combine fast curing with unique ease of use and up to 60% less packaging waste!

INTRODUCTION

FAST CURE STRUCTURAL ADHESIVES ensure optimal manufacturing processes across the industry. Such adhesives develop strength quickly and enable manufacturers to reduce takt time. In broad areas of the industry, two-component adhesives are dispensed from plastic cartridges, leaving a large pile of packaging waste.

Now (2022), the availability of this kind of packaging is very limited in the European market, and thus many adhesives have become unavailable for manufacturers. As a result, the unavailable adhesive may lead to a stop of the production line: impacting one's revenue and ability to supply.

SIKA'S FAST-CURING POWERCURE ADHESIVES ARE NOT AFFECTED BY THE SITUATION AND ARE CONTINUOUSLY AVAILABLE.

This white paper guides you to alternatives based on the unique PowerCure packaging and dispensing system.

ABOUT THE AUTHOR

David has more than 20 years of experience in the adhesive industry, focusing on industrial manufacturing and commercial transportation. With his team, he takes care of generating value for Sika's customers by simplifying assembly processes and increasing performance and output.

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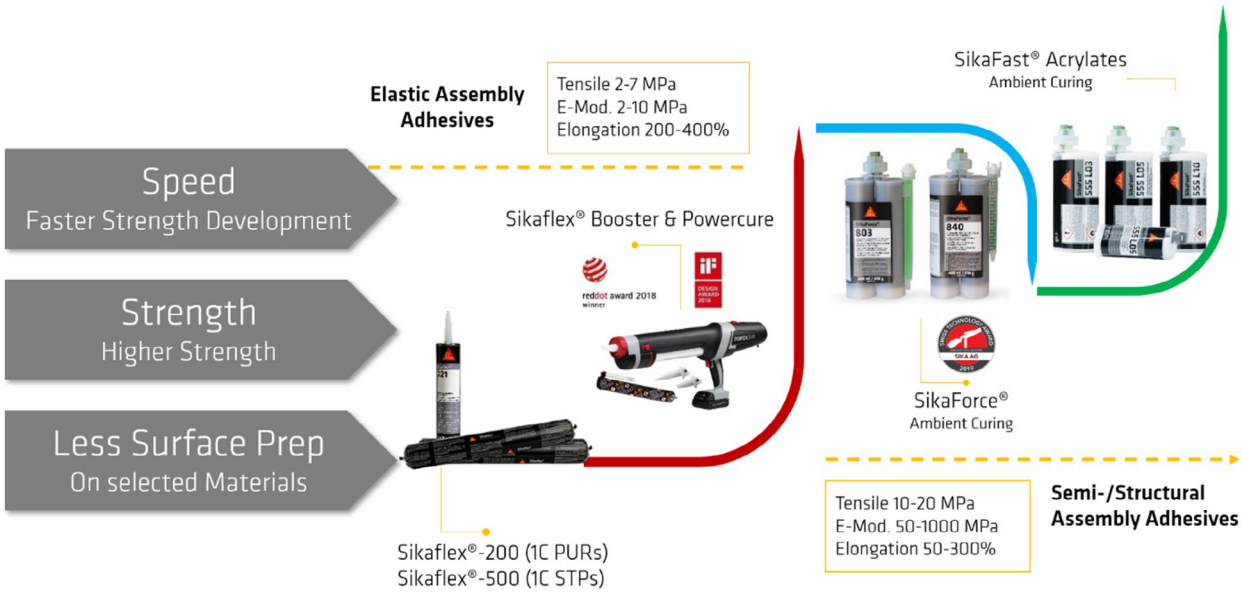
BENEFITS OF TWO-COMPONENT ADHESIVES

TWO-COMPONENT ADHESIVES are primarily of interest when the application is designed for use of a higher-strength glue, when the goal is to reach handling strength faster or when joints are extensive and curing takes too long.

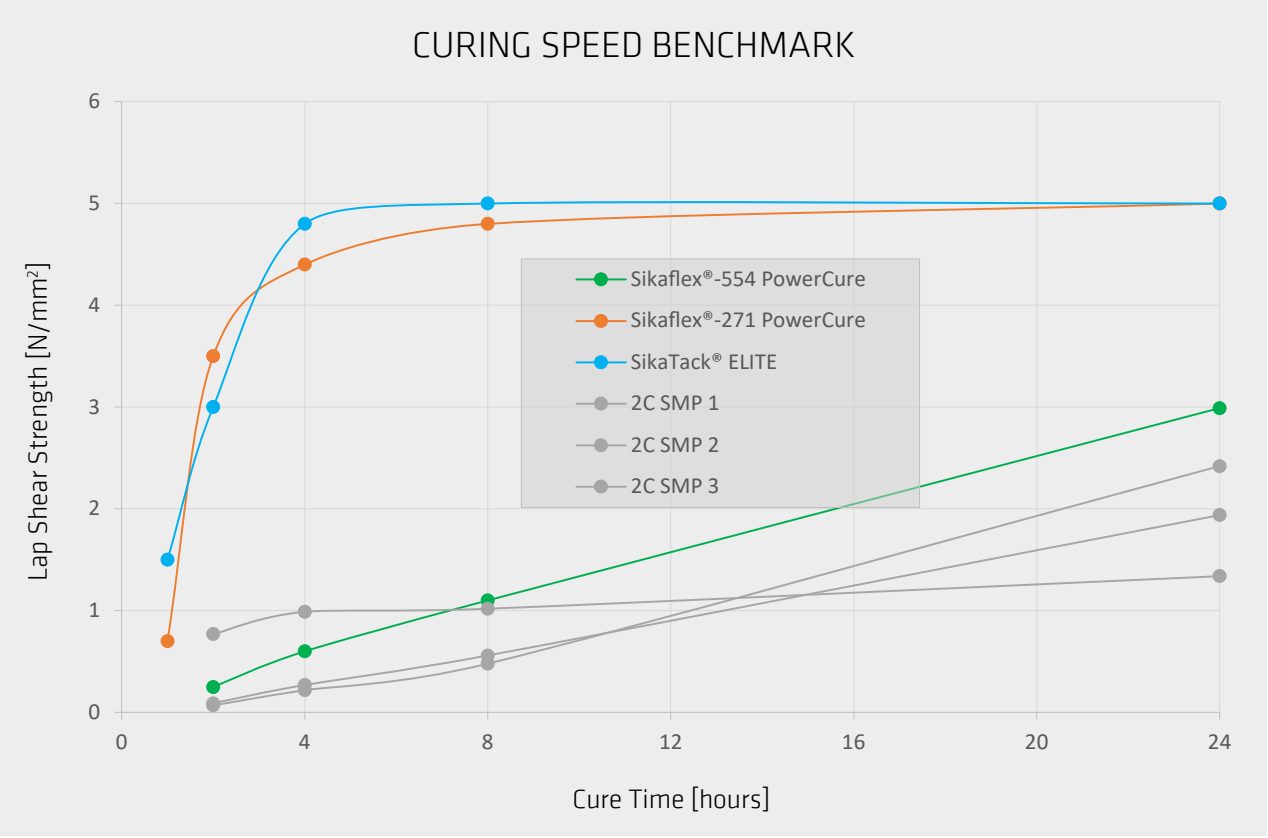


Especially in smaller, hand-applied applications, adhesives are packed in plastic cartridges. They lead to a large amount of packaging waste and relatively low extrusion rates due to the static mixers used.

Sikaflex® POWERCURE STRUCTURAL ADHESIVES

Sikaflex® POWERCURE STRUCTURAL ADHESIVES are a proven alternative to many traditional two-component materials. Sikaflex® PowerCure adhesives are mixed with 2% of a water-based accelerator paste to speed up curing and ensure thorough curing.

Sikaflex® POWERCURE STRUCTURAL ADHESIVES CURE FASTER THAN MANY TRADITIONAL TWO-COMPONENT SYSTEMS.



Curing Speed Benchmark: Selected PowerCure adhesives vs. traditional two-component materials. Tested at 23°C / 50% r.h.

Sikaflex® PowerCure adhesives can replace alternatives in the following applications:

- **Assembly works of large parts** where certain work time is required and typically elastic one or two-component adhesives are used (e.g. 2C SMPs in cartridges)
- **Assembly of brackets and holders**, where the main selection criteria for the current adhesive was speed (e.g. fast cure MMAs, Acrylates)
- **Assembly works where different materials are bonded** together, and a joint thickness of 4 mm and more is part of the design (PURs, SMPs, MMAs, etc)

Remark: It is crucial to verify the suitability of the adhesive for your application.Adhesion tests and the use of required surface preparation are vital to qualify an alternative material. Sika's Technical Services provides support on a project base.

DON'T BE AFRAID OF MINOR DIFFERENCES IN PERFORMANCE AND PROCESSING. IT IS BETTER TO HAVE A WORKING SOLUTION THAN NO SOLUTION AT ALL.

Sikaflex® PowerCure is generally not suitable:

- **Adhesive Applications of thin layer bonding** (<1 mm joint design)
- **Applications before Powdercoating** or another coating process with baking temperature > 120°C
- **Applications requiring high-strength materials** (Sikaflex® PowerCure products are generally limited to about 5 N/mm2 in tensile lap shear strength). In many cases, they are still suitable after assessing the effective use case specifically. Potentially a redesign of the joint might be required in certain cases

Remark: Sika Sales Engineers and Technical Services may assess your case in detail and guide you to a suitable alternative.

THE Sikaflex® POWERCURE SYSTEM

Sikaflex® POWERCURE ADHESIVES are accelerated curing one-component materials. Sikaflex® PowerCure adhesives are mixed with 2% of a water-based accelerator paste to speed up curing and ensure thorough curing.

The acceleration does not change the final material properties and enables engineers to quickly scale an adhesive bonding process without re-engineering the joint design. PowerCure refers to the packaging and dispensing system in small pack size, while Sikaflex® Booster is used for the same materials for bulk dispensing.

Sika PowerCure adhesives offer the following advantages over traditional cartridge materials:

- Up to 60% less packaging waste
- Secured product availability
- Faster extrusion rate than common two-component materials
- Wide range of product options
- Great applicator experience, ready to apply in just 10 seconds

AVAILABLE SOLUTIONS FOR VEHICLE AND INDUSTRIAL MANUFACTURING

	Sikaflex®-223 PowerCure	**Sikaflex®-554 PowerCure**	**Sikaflex®-268 PowerCure**	**Sikaflex®-271 PowerCure**	**SikaTack® ELITE**
Product Category	Organic Glass Adhesive / Weather Sealant	Structural Assembly Adhesive	Structural Assembly and Glass Adhesive	Glass Adhesive	Glass Replacement Adhesive
PowerCure	●	●	●	●	●
1C	●	●	●	●	○
Bulk Booster	●	●	●	●	○
Open Time (PowerCure)	45 min	20 min	30 min	10 min	8 min
Strength Development (PowerCure)	2h: 0.1 N/mm² 4h: 0.8 N/mm² 8h: 1.3 N/mm²	2h: 0.3 N/mm² 4h: 0.7 N/mm² 8h: 1.2 N/mm²	2h: 0.2 N/mm² 4h: 2 N/mm² 6h: 3,5 N/mm²	1h: 0.7 N/mm² 2h: 3.5 N/mm²	1h: 1.5 N/mm² 2h: 3.0 N/mm²
Tensile Lap Shear Strength	1.5 N/mm²	2.5 N/mm²	4.5 N/mm²	5.0 N/mm²	5.0 N/mm²
Tensile Strength	2.0 N/mm²	3.5 N/mm²	6.0 N/mm²	7.0 N/mm²	7.0 N/mm²

Always consult the most current local product datasheet. Contact your local Sika company to enquire about product availability or alternative solutions.

AVAILABLE SOLUTIONS FOR MANUFACTURERS OF RESIDENTIAL GLASS

Sika PowerCure adhesives made for structural glass bonding application are ideal for on-site application of burglar-proof windows. Boosted silicones combine the benefits of both one- and two-component adhesives: Climate-independent and quick-curing along with the utmost ease in manual application. There is almost no limit to how the products can be used, including working in harsh outdoor conditions typical for window repair.

	Sikasil® WT-66 PowerCure
Product Category	Window bonding adhesive
PowerCure	●
Open Time (PowerCure)	15 min
Strength Development (PowerCure)	8 h: 0.2 N/mm² 1 day: 0.6 N/mm² 7 days: 0.9 N/mm²
Tensile Strength	2.0 N/mm²
Suitable for bonding of windows classified according DIN EN 1627 burglar resistance class RC 2 and RC 3	
Fulfills requirements according to RAL-GZ 716 part 2, table 3 (PVC and glass) and ift guideline VE-08/4, part 1, table A4	

Always consult the most current local product datasheet. Contact your local Sika company to enquire about product availability or alternative solutions.

HOW TO IMPLEMENT

1 **Check your applications** if they are similar to the following description

a. **Assembly works of large parts** where certain work time is required and typically elastic one or two-component adhesives are used (e.g., 10:1 SMPs in cartridges)

b. **Assembly of brackets and holders**, where the main selection criteria for the current adhesive was speed (e.g. fast cure MMAs, Acrylates)

c. **Assembly works where different materials are bonded** together, and a joint thickness of 4 mm and more is part of the design (PURs, SMPs, MMAs, etc)

2 **What are the materials to be bonded:** how and where are they pre-treated?

3 **Is the adhesive exposed to extreme conditions during assembly**: high initial load, painting process, heat exposure, ... ?

Sikaflex® Booster is generally not suitable for:

a. Adhesive Applications of thin layer bonding (<1 mm joint design)

b. Applications before Powdercoating or another coating process with baking temperature > 120°C

c. Applications requiring high-strength materials (Sikaflex® PowerCure products are generally limited to about 5 N/mm2 in tensile lap shear strength). In many cases, they are still suitable after assessing the effective use case specifically. Potentially a redesign of the joint might be required in certain cases.

4 **Get in touch with Sika:** Sika Sales Engineers and Technical Services help you with material selection and provide you with engineering data on request.

5 **Qualification:** Run adhesion test and verify performance with process trials. It is crucial to verify the suitability of the adhesive for your application. Adhesion tests and the use of required surface preparation are vital to qualify an alternative material. Sika's Technical Services provides support on a project base.

6 **SOP:** Applicator training and application process description are essential for a successful implementation. Sika Sales Engineers support your efforts to train applicators and guide you on in-process quality control.

100+ COUNTRIES

WITH LOCAL SUPPORT TEAM

> 40 YEARS

EXPERIENCE AS SUPPLIER AND TECHNOLOGY PARTNER IN AUTOMOTIVE AND COMMERCIAL TRANSPORTATION

OVER

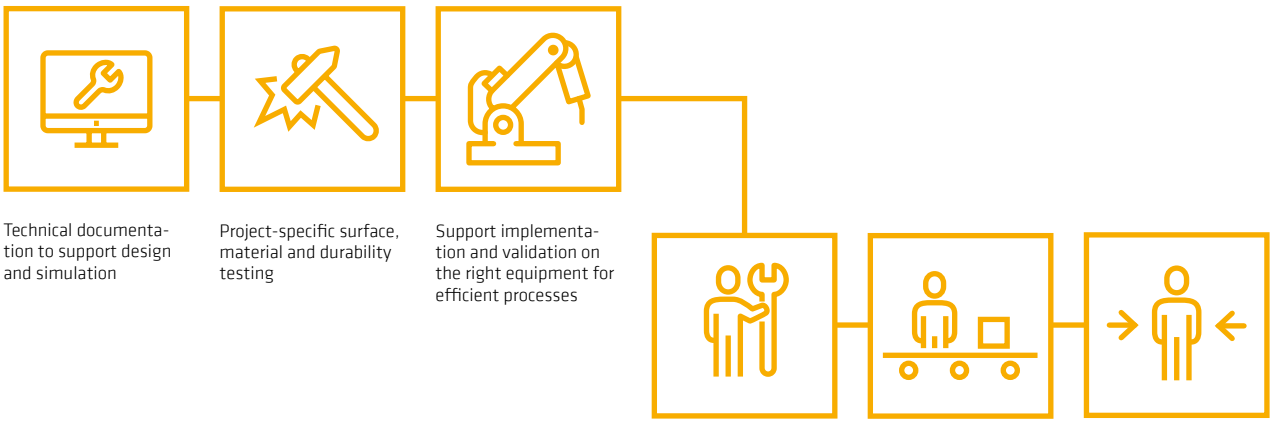
35 TECHNICAL SERVICE LABS

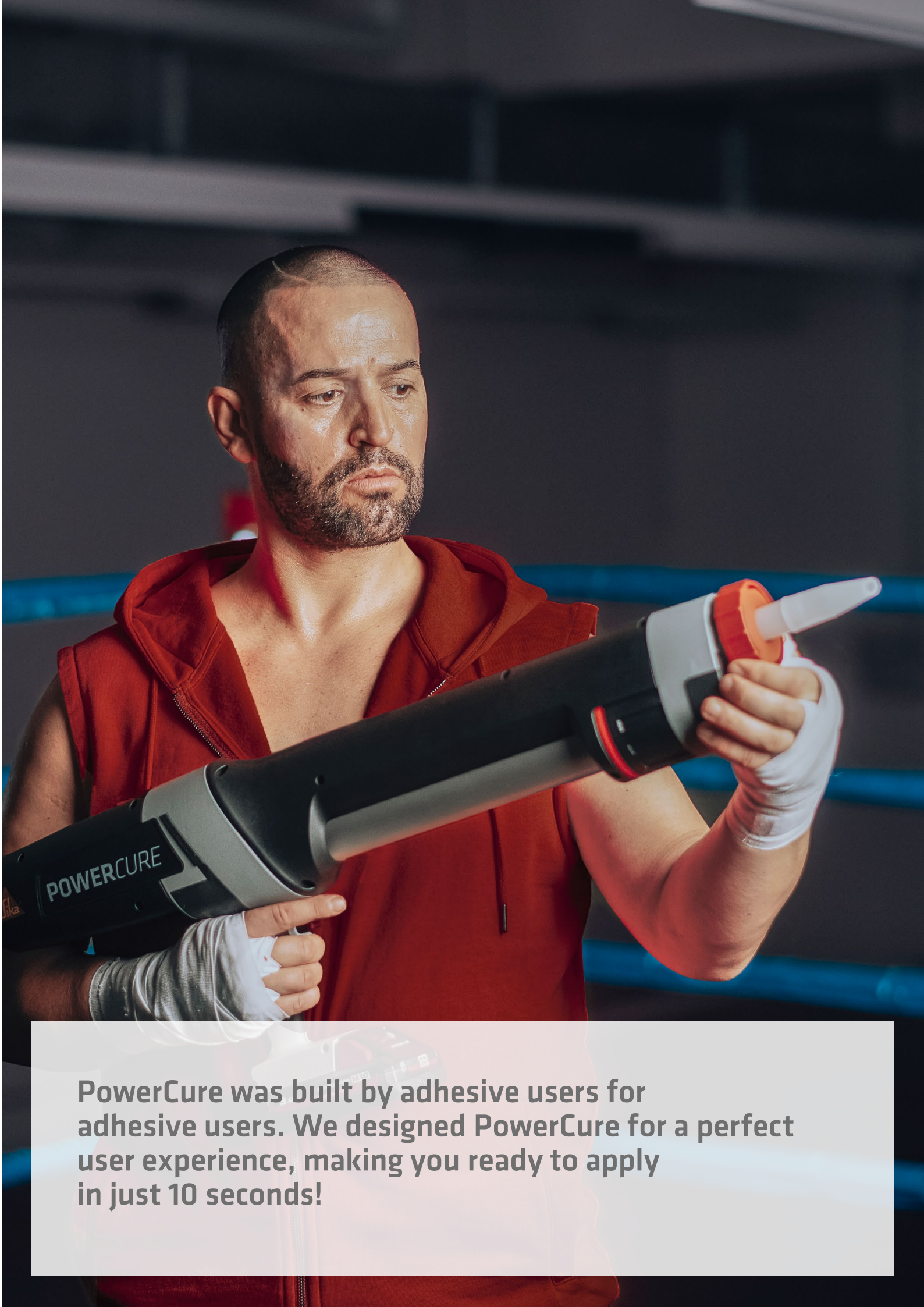
WITH ADHESIVE AND APPLICATION EXPERTS

AUTOMATION AND PROCESS

EXPERTISE THROUGH A GLOBAL NETWORK OF EXPERTS AND PARTNERSHIPS WITH LEADING EQUIPMENT MANUFACTURERS

Sika - YOUR PARTNER FROM ENGINEERING TO SERIAL PRODUCTION





PowerCure was built by adhesive users for adhesive users. We designed PowerCure for a perfect user experience, making you ready to apply in just 10 seconds!

FOR MORE INFORMATION:

www.sika.com/powercure

LEGAL NOTE

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. in practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the products suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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