



Transportation Technology on Wheels



Innovation & Consistency | since 1910

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Sika Core Competencies

Sealing Bonding Damping

Sealing of joints, cavities, and other open areas incorporates many benefits such as minimising the flow of gasses, liquids, dust, sound, heat and cold as a result of the improved thermal conductivity

Other benefits are:

- Increased functionality and comfort in the interior
- Reduced corrosion
- Prevent moisture and water entrapment
- Improved aesthetics

Bonding provides a permanent and powerful connection between different materials with the benefit of even stress distribution and therefore improved shock and impact resistance. Further important benefits compared to mechanical fixations are:

- No damage of corrosion prevention coatings
- Reduced number of processing operations
- Reduced interior and exterior noise transmission
- Greater freedom for design

Damping reduces noise vibration harshness (NVH) transmitted by load-bearing structures and cavities. Important factors are:

- Reduced vehicle weight as compared to traditional damping techniques
- Can be applied at any point during vehicle assembly
- Enhanced passenger comfort
- Easy to handle and implement in mass production

Reinforcing Protecting

Reinforcing boost strength of load-bearing structures exposed to both static and dynamic forces (crash). In addition reinforcing provides:

- Increased structural stability / safety
- Improved fatigue behaviour
- Design flexibility leading to weight reduction
- Node stiffness and global body frequency response improvement

Protecting extends the working life of the vehicle with reduced maintenance and repair costs.

Further benefits are:

- Sound dampening
- Vibration reduction
- Corrosion prevention
- Sealing



Sika Professional Solutions – From Floor to Roof

Sika's contact with the customer does not end with the sale of a product. In fact this is just one step within the partnership. Sika's primary aim is to provide innovative solutions that help customers to generate added value on a long term basis and stay competitive at all times. Underlying this mission statement is the belief that continued success comes not just from high quality products, but from the development of total integrated solutions.

The Sika Professional Solutions

Based on a range of leading technologies, Sika offers customised solutions for commercial vehicle manufacturers. Together with our customers we develop new systems for innovative design to improve quality and to reduce production cost. To meet those needs we have put together the Sika package for integrated professional solutions, which consists of three elements:

Technology

Technology forms the platform for advanced, high-performance products. Sika has developed a comprehensive range of process materials, delivering complete system solutions for industry in its core competencies: sealing, bonding, damping, reinforcing and protecting.

Service

Our worldwide R&D Technology Centres, System Engineering and Technical Services as well as Acoustic Engineering and Design, providing world-class technical support to the transportation industry. The offering from Sika lasts from adhesion test over defining and developing of integrated solutions for specific customer requirements. The implementation and innovative solution development is supported by Sika and a broad network of partners. The local, regional and global structures enable Sika to provide this unique support to our customers.

People

Our team of highly trained and experienced Sika professionals are present in more than 70 countries with own subsidiaries around the world to assist customers in developing and implementing solutions.



Quality First

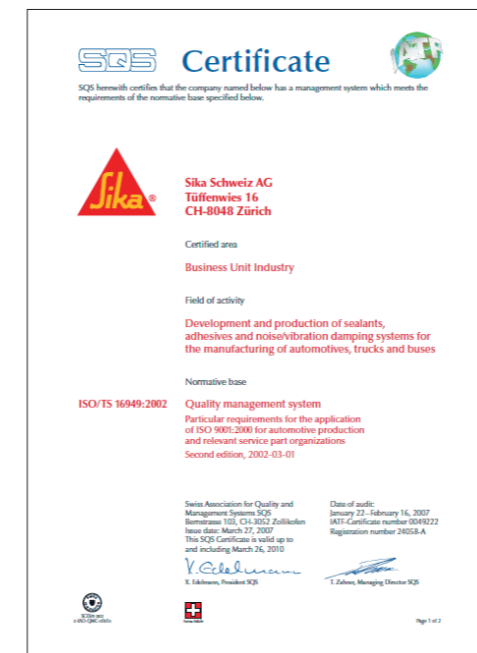
Sika is committed to a comprehensive quality and service culture. "Quality First" is the standard by which every production process, workplace and member of staff is measured. So it comes as no surprise to learn that the quality systems of all Sika companies are certified with the ISO 9001 series of international standards. Our understanding of quality of service means meeting the needs and wishes of our customers as promptly and efficiently as possible.

Ecology as an Opportunity

Sika operates according to the principle that responsibility for the environment and safety is an integral part of every managerial task and a concern of each employee. In particular, we care for the environment and pay attention to the safety of everybody dealing in

- Research and development
- Procurement, production, storage, transportation and disposal
- Product application in construction and industry.

We fully participate in the worldwide "Responsible Care" program initiated by the chemical industry. Sika is committed to introducing and maintaining an Environmental Management System according to ISO 14001 globally. By this time 51 companies - representing around 90% of group sales - operate in conformity with this environmental standard. Sika sees the challenge for environmental improvements as a genuine market opportunity. Today ecological issues are the driving force behind a large part of all R&D projects.



Sika Transportation Market Fields

Transportation is the most established customer group within business unit Industry. It consists of four market fields; Bus, Truck, Rail and Special Vehicles. At these commercial vehicles manufactures, we concentrate on our core competencies: bonding, sealing, damping, reinforcing and protecting. We offer solutions which meet customer demands for higher safety, comfort and lower operating costs combined with improved reliability and durability. Our contribution not only consists of products, but a full range of support from planning to serial production and repair. Key elements to our success are a customer focused organisation, world wide presence of Technical Departments together with well trained sales force and last but not least a portfolio which meets the customer requirements.

Bus and Coach

Bus and coach operators demand extended reliability and durability with continuous reduction of vehicle operating and repair costs. Government legislation drives lower vehicle emissions and improved passenger and driver safety.

Apart from obvious demands for long-term durability and resistance to harsh climates, additional requirements include low weight (vehicle handling and fuel economy) and structural integrity. Round the clock operation in extreme temperature conditions create high expectations on all areas of the vehicle.

Truck

Truck manufacturers are developing solutions for the world transportation needs at a ever increasing rate. It is a competitive and challenging environment. Truck operators demand ever lower operating and repair costs, combined with improved reliability and durability. Mandatory legislation is enforcing lower vehicle emissions and improved safety.

Maximised uptime, in conjunction with enhanced driver comfort and environmental aspects, throughout the vehicle life time are standard expectations. This presents demanding challenges to both design and manufacturing engineers.

Rail

The global Rail market demands a variety of established, innovative and high performance solutions for all internal, external bonding and sealing applications on the various types of rail vehicle being manufactured today.

The extensive range of technologies currently available allows for greater freedom of design, process simplification resulting in reduced cycle times, weight reduction and lower energy consumption. For the numerous applications within the cab or passenger carriage, universally approved and certified products for all bonding and sealing applications are available.

Special Vehicles

The global special vehicle market demands reliable, durable and cost effective vehicles. Caravan, motorhome, emergency, agricultural and construction vehicle manufacturers together with trailers, vehicle converters and container producers must constantly find solutions that enable them to improve production efficiency, reduce vehicle weight and part complexity as well as increased safety and the longevity of the end product.

Traditional methods of fixing restrict design and aesthetic scope forcing manufacturers to identify and implement alternative solutions.



1-C Polyurethane Technology

What is 1-C Polyurethane Technology?

Sika's 1-C polyurethane (PUR) product range, Sikaflex®, consists of a polymer based flexible and high performance adhesives and sealants that cure on exposure to atmospheric moisture forming a durable elastomer.

How to use it?

1-C Polyurethanes are generally of paste like consistency with good non sag properties. They are applied in bead form using a manual or powered cartridge / unipack gun. Alternatively, pump operated application equipment is used for pails and drums. Various features are available to cover customer demands:

- Ambient applied (+5 °C – +35 °C) moisture curing systems
- Hot applied (+40 °C – +85 °C) moisture curing systems with high initial strength
- Heat cured (+120 °C – +160 °C) systems with high initial strength
- Accelerated systems where Booster paste is added to the product providing rapid strength development combined with long open time

Where is it used?

1-C PUR's are suitable for use where materials with different coefficients of thermal expansion are bonded and where dynamic stresses needs to be absorbed. These products have good tolerance compensation capabilities. The areas of application covered are; bonding and sealing in bus, truck, rail and special vehicle production.

Examples include:

- General sealing applications (in- and exterior)
- Direct Glazing
- Side panel bonding
- Roof bonding and sealing
- Floor bonding
- Front and rear mask bonding
- Body assembly



Polyurethane Hybrid Technology

What is Polyurethane Hybrid Technology?

Sika's PUR hybrids are isocyanate free and moisture curing adhesives and sealants based on silane terminated polyurethane technology. These products have comparable physical properties to PUR adhesives and sealants, providing very good adhesion with limited pretreatment on a wide range of substrates used in bus, truck, rail and special vehicle market.

How to use it?

Sika's PUR hybrids are generally of paste like consistency with good non sag properties. They are applied by using a manual or powered cartridge/unipack gun. Alternatively, pump operated application equipment is used for pails and drums.

Different features are available to cover customer needs.

- Ambient applied (+5 °C – +35 °C) moisture cured systems
- Accelerated systems where Booster paste is added to the product providing rapid strength development combined with long open time
- 2-C reactive systems which cure by homogeneous mixing of component A and B

Where is it used?

The areas of application for PUR hybrids are much the same as for 1-C polyurethanes and cover bonding and sealing in bus, truck, rail and special vehicle production.

Examples include:

- General sealing applications (interior and exterior)
- Side panel bonding
- Roof bonding and sealing
- Floor bonding
- Front and rear mask bonding
- Body assembling (sandwich panels)



Technological Benefits

The combination of permanent elasticity and flexibility combined with the excellent mechanical properties and high strength makes the material suitable for many different applications. Specific advantages depending on product and system include:

- Ease of use
- Excellent working characteristics
- Short curing time
- Overpaintability
- Corrosion prevention
- Low odour
- Solvent and PVC free
- Black Primerless application possible

Technological Benefits

PUR hybrid technology delivers all the benefits of elastic bonding comparable to Sika's polyurethane systems. Specific product advantages include:

- Excellent adhesion to a wide range of substrates with minimum surface preparation
- Good weathering and UV resistance
- Outstanding mechanical properties
- Classification free, no VOC or Isocyanate content
- Excellent working characteristics
- Overpaintability
- Corrosion prevention
- Low odour

Product Examples

Features and Benefits

Sikaflex®-221	- Universal sealant
Sikaflex®-252	- Assembly adhesive
Sikaflex®-254 Booster	- Accelerated assembly adhesive
Sikaflex®-265	- Direct glazing adhesive with high weathering resistance
Sikaflex®-265 DG-1	- Direct glazing adhesive with high initial grip

Product Examples

Features and Benefits

Sikaflex®-515	- Fast skinning sealant
Sikaflex®-521 UV	- Weathering resistant sealant
Sikaflex®-552	- Assembly adhesive
Sikaflex®-553 2K	- 2-C assembly adhesive, easily pumpable
Sikaflex®-554	- Booster accelerated assembly adhesive
Sikaflex®-555	- Black primerless direct glazing adhesive



2-C Polyurethane Adhesive Technology

What is 2-C Polyurethane Adhesive Technology?

SikaForce® is a 2-C adhesive system, consisting of a polyol resin and a catalysed hardener. The two parts are mixed together at a fixed ratio initiating the cure mechanism. SikaForce® 2-C polyurethane adhesives cure independently of atmospheric moisture and are solvent free.

How to use it?

SikaForce® can be dispensed manually from cartridges through a static mixer or from drums and pails using readily available two component equipment. These products are suitable to be further automated for very accurate, high volume production by linking to multi axis robotic systems.

Where is it used?

SikaForce® adhesives are used to bond a variety of components:

- Bus roof panels
- Refrigerated trailer cappings
- Caravan grab handles and gas bottle covers
- Truck side skirts
- Potting of electronic equipment i.e. ABS braking systems
- Sandwich panel construction
- Honeycomb panels for rail vehicles



Product Examples

Features and Benefits

SikaForce®-71xx – 1-C rigid, structural, sandwich panel adhesives

SikaForce®-75xx – Fast curing assembly adhesives with good elasticity

SikaForce®-76xx – Flexible, thixotropic adhesives

SikaForce®-77xx – Durable, structural assembly adhesives with variable pot life

SikaForce®-77xx – 2-C sandwich panel adhesives

SikaForce®-78xx – Highly structural, rapid assembly adhesives, offering high tensile strength

Technological Benefits

SikaForce® 2-C adhesives can be applied to different substrates without the need for labour intensive and time consuming pre-treatment. SikaForce® provides a unique combination of elasticity and high shear strength, this versatility makes it suitable for numerous bonding applications:

- Provides good gap filling properties
- Enhanced freedom of design
- High impact and tear propagation resistance
- Can withstand high dynamic stress
- A variety of open and fixture times
- Capable of bonding dissimilar substrates
- Excellent ageing and chemical resistance

2-C Acrylic Adhesive Technology

What is 2-C Reactive Acrylic Technology?

The SikaFast®-5000 series is a range of fast curing, structural adhesives based on acrylic polymers, mixed at a 10:1 volumetric ratio. It cures by polymerisation after homogeneous mixing of both components, the reaction is completely independent of moisture. Rapid strength build up is a key characteristic of this type of adhesive.

How to use it?

SikaFast®-5000 adhesives are applied to a substrate with bond line thickness of no more than 3 mm. The parts should be mated within the specified fixture time and no stress applied until curing is complete. The products are packaged in cartridges and hobbocks for semi automated or robotic bulk dispensing.

Where is it used?

SikaFast®-5000 acrylic adhesives are approved for bonding:

- A wide variety of metal assemblies
- Brackets and components
- Thermoplastic and thermoset composites
- Glass



Technological Benefits

SikaForce®-5000 adhesives offer excellent adhesion to a variety of materials and has several key features:

- Rapid curing, with a variety of open times
- Good UV resistance
- Rapid build up of green and final bond strength
- Consistent curing at low temperatures
- Good impact resistance
- Solvent free
- Non sagging

Product Examples

Features and Benefits

SikaFast®-5211 – Short open time suitable for bonding metals and thermoplastics

SikaFast®-5215 – Excellent adhesion to glass, plastics and many other substrates

SikaFast®-5221 – Longer open time allows for large part bonding with build up of final bond strength

Sika® ADPrep – Adhesion promoter



Epoxy Based Technology

What is Epoxy Based Technology?

Sika's 1-C epoxy based product range, SikaPower®, consists of body shop adhesives and sealants which include epoxy and epoxy polyurethane hybrid polymers. The range of products includes multiple heat curing formulations offering different physical properties combining the flexibility and toughness of polyurethane as well as the high mechanical strength and excellent adhesion of epoxy.

How to use it?

The SikaPower® range offers different rheologies optimized for every application or process. SikaPower® materials are designed to be applied in manual or in automated (robotic) processes. The application properties results in full freedom when selecting position, dimension, mechanical properties etc. all depending on application and function.

Where is it used?

Sika's epoxy based technology is designed for use in industrial processes where stoving facilities are available. Applied in body or paint shop areas for various structural, semi structural and sealing applications.



Product Examples

Features and Benefits

SikaPower®-4503 – Anti-flutter sealant

SikaPower®-4506 – Pre-curing sealant

SikaPower®-4508 – Powder coat sealant

SikaPower®-4588 – Structural adhesive

Technological Benefits

The SikaPower® range has enhanced properties for anti-flutter, hem flange bonding, sealing and structural assembly applications. Specific advantages depending on product and system include:

- Good adhesion on bare and oily substrates
- High shock and vibration absorption
- Reduce or substitute mechanical fixings
- Excellent wash out resistance
- Pre curing enables process optimization
- Corrosion prevention
- Allows design freedom and enhancement
- Eliminates read through

Solvent and Water Based Dispersions Technology

What are Solvent and Water Based Dispersions?

Sika's solvent and water based dispersions range, SikaSense®, consists of acrylic and polyurethane resins. Available in one and 2-C form, the adhesives provide excellent adhesion to most substrates used in the bus, truck, rail and special vehicle markets.

How to use them?

Solvent and water based dispersions are of liquid consistency and applied by spray, roller, spatula or spreader. For one and two sided lamination processes, products are used with various coating weights, depending on substrate and open time requirements. The addition of a second component can be used to increase physical characteristics such as heat resistance, strength and curing time.

Where are they used?

Due to their high initial grab when substrates are brought together, SikaSense® dispersions are used for various applications within the bus, rail, truck and special vehicle markets.

Examples include:

- Floor lamination – like PVC, EPDM, carpets
- Luggage racks and compartments
- Decorative lamination
- Roof liner
- Trim and door panel
- Instrument panels



Technological Benefits

SikaSense® dispersions are used to bond decorative and load bearing finishes from small to large areas by overcoming natural tendencies for stress relief. Other advantages include:

- Long open times
- Solvent and VOC free water based versions
- High resistance to heat and plasticiser migration
- No combustible or flammable emissions
- Can be repositioned after bonding
- High green and final bond strength
- Good temperature and water resistance

Product Examples

Features and Benefits

SikaSense®-4130 – Water based floor covering adhesive

SikaSense®-4300 FD – Specialist product to meet high demands of heat and plasticiser resistance

SikaSense®-4600/4615 – Fast drying, solvented adhesives



Reactive Hotmelt Technology

What is Reactive Hotmelt Technology?

Sika's reactive hotmelts (RHM) product range, SikaMelt®, combines the properties of hotmelts with those of reactive polyurethanes. They are solid at room temperature and need to be heated to their melting point prior to application. Sufficient early strength is attained when the material passes from the liquid to the solid state as it cools. By reaction with atmospheric moisture the adhesive is then transformed from a fusible thermo-plastic to an infusible elastomer, making it more resistant to high temperatures than non reactive hotmelts.

How to use it?

Sika's reactive hotmelts adhesives are heated to temperatures of +120 °C – +160 °C for application. Within this temperature range they exhibit a liquid of free-flowing consistency. They are applied by spray, roller or in extruded bead form at coverage rates determined by the specific application.

Where is it used?

Reactive hotmelt adhesives are typically used to bond GRP, pre-treated metals, polystyrenes, wood, plastics, textiles or fibrous materials that are exposed to higher temperature. These include:

- Sandwich panel construction
- Semi structural components, brackets, clips, interior trim
- Interior textiles i.e. headliners
- Laminating polyurethane foams
- Non polar substrates i.e. polypropylene, polyethylene



Technological Benefits

Due to high initial strength which results from the physical cure mechanism and the reaction with moisture, the material develops a non reversible bond with high temperature resistance and strength. SikaMelt® adhesives offer a number of advantages:

- Faster production due to high early strength
- Significantly improved creep and heat resistance
- A wide selection of open and curing times
- High final strength
- Bonds well to a wide variety of substrates
- Very low fogging and emission levels

Product Examples

Features and Benefits

SikaMelt®-918x – Polyolefin reactive hot melts, specifically designed

SikaMelt®-96xx – Polyurethane reactive hotmelts are suitable for all processes ranging from small component assembly to large area panel lamination

Hotmelt Adhesive Technology

What is Hotmelt Adhesive Technology?

Sika's non reactive hotmelt adhesive technology, SikaMelt®, is physically curing products based on various thermoplastic polymers. Hotmelt adhesives are 1-C solvent free products, that becomes solid at room temperature and need to be heated to their melting point prior to application.

How to use it?

Sika's hotmelt adhesives are heated to temperatures of +140 °C – +200 °C for application. Within this temperature range they are of liquid consistency and are applied by roller or spray equipment. The bond is made immediately after application, applying light pressure to the components to ensure full surface contact.

PSA hotmelts constitute a special category of hotmelt adhesives. The surface of these pressure sensitive adhesives remains permanently tacky and the bond is formed by pressing the adhesive coated component against the substrate.

Where is it used?

Hotmelts are typically used to bond plastics, textiles or fibrous materials that are not exposed to extremes of temperature. These include:

Assembly joints in car cabins, e.g. air ducts, fresh-air filters, polypropylene components, (no surface preparation needed) seals in refrigeration units.

PSA hotmelts are particularly suitable for imparting self-adhesive properties to lining or cladding materials that are not subject to restoring forces, e.g.:

- Carpets
- Trim panel
- Insulation materials and sound-deadening pads



Technological Benefits

Due to high initial strength which results from the physical cure mechanism, the material hardens by passing from the liquid to the solid state. Adhesive joints made with hotmelts can be separated and then reassembled simply by reheating the material above its melting point. SikaMelt® adhesives offer a number of advantages:

- Faster production thanks to instant bonding
- Bonding of polypropylene components with no surface preparation
- Simple to use – eliminates risk of processing errors
- Low fogging and emission levels
- Good resistance to aging
- Solvent-free
- Unlimited open time (PSA)

Product Examples

Features and Benefits

SikaMelt®-91xx – Non-reactive polyolefin hot melt for bonding unpolar substrates

SikaMelt®-92xx – Pressure sensitive hot melt with medium to high tack and good temperature resistance

Butyl Rubber Technology

What is Butyl Rubber Technology?

Sika's butyl rubber products, SikaLastomer®, are used as sealants. The two types available are bulk products and preformed sealing strips or profiles. The bulk products contain solvents, which evaporate to leave a plastic rubber material.

The preformed products are solvent free, and they are characterised by a permanently tacky surface. Butyl rubbers are designed for use as sealants only; they do not set or harden by chemical reaction but remain permanently plastic.

How to use it?

The bulk butyl rubbers are of thick paste like consistency, and are applied in bead form at various thicknesses by cartridge gun or pump operated application equipment. The preformed profiles or strips are pressed into position by hand after first removing the backing foil.

Where is it used?

Since butyl rubbers do not harden, they can be used to seal components that are designed for subsequent disassembly such as:

- HVAC units (heating, ventilation, air-conditioning)
- Door shedders
- Back filling for gasket glazing
- General access panels



Product Examples

Features and Benefits

- SikaLastomer®-95** – High performance, tacky elastic butyl tape
- SikaLastomer®-710** – Butyl based pasty sealant with good non sagging performance
- SikaLastomer®-714/715** – Permanently tacky polyisobutylene sealant, can easily be dabbed away

Technological Benefits

SikaLastomer® can be used in a variety of applications:

- Sealed components can be disassembled as required
- Good adhesion to a wide variety of substrates with no special preparation
- Outstanding moisture resistance
- Effective corrosion protection
- Speedy and simple application, especially with preformed profiles

Engineering Silicone Technology

What is Engineering Silicone Technology?

Sika's engineering silicone technology, Sikasil®, are 1 and 2-C sealants and adhesives which exhibit excellent adhesion to a wide range of substrates with minimal surface preparation. The 1-C range of products comprises acid and neutral curing systems. Sika's 2-C silicone adhesives offer a significantly higher reactivity compared to the 1-C products.

How to use it?

1-C engineering silicones have a paste like consistency and cure with moisture. 2-C products require no moisture to cure, the reaction starts immediately after mixing the two parts by using static or dynamic mixers.

A variety of products are available:

- Pot life between less than 5 minutes and up to 1 hour
- Rapid curing combined with a long mixed open time

Where is it used?

Silicones are the products of choice if resistance to high temperatures, UV stability and good fire behaviour is required. Typical sealing and bonding applications include:

- Parts exposed to varying temperature extremes
- Areas exposed to automotive fluids such as engine oil, glycol, brake fluid, gasoline
- Transparent substrates directly exposed to UV radiation
- Areas requiring a high fire rating



Technological Benefits

One major advantage of all types of silicones sealants and adhesives is their inherent UV resistance. Other advantages include:

- Wide adhesion range with minimal surface preparation
- Heat resistance up to +300 °C possible
- Good fire resistance
- Broad service temperature range from -40 °C to +150 °C
- Consistent mechanical properties and viscosity with varying temperatures
- Shelf life up to 24 months

Product Examples

Features and Benefits

- Sikasil® AS-70** – 1-C sealant and adhesive
- Sikasil® AS-785** – Rapid curing 2-C adhesive
- Sikasil®-3180** – 1-C sealant with high heat resistance



Acoustic Solutions Technology

What are Acoustic Solutions?

Sika's acoustic solutions technologies encompass an extensive range of product groups used for damping noise and vibration, primarily in the transportation industry. The products are based on various technologies such as butyl rubber, polyurethane foam and thermoplastics.

The diversity of Sika's acoustic solutions is such that each product group must be considered separately in terms of its chemical structure and reaction mechanism.

These products are sometimes also referred to as NVH-systems (noise, vibration and harshness). Each solution is a custom designed collaboration between the acoustic engineering teams of Sika and the OEM in the bus, truck, rail and special vehicle market.

How to use them?

There are two different ways of improving acoustic comfort. The first one is to block or deflect noise transmission, the second one is to damp or absorb sound energy. Sika's acoustic solutions include the following:

SikaBaffle® is a line of products based either on thermoplastics or rubber. The thermoplastics are injection moldings designed for specific applications, developed with 3-D CAD design tools. They expand with heat to insulate and seal the vehicle cabin against noise, dust and moisture. The rubber based products are extruded, self adhesive and ideal for sealing smaller cavities.

SikaDamp® products are twin layer lightweight acoustic pads based on butyl rubber. They are used to damp vibrations in vehicle body panels and are available with different acoustic ratings to suit specific types of application. SikaDamp® pads are machine punched to the required size and shape.

SikaFoam® is a 2-C polyurethane foam which expands on application to fill vehicle cavities and seal against noise, dust and moisture ingress.

SikaSeal® products are heat curing materials based on butyl rubber, used for anti-flutter and sealing applications on vehicle body shells. They are available as preformed profiles or in bulk for pumped application, with or without expansion capability.



Product Examples

Features and Benefits

- SikaBaffle®-250** – Injection moulded part
- SikaBaffle®-229** – Extruded self adhesive part
- SikaDamp®-630** – Constrained layer part
- SikaSeal®-710** – Universal mastic anti-flutter/sealant
- SikaFoam®-1241** – Injected foam

Technological Benefits

Primarily applied in body and paint shop areas specific advantages include:

- Reduction of noise and vibration in vehicle interiors
- Passenger cabins feel extremely quiet and comfortable
- Insulation of interiors against noise, water, moisture and dust
- Ease of application
- Supports clean paint shop environment
- Design freedom by several technology options
- Co-engineering and design support with CAD/FEM from initial development phase
- Weight reduction compared to traditional solutions

Reinforcement Technology

What is Reinforcement Technology?

Sika's reinforcement technology combines heat activated epoxy based reinforcement materials SikaReinforcer® and a modified PA injection moulded carrier SikaStructure®.

SikaReinforcer® is a structural foam that bonds the SikaStructure® part into the body shell. The system is used to improve torsional stiffness, structural integrity, NVH performance and fatigue resistance.

How to use it?

Sika's reinforcement technology is a custom designed solution developed jointly by the engineering teams of both, Sika and OEM's in the transportation industry.

Reinforcement parts are mounted into the body structure during assembly in the body shop. During the stoving process the SikaReinforcer® foam expands and bonds the SikaStructure® part into the cavity.

Where is it used?

Sika's reinforcement technology is a light weight solution fitted to various cavity areas on a vehicle body to increase torsional rigidity enhance passenger comfort and improve fatigue resistance. Typical areas of application include:

- ABC-pillars
- Rocker panel
- Cross members
- High load bearing areas
- Areas exposed to high fatigue



Technological Benefits

The SikaReinforcer® and SikaStructure® systems provide a large number of options to improve vehicle performance.

- Reduction of noise and vibration in vehicle interiors
- Passenger cabins feel extremely quiet and comfortable
- Insulation of interiors against noise, water, moisture and dust
- Ease of application
- Optimized weight of body shell without sacrificing stiffness or crash strength
- Increase passive safety through localised strengthening of body shell assembly
- Co-engineering and design support with CAD/FEM from initial development phase

Product Examples

Features and Benefits

- SikaStructure®** – Injection molded structural part
- SikaReinforcer® – 911 PB** – Heat expanding structural foam
- SikaReinforcer® – 911 NT-2** – Heat expanding structural foam
- SikaReinforcer® – 955** – Heat expanding structural foam



Underbody Coating Technology

What is Underbody Coating Technology?

Sika's underbody product range, SikaGard® is based on different technologies. The portfolio consists of bitumen and rubber based materials or water based acrylics depending on the purpose. After drying the products remain as elastic coatings that protect against corrosion, gravel and various climates. In addition, some materials provide very good sound deadening functionality.

How to use it?

The underbody coating products can be applied by light airless spray equipment or by air-mix guns. The material shall be sprayed in a continuous coat. If a very high layer thickness is required, it is recommended to let layers dry in between.

Where is it used?

The materials protect against gravel, where the surface is affected by small stones, rocks and even sands. Furthermore it damps sound, by putting weight and elastic materials on the metal, the vibrations of the metal will be absorbed by the coating and thus reduce the total sound production.

The areas of application for SikaGard® are mainly the underbody of buses, trucks, rail and special vehicles

Examples include:

- Wheel house covering
- Various underbody areas for corrosion protection
- Internal applications for elimination of rattling noise



Technological Benefits

SikaGard® products offer improved durability of the vehicle thanks to its corrosion protection and stone chip protection capabilities. Noise is more and more an issue for vehicles used in public transportation. Our SikaGard® products can help to reduce the noise level and help to meet the tough noise level regulations. Specific product advantages include:

- Overpaintable
- Easy application
- Different textures possible
- Wide adhesion range
- High resistance to weathering and abrasion
- Sound deadening

Product Examples

Features and Benefits

- SikaGard®-6050 – Sprayable bitumen based underbody coating
- SikaGard®-6080 – Sprayable underbody coating
- SikaGard®-6450 – Sprayable anti stone chip coating
- SikaGard®-6650 – Water based, sprayable anti stone chip coating
- SikaGard®-6652 – Water based, sprayable sound deadening material

Focusing on the Customer

Sika develops bonding, sealing, damping and reinforcing solutions in close co-operation with our customers in the transportation industry. To Sika, this means not only developing best-in-class technology solutions to match our customers technical and commercial requirements, but also ensuring appropriate performance throughout the design, prototyping, validation and full production phases. Specialists in Sika's R&D (Research and Development), Technical Service, Systems Engineering and Application Technology concentrate on devising Research and Development appropriate client-oriented solutions.

Technology Centres

Sika Technology Centres are focused on the development of new materials. This allows Sika to actively promote technology development within the transportation market, and to add value to the activities of our customers.

Technical Service

Sika Technical Service teams are located around the world, and are dedicated to provide best practice selection, validation and application of Sika materials. By being located close to our customers, Sika Technical Service can ensure optimum local language communication and understanding throughout the technical application development process to ensure best possible results for our customers.

CAD/CAE Supported Development

Sika concentrates on Computer Aided Design and Engineering of structurally reinforcing process materials. As our customers increasingly use static and dynamic simulation tools to design, develop and validate new vehicle structures, Sika has the expertise and competence to support vehicle development programmes in the appropriate software coding utilised by our customers.

System Engineering

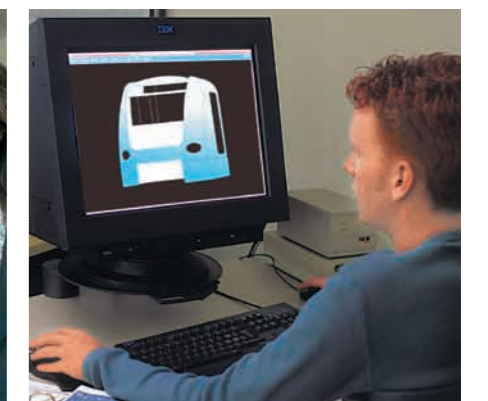
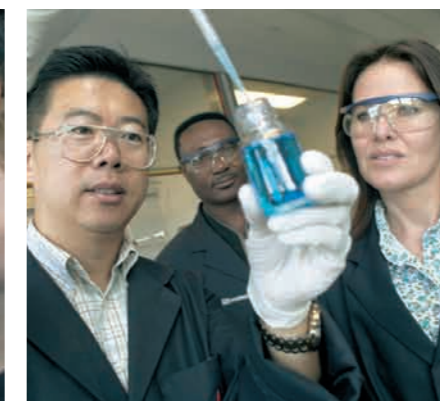
Application Technology is a key success factor in the use of adhesives and sealants. Sika's System Engineering Competence Centre focuses on this important task and develops application parameters and systems aimed at holistic solutions for our clients. This includes pumping and application systems as well as automated robotic equipment specifically designed to meet individual customer needs.

Acoustic Test Centre

In our Acoustic Test Centre we are able to evaluate and optimise the acoustic performance of our products. The ability of this facility to house very large vehicle structures, combined with sophisticated equipment such as a chassis dynamometer, wind testing rig and E-coat/KTL oven, provides our customers with ideal support to achieve dependable and accurate results in vehicle development programmes.

Local Service and Support

With major sales, service and logistics operations around the globe, Sika provides customers with world scale customer service, sales and logistics support via local dedicated teams in local languages.



Sika Worldwide



Sika is a globally active company supplying the specialty chemicals markets. It is a leader in processing materials used in sealing, bonding, damping, reinforcing and protecting load-bearing structures in construction (buildings and infrastructure construction) and in industry (vehicle, building component and equipment production).

Sika's product lines feature high-quality concrete admixtures, specialty mortars, sealants and adhesives, damping and reinforcing materials, structural strengthening systems, industrial flooring and membranes. Subsidiaries in more than 70 countries worldwide and approximately 12,900 employees link customers directly to Sika.



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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