

Industry



Fast Reaction. Superior Strength.
SikaFast[®] ADP Acrylic Adhesive Systems



SikaFast® – The fast-curing adhesive system for structural bonding applications

Sika® ADP technology

Derived from acrylic chemistry, Sika developed its new Sika® ADP technology (Acrylic Double Performance), keeping the positive while overcoming the limiting features of acrylics. This resulted in the unique range of fast-curing, flexible, low odour SikaFast® 2-component adhesive systems. This user-friendly, solvent-free adhesive technology forms the basis for a new generation of Sika adhesives, which are characterised by rapid strength development, outstanding adhesion and optimal flexibility.

The real alternative to mechanical fastening techniques

The development of the Sika® ADP technology has given the industry a new generation of fast-curing, flexible adhesives, which can be used instead of welding, riveting, clinching and other mechanical fastening techniques. Thanks to the high strength of the SikaFast® adhesive systems and its excellent adhesion to a wide range of substrates, the bonded joints are capable of transmitting large mechanical forces. This and the strength development within minutes make SikaFast® a safe and economical alternative to conventional mechanical fastening technologies.

Suitable for a wide range of substrates

In its uncured state SikaFast® is a non-sagging material of paste-like consistency that allows for precise and easy application. The adhesive system is suitable for structural and semi-structural bonding of a wide range of substrates used in the assembly and trim shop, such as metals, plastics, glass, coil coated steel, etc.

Mixing and application

The mixing process is non-critical and allows, within limits, considerable variation, while still ensuring consistent results and permitting precise and easy application. SikaFast® is a 2-component adhesive system with a mixing ratio of 10:1 that cures at room temperature. Component A contains the reactive monomer, which defines its mechanical and adhesion properties. Component B acts as the initiator for the curing reaction. The radical polymerisation starts when the two components are mixed together with the aid of a static mixer.

New possibilities in the design and manufacture of household appliances, bonding pre-painted metal sheets and plastics



Installing the electrical components and bonding the cover to the base element of GSM antennas



Efficient production of loudspeaker cabinets by bonding the front panels into the metal box eliminating mechanical fastening, offering a smooth appearance



Bonding of interior parts and seating in the rail industry



SikaFast® – Typical applications

The pictures on this page illustrate the variety of industries and applications where SikaFast® can be the answer to the fastening requirements:

- Household appliances
- Advertising signs and traffic guidance systems
- Electronics
- Automotive industry
- Loudspeakers
- Furniture and equipment
- Seating
- Windows
- Rail industry

Sika's technical consultants in co-operation with the Technical Service department will be pleased to discuss specific application proposals and provide technical support as required.

Bonding tuning elements in the automotive industry and automotive aftermarket where short cycle times are important



Innovative design possibilities thanks to SikaFast® and its UV stability in the fenestration industry



Bonding glass into metal or plastic doors and adding stiffening elements are successful applications with SikaFast® in the electronics industry



Replacing time-consuming and costly mechanical fasteners in the production of advertising signs, where different combinations of materials are an issue



SikaFast® – The benefits of the Sika® ADP technology

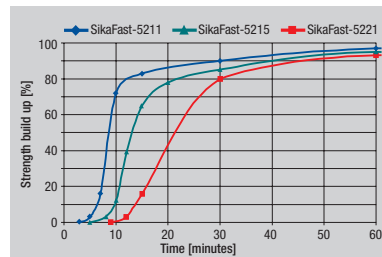
... in engineering and production optimisation

Rapid strength development

SikaFast® allows adequate time for application, while still obtaining full cure very quickly. This adhesive system offers the ideal combination of a relatively long open time, i.e. between 3 and 9 minutes depending on the type of SikaFast®, and a rapid strength development to reach handling and final strength within a few minutes of application. These properties allow manufacturers to maintain short cycle times for efficient and economical production.

Outstanding adhesion to a wide range of substrates

SikaFast® develops excellent adhesion on a wide range of materials with little or no surface preparation. For surface cleaning the use of Sika® ADPrep-5901 is recommended. Sika® ADPrep-5901, the general surface preparation agent, is specially developed to complete the Sika® ADP adhesive system.



The fixed installation of a foot controlled pneumatic cartridge gun simplifies the bonding of small parts

Strength and flexibility

The high strength level of Sika® ADP adhesives enables their use in new applications not feasible with conventional adhesive systems such as 1-component polyurethanes. At the same time SikaFast® is flexible enough to offer a high degree of impact resistance and many of the other benefits associated with elastic bonding as promoted by Sika such as vibration and noise damping.

Simple application system with consistent results

SikaFast® is easy to use with the aid of a short static mixer. The resulting paste-like product is formulated for simple and precise application, with a short cut-off string and good non-sag properties. Sika's ADP technology can accommodate considerable deviation in the mixing of the two components without affecting product performance or final physical properties. Furthermore SikaFast® is equally suitable for manual application with a cartridge gun or bulk application by pump and robot on the production line.

Low odour

Thanks to Sika's innovative ADP technology acrylic bonding with SikaFast® has a very low odour and is therefore pleasant to use and work with.

Accommodation of manufacturing tolerances

Thanks to the pasty consistency of SikaFast® and its non-sag property, gaps and surface irregularities can be accommodated very easily by adjusting the bead dimension accordingly.

Other advantages of SikaFast® in production:

- Joining and sealing in a single operation
- Wide range of applications
- Ideal for pre-painted components
- Ability to join a wide variety of materials of different types and thicknesses
- Distortion free assembly

... regarding quality

Even stress distribution

Because of its inherent flexibility, Sika® ADP adhesive technology offers many of the advantages of elastic bonding – including even stress distribution eliminating stress peaks.

Extended service life

In comparison to common mechanical fastening techniques such as riveting, the joints assembled with SikaFast® remain permanently bonded even under dynamic stress.

No damage to substrate

A wide variety of materials can be bonded without damaging the substrate or impairing the structural integrity as caused by drilling or welding.

Reduction in contact and crevice corrosion

Due to its good electrical insulation properties, the use of SikaFast® reduces contact and crevice (galvanic) corrosion on metal substrates.

NSF food approval



For specific applications in the white goods industry, SikaFast® has been evaluated by the NSF. Sika's advanced ADP technology complies with the requirements of the NSF for incidental food contact.

Wheelmark



SikaFast® is further certified to comply with the Wheelmark requirements for surface materials with low flame-spread characteristics.

... in terms of added value and competitive advantage

New design possibilities

To the designers, the combination of excellent adhesion properties on a wide range of substrates and the high strength level of SikaFast® offers new design possibilities and more creative freedom.

Vibration and noise damping

Beside its excellent adhesion properties, SikaFast® provides good vibration damping and sound absorbing characteristics.

Increased productivity

The rapid strength development of SikaFast® allows for short cycle times, thus increasing the efficiency of the production and assembly process. Due to its unique non-sagging and paste-like properties, SikaFast® is easily applied by hand or by robot. Its ease of use and high potential for automation provide increased productivity.

Savings of material and weight

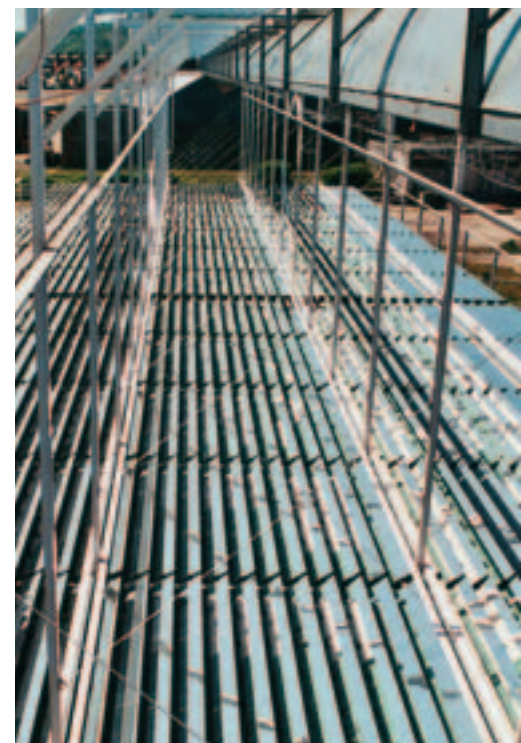
Since the flexibility of SikaFast® provides even stress distribution to the bonded parts, the substrate thickness can be reduced and its shape simplified. This results in material and weight reduction compared to the mechanical fastening techniques, thus reducing cost.

Additional benefits regarding competitive advantages:

- Lower assembly cost as SikaFast® is a non-labour-intensive application system
- Elimination of rework
- Bonding and sealing in one step
- Little (if any) surface preparation



Easy application and rapid cure allow for an efficient and quick installation of cable fixations



Bonding the mirrors to the mechanical structure of a solar thermal power plant



Integration of SikaFast® in an automated production line using a pumping and dosing system



SikaFast® – The professional solution

The satisfactory performance of an adhesive solution depends on the correct design and the right choice of the adhesive system. Our professional team of technical consultants works together with the customers and Sika's System Engineering and Technical Service departments to help design the best solution for specific customer requirements.

It makes no difference whether the adhesive bonding operation is carried out manually or by robot – what matters in both cases is that the application is successfully integrated into the overall production process.

Bonding of a GSM antenna cover to the base with a standard refillable gun suitable for SikaFast®



Transfer pumps to feed robot system out of pails

Variable strength development of SikaFast®

In fully automated processing cells an extended mixer open time of several minutes is often required, combined with rapid strength development. The cure profile of SikaFast® can be adjusted to satisfy both these requirements by controlled cooling of the static mixer or preheating of the substrates or even the adhesive. For specific recommendations contact the Sika technical consultants or Sika Technical Service.

Joint design

Good joint design takes into account

- the mechanical requirements such as strengths, tolerances, etc.
- esthetical aspects
- repair and recyclability
- ease of application

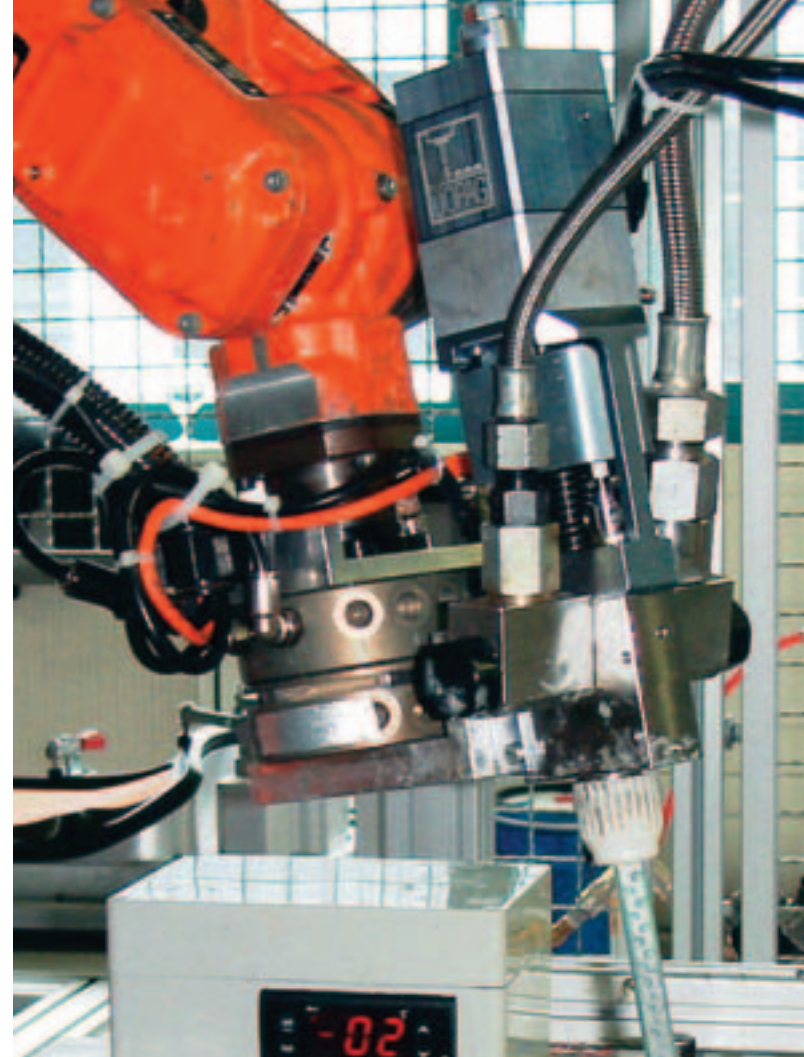
and is essential for a long life in demanding service environments.

An adhesive layer thickness of 1 to 3 mm has proved best for many commonly used joint configurations. However, the specific thickness has to be individually adapted to the application. For specific recommendations contact your Sika technical consultant or Sika Technical Service.

SikaFast® application systems

Sika collaborates with the world's leading manufacturers of 2-component application systems and has an extensive knowledge of adhesive application technology in all its forms. Many different kinds of equipment can be used to apply SikaFast®, depending on the type of application, shot size, cycle time or production volume:

- Manual and pneumatic cartridge guns
- Refillable guns using 20 litre pails
- 2-component pneumatic or hydraulic metering and mixing systems for use in robot or manual applications
- Specific dosing equipment for different shot sizes



Robot application of SikaFast® adhesive systems allows for shorter production cycles as required in the manufacture of furniture

State-of-the-art dispensing systems from leading manufacturers allow Sika System Engineering to run feasibility and application studies

Sika – Solution driven customer service

Quality of service, for Sika, means meeting the needs and wishes of the customers as promptly and efficiently as possible. The joint development of solutions together with the customers are just as much a part of the partnership as the provision of on-the-job training and support for the industrial customers.

Sika System Engineering

Sika offers its customers technical support through its System Engineering department. The resources of the Corporate System Engineering Centre in Switzerland are supplemented by local engineers based in Germany, France, Italy, the United Kingdom, Japan and the USA. The following aspects of engineering are supported:

- Application concepts
- Application feasibility studies
- Process design and equipment selection
- Off-site and on-the-job-training
- Production

Sika Technical Service

The Technical Service organisations on all five continents ensure that customers worldwide receive high standard technical support. It is involved in product launches, the technical documentation and application research. Sika Technical Service is also closely linked to Sika's R+D department. Co-operation in customer projects involve the following activities:

- Support of Sika's technical consultants in customer projects
- Design verification
- Risk analysis
- Application specific adhesion tests
- Ongoing production support



Newest analysing equipment allows Sika Technical Service engineers to support the solution finding process in co-operation with the customers



Some possibilities of well designed, esthetical joints as proposed by Sika Technical Service



SikaFast® – The product range



Product type	Open time	Time to handling strength	Lap shear strength	Substrates ¹⁾
SikaFast®-5211	3 min	10 min approx.	6 to 10 MPa	Aluminum, steel, lacquers, ABS, PVC (hard), polycarbonate, PMMA, PS, UP, GRP
SikaFast®-5215	5 min	15 min approx.	6 to 10 MPa	Improved for glass bonding; aluminum, steel, lacquers, ABS, PVC (hard), polycarbonate, PMMA, PS, UP, GRP
SikaFast®-5221	9 min	20 min approx.	6 to 10 MPa	Aluminum, steel, lacquers, ABS, PVC (hard), polycarbonate, PMMA, PS, UP, GRP
Packaging sizes: 50 ml dual cartridge, 250 ml dual cartridge, 20 liter pail				
Sika® ADPrep-5901	General surface preparation agent for Sika® ADP adhesive systems Packaging size: 250 ml bottle			

¹⁾ ABS, PC, PMMA, and PS are thermoplastics and submitted to Environmental Stress Cracking (ESC). Parts have to be stress free prior to bonding. Please consult Sika Technical Service.

Headquarters

Sika Schweiz AG
Tüffenwies 16
Postfach
CH-8048 Zürich
Telephone: +41 1 436 40 40
Fax: +41 1 436 45 30
E-Mail: industry@ch.sika.com
Internet: www.sika.com

USA

Sika Corporation
30800 Stephenson Hwy.
US-Madison Heights, MI 48071
Telephone: +1 248 577 0020
Fax: +1 248 577 0810
E-Mail: CSMH@sika-corp.com
Internet: www.sikasolutions.com

Australia

Sika Australia Pty. Ltd.
55 Elizabeth Street
(Locked Bag 482 BDC)
AU-Wetherill Park NSW 2164
Telephone: +61 2 9725 11 45
Fax: +61 2 9725 26 05
E-Mail: admin@sika.com.au
Internet: www.sika.com.au

United Kingdom

Sika Ltd.
Watchmead
Welwyn Garden City
GB-Herts AL7 1BQ
Telephone: +44 1707 39 44 44
Fax: +44 1707 32 91 29
E-Mail: sika@uk.sika.com
Internet: www.sika.co.uk

Canada

Sika Canada Inc.
601 - Delmar Avenue
Pointe-Claire, QC
CA-Quebec H9R 4A9
Telephone: +1 514 697 26 10
Fax: +1 514 697 48 26
E-Mail: sika@sikacanada.com
Internet: www.sikacanada.com

Details of other Sika companies and further information can be found on our website at:

www.sika-industry.com

Note:

Our most current General Sales Conditions shall apply.
Please consult the Technical Data Sheet prior to any use or processing.

