SikaMelt Hotmelt Technology
SikaMelt hotmelt technology offers a choice of non-reactive and reactive hotmelt adhesive solutions. The non-reactive products rely on a physical cure mechanism and are based on thermoplastic polymers, while the reactive hotmelts are based on polyurethane prepolymers.

**Non-reactive hotmelts**
Sika’s physically curing hotmelt adhesives are based on modified polyamide (PA), polyester (PES) or polypropylene (PP), depending on the desired performance characteristics. With this range of products Sika can provide an adhesive for virtually every type of substrate in common use. Non-reactive hotmelts are one-component, solvent-free products, which are heated to melting point prior to application. Because they cure by physical means (the material hardens by passing from the molten to the solid state during cooling), they are characterized by high early strength.

**PSA hotmelts** constitute a special category of hotmelt adhesives. “PSA” stands for “pressure-sensitive adhesive”, indicating a product whose surface remains permanently tacky.

**Reactive hotmelts**
Reactive hotmelts combine the properties of hotmelts with those of reactive polyurethanes. The requisite degree of early strength is attained as the material passes from the liquid to the solid state during cooling. In the final stage of curing the polyurethane constituents react with atmospheric moisture to form a tightly crosslinked structure. Unlike the non-reactive hotmelts the adhesive is transformed by this process into an infusible elastomer, making it more resistant to high temperatures.

**The physically curing (non-reactive) hotmelts** are typically used to bond plastics, textiles or fibrous materials that are not exposed to extremes of temperature. These include:
- Assembly joints (e.g. air ducts, fresh-air filters, polypropylene components with no surface preparation in vehicle interiors)
- Seals in refrigerators and chest freezers

**PSA hotmelts** are particularly suitable for imparting self-adhesive properties to linings or trim materials that are not subject to spring-back forces. Typical examples include:
- Carpets
- Felts, foams and heavy-gauge films
- Insulation materials and sound-deadening quilts

**Reactive hotmelts** adhere well to textiles, plastics and other porous substrates that may be subject to high temperatures. Typical applications include:
- Fast structural bonding applications
- Bonding trim components in vehicle interiors
- Heat-resistant interfacial bonding of textiles
- Decorative furniture facings
- Adhesive bonding of PU foams as an alternative to flame laminating

**Broad range of applications**
- Bonding of textile/foam and textile/quilt linings as an alternative to flame laminating
- Fast assembly of door panel trims and retaining clips with the aid of reactive hotmelts
- Bonding of interior components in vehicle interiors
- Decorative furniture facings

**Sealing refrigerators and chest freezers to prevent escape of insulation foam**

**Decorative furniture facings**

**Bonding of textile/foam and textile/quilt linings as an alternative to flame laminating**

**Fast assembly of door panel trims and retaining clips with the aid of reactive hotmelts**

**Bonding carpeting in vehicle cabins**
Many different application options

Sika hotmelts are applied at temperatures ranging from approximately 100°C (reactive hotmelts) to 200°C (standard hotmelts), depending on the product. At this temperature range they are of liquid consistency. They may be applied in bead form (either continuous or in dabs) or as an all-over surface film. In the latter case the adhesive is applied by roller or spray at a coverage rate of 30–100 g/m² approx. The bond is made immediately after application, applying light pressure.

With pressure-sensitive adhesives (PSA hotmelts) the contact surface remains permanently tacky, and the bond is formed by pressing the adhesive-coated component against the substrate. The big advantage is that components can be supplied pre-coated and ready for bonding, with no further activation necessary; all that is required is to peel off the backing paper or foil and press into place.

The choice of application equipment is determined by the type of application and the volume of production. SikaMelt is available in all the standard packaging formats, including cartridge, solid block, portion pack, small drum or large bulk drum. Application systems for hotmelts must meet the following requirements:

- Gradual, gentle heating of the adhesive
- Precise temperature control
- Standby operating mode to prevent overheating and spoilage of adhesive
- Precise application (positioning and dosage)
- No stringing during application

Cartridge application
Cartridges are designed for use with electrically heated compressed-air guns, fitted with the appropriate nozzle for the type of application required (continuous string, dabs or blobs, spray pattern). The temperature can normally be set within the range 50–215°C via a separate control unit or by an adjustable control on the gun itself. To ensure that application can proceed continuously, the next cartridge should always be placed in a suitable warming oven to heat up while the present one is being dispensed.

Working with hotmelts in block form
The SikaMelt blocks are melted by placing them in a special heated tank. Gear pumps then pump the adhesive along heated hoses to the applicator head. The melting tank is designed and dimensioned to suit the required delivery rate or pump capacity.

Dispensing hotmelts from bulk drums
A special heated pump unit is needed for dispensing hotmelts from bulk drums. The pump may be of the piston, gear or screw type, depending on the viscosity of the material, and it is essential to select the correct type of pump for the adhesive.

For detailed information and guidance on the design of application equipment please contact your local Sika technical consultant.
A wide range of products to meet every requirement

SikaMelt fast-acting adhesives for assembly work are the ideal complement to Sikaflex® adhesive bonding systems. Developing a high degree of initial strength in a matter of seconds, they provide cost-effective adhesive solutions that can be integrated into fast-moving series production processes. In traditional elastic bonding applications with Sikaflex® products, SikaMelt allows manufacturers to dispense with the assembly aids that have previously been required (clamps, jigs, etc.), thereby streamlining and simplifying production processes. Specialized laminating and textile adhesives complete the SikaMelt product family.

The hotmelts that make up the SikaMelt product family are formulated on different chemical bases (polyamide, polyester, polypropylene, etc.), depending on the particular area of application for which they are intended. The choice of adhesive system is determined essentially by three factors: What substrates/materials are to be bonded together? What strengths is the bond required to attain? And how much heat will the bond have to withstand in service?

### Non-reactive hotmelts
SikaMelt-9170, a polypropylene-based hotmelt, is characterized by excellent adhesion to polypropylene, other polyolefine-based substrates (with no surface preparation) and wood. SikaMelt-9170 possesses good heat resistance and mechanical strength.

### Pressure-sensitive adhesives (PSAs)
The advantage of PSAs lies in their ability to adhere well to a wide range of different substrates, including critical substrates such as polypropylene and polyethylene. Due to their tack or stickiness they effectively have an unlimited working or open time, and can easily be adjusted for position when in place.

SikaMelt-9230 is a medium-tack PSA that is ideal for imparting self-adhesive properties to materials in assembly work. Typical examples include self-adhesive insulation materials such as felts, paddings and foams.

SikaMelt-9280 is uniquely heat-resistant (up to nearly 100°C) and is also characterized by very low odour. Thanks to these characteristics the product is widely used in interior finishing work and in car interiors.

### Reactive hotmelts
The reactive polyurethane adhesives in the SikaMelt family are formulated for very specific performance requirements, depending on their area of application. The principal applications are laminating (e.g. textile to textile, interfacial linings (e.g. textile to rigid backing material) and assembly joints.

SikaMelt-9600 lamination adhesive is ideal for bonding textiles to textiles, or textiles to quilts and padding materials. A thin application of adhesive is sufficient to attain a high-strength bond, with no adverse effect on the tactile qualities of the textile materials.

SikaMelt-9630 develops its initial strength within seconds and is ideal for fast assembly joints. It adheres particularly well to plastics and natural fibres.

SikaMelt-9670 satisfies the most demanding requirements for early strength. This product system can withstand extremely high initial stresses after a very short waiting time.

### SikaMelt-9675
SikaMelt-9675 is suitable for bonding large components or for extended assembly processes. This is made possible by a relatively long open time of several minutes and good adhesion on a wide range of substrate materials.

SikaMelt-9680 is designed for laminating polyurethane films to textiles (single- and double-sided). SikaMelt-9680 is highly resistant to washing and sterilization procedures. It is also very effective for bonding critical materials such as water-repellent textiles.

All equipment used for bonding must be correctly and regularly maintained to ensure optimum operating performance and top-quality results with all the above adhesive products. A cleaning agent has been specially developed for this purpose: SikaMelt-9900 is suitable for equipment used with all reactive hotmelts.
Quality and Service

A deep-seated culture of quality and service is an integral part of Sika’s corporate ethos. “Quality first” is the standard by which every production process, every workplace and every member of staff is measured. The Sika management system conforms to the international standards ISO 9001, ISO 14001 and QS 9000. For our customers this means top-quality products, first class service and professional technical support for the implementation of systems solutions by more than a dozen Sika Technical Service and Systems Engineering organizations around the world.

Sika – A Global Network

Sika has local teams of experienced specialists in more than 60 countries to provide on-site support for our customers worldwide.

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