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Glossary of Terms

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Aktivator

Solvent containing adhesion promoters that increase the adhesion of an adhesive on a substrate.

Adhesion

Adherence of an adhesive to a substrate.

Adhesive joint (bond-line)

Gap between two components that must be filled with adhesive.

Ageing

Behaviour of the adhesive layer under the influence of time, temperature and environmental conditions.

Balanced moisture content

Moisture content of a material (specially wood) when allowed to stabilize relative to ambient levels of atmospheric temperature and air humidity.

Bonding joint

Gap between two bonding surfaces filled with adhesive.

Bondline

Contact area between adhesive and substrate.

Breaking stress

Stress required to produce failure or fracture in a material.

Clamping

Temporary securing of components in the desired position by mechanical means, with or without the application of pressure, while the adhesive is setting.

Cleaner

Chemical agent used to clean surfaces prior to bonding.

Coefficient of thermal expansion

A factor that expresses the dimensional changes in a component as a function of temperature change.

Cohesion

Inherent strength of a material.

Contact adhesive

Laminating adhesive, applied to both surfaces of the joint. Once ready, the adhesive surface is not tacky and the bonding force results only on contact of the two adhesives surfaces.

Cross-linking

Creation of a three-dimensional network through the formation of chemical bonds between molecular chains.

Curing / Setting

Setting or hardening of an adhesive due to physical or chemical reaction.

Curing conditions

Factors that influence the curing of adhesives, e.g. temperature, relative humidity.

Dew point

Temperature at which a condensation of the air humidity occurs (depending on environmental temperature and relative humidity).

Diffusion

Migration of gases or liquids through materials. The hardening process of one-component PUR and silicones is limited by the speed of diffusion of water through the hardened skin or layer of the adhesive.

Drying time

Duration required for a primer to reach a state that will safely allow the process that follows it to be started. (E.g. Adhesive application.)

Duromer

Crosslinked, mostly unmeltable plastics.

Elastomers

Elastomers are macromolecules with an open network structure which do not undergo plastic flow even at high temperatures approaching the point of chemical decomposition, but undergo reversible elastic deformation instead.

Elongation at break

Elongation that takes place before a material fails or fractures.

ESC

Environmental stress cracking. Cracking of thermoplastics under internal or external stress and chemicals.

Final strength

Strength of an adhesive joint when the adhesive has attained full cure.

Fillers

Additives (mostly inorganic) to improve the properties of the adhesive.

Flash-off time

Duration required for a primer, solvent, cleaner or activator to reach a state that will safely allow the process that follows it to be started. (E.g. Adhesive application.)

FEM (Finite Element Method)

Calculation using iterative analysis methods. Calculation values are available from Technical Service Sika Industry.

Fracture energy

Energy that is required to cause a material to fail or fracture.

Galvanic corrosion

Corrosion due to the electrical contact of metals with different electrochemical potential. (E.g. Aluminium, steel.)

The use of nonconductive adhesives can stop this effect.

Handling strength

Strength level development at which the bonded assembly can be handled and passed on to the next stage of processing.

Heat resistance

The ability of a material to withstand heat without altering its state as a result of exposure to a specified temperature over a fixed period of time.

Hygric movement

Movement as a result of humidity content in the material. Particularly applies to wood but also affects other materials like PA (brand name Nylon).

The values from wood depend on the type and the orientation of the grain (radial, tangential).

Joint assembly

Process of bringing the substrates together under light pressure so that the adhesive is compressed to form the adhesive bond.

Impact resistance

Resistance against abrupt forces (crash).

Modulus of Elasticity

Modulus of elasticity describes the ratio of stress to strain in a rod under tension whose sides are unconstrained.

Non-sag properties

Resistance of an adhesive to collapse or slump when extruded as a bead.

One-component polyurethane adhesive

Adhesive containing isocyanate groups that cure on exposure to moisture.

Open or working time

Maximum period of time that may elapse between application of the adhesive and assembly of the joint.

Organic window

Transparent plastic such as PMMA and PC (e.g. Brand names; Plexiglas / Lexan). Thermoplastics which are prone to ESC.

Pot-life

Period of time during which multi-component adhesives can be processed after their components have been mixed. Pot-life depends on the ambient temperature and the quantity of batch mixed. It decreases with higher temperature and increased batch quantities.

Primer

A special paint coating designed to improve adhesion between adhesive and substrate. They may also have additional functions such as UV-protection of the bond line, reinforcing the substrate and some corrosion protection.

QA

Quality assurance.

Reactive adhesives

Adhesives that cure or set when exposed to heat, moisture, radiation, etc.

Resistance

Behaviour of an adhesive under changed environmental conditions.

Sag resistance (see Viscosity)

Sealant

Substance that separates a joint from any medium to which it is exposed.

Setting

Solidification of adhesive through physical and / or chemical process.

Shear modulus

Defined as the ratio of the shear stress to the shear strain in a body that undergoes simple angular deformation.

Shelf life

Period of time that can elapse between the manufacture of an adhesive and its use, subject to storage of the product under controlled conditions.

Solvent

Organic liquid that dissolves the base materials and other soluble adhesive constituents without changing their chemistry.

Solids content

Nonvolatile portion of components.

Spacers

Elastic parts, mostly self-adhesive, used to control the thickness of the adhesive. The shore hardness of the spacer should be equal to or lower than that of the adhesive.

Substrates

The base materials to be bonded. E.g. fabric, steel, wood, GRP.

Tack-free or skinning time

Time between the application of a one-component adhesive and the formation of a skin on its surface, after which point bonding can no longer take place.

Tensile lap-shear strength

Breaking strength of the adhesive bond joining two parallel surfaces in a single lap joint when the joint is subjected to a shearing stress by applying a tensile load centrically to the two lapped substrates.

Tensile strength

Breaking stress of a material under tension.

Thermoplastic adhesive

Plastics that soften under the application of heat. (E.g. PVC, PMMA, ABS)

Thermosetting resins

Closely cross-linked macromolecules that do not undergo plastic deformation, even at high temperatures. (E.g. Polyester, Epoxy.)

Thick-layer elastic bonding

Elastic bonding application where the thickness of the adhesive layer exceeds 3 mm.

Tie-coating

An industry specific term used to indicate a bonding coat or layer applied to a material to facilitate ready adhesion with other media.

Transmission

Ratio of the intensity of a beam of light passing through a body, related to its original intensity. Measured in the UV (organic glazing) and visible range (mineral glazing).

Sika stipulates limits for primerless glass bonding.

TV-value

Maximum workplace concentration or highest admissible concentration of evaporating solvent at a workplace.

Two-part polyurethane adhesive

Adhesive formed by the addition reaction of two components; main component and hardener.

UV-radiation

High energy part of sunlight, mainly responsible for surface degradation of organic materials like paint, sealants, etc.

Viscosity

Resistance to flow exhibited by fluids or paste-like substances as a result of internal friction.

White spirit

Petroleum spirit solvent, common used for thinning and cleaning.

Wetting

Ability of liquids to disperse themselves uniformly over solid materials.

Wet bonding

Method of bonding whereby the adhesive is applied by wetting.