

Press release

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Henkel at the 26th EU PVSEC

High-tech adhesives for the photovoltaic industry

Extremely productive manufacturing processes and new concepts for saving materials and energy are vital to the future viability of the solar industry. To meet the market challenges, Henkel develops innovative adhesives, sealants and cleaners. At the 26th European Photovoltaic Solar Energy Conference in Hamburg, the company will be presenting powerful solutions spanning the entire value chain.

Visitors to this year's EU PVSEC can look forward to the presentation of new trends and developments in the photovoltaic industry. As the leading global manufacturer of adhesives, sealants and cleaners, Henkel will also be there – with an extensive product portfolio for the automated production of solar modules.

High-strength frame bonding ready for transport within a few minutes

In addition to its patented Terostat MS 500 for framing crystalline solar modules Henkel has developed Terostat MS 650, a two-component adhesive based on modified silane polymers that cures ultra-fast. Thanks to this speed of cure, the adhesive reaches high initial bond strength a few minutes after assembly. Unlike conventional sealing systems, Terostat MS 650 achieves handling strength very quickly, thereby eliminating the usual waiting time. This allows the modules to be transported immediately after their production, even under rough transport conditions. The product is thus outstandingly well suited for fully automated framing of crystalline modules.

The two-component adhesive also presents convincing advantages over conventional framing by means of adhesive tapes, as there is no need to perform additional steps such as changing reels or disposing of release paper. This accelerates throughput rates, resulting in substantial cost savings.

In addition to outstanding primerless adhesion to glass, metal and plastics, Terostat MS 650 notches up even more points thanks to its excellent resistance to weathering, providing high-performance all-around sealing that ensures long solar module life.

Accelerating process speed by fast bonding of junction boxes

For the production of crystalline solar modules, Henkel provides a further new solution for primerless bonding of junction boxes. The fast-curing Loctite 5610 facilitates highly automated processes that do not require complex buffer systems or tapes for initial fixing of the box. The pasty consistency of the product allows for gap-filling and balancing of tolerances. Beyond that, Loctite 5610 has demonstrated its excellent long-term resistance to hard weathering conditions in long-term aging tests.

Durable backrail bonding of module mounting systems

With the introduction of Terostat MS 647, Henkel provides an exceptional solution for improved design and installation of solar modules. Its excellent quality ensures a highly reliable bond and thus makes it possible to attain an outstandingly long module lifetime. The fast-curing adhesive displays exceptional resistance to high mechanical loads as well as wind loads. Thanks to its high flexibility over a huge temperature range, Terostat MS 647 easily compensates different thermal expansion rates.

The new product variant 647 was developed on the basis of positive long-term practical experience with the Terostat MS range in the field of backrail bonding. Compared to other well proven solutions, Terostat MS 647 shows considerably increased cure speed, making manufacturing processes yet faster and more cost efficient.

On site, experienced Henkel specialists not only support customers in the selection of equipment and adequate production process design, but also provide assistance in procedures for obtaining specific approvals. By evaluating the required characteristics of the module, the Henkel technical support team calculates the bonding area and adhesive consumption as a function of module weight and expected loads. Henkel's Technology Center also runs extensive aging test programs of over 3,000 hours. Thanks to this full-service approach, Henkel can ensure the reliability of the high performance adhesive.

High-strength and reliable bonding of silicon ingots

The photovoltaic industry is facing major challenges in wafer production. Henkel meets the challenging demands with innovative solutions. Conventionally, wafers are rapidly and precisely sliced out of silicon ingots with a wire saw. The entire ingot is bonded to a glass plate and the workpiece holder to ensure reliable processing. After the slicing process, the edges of the wafers are still fixed to the glass plate via the adhesive and the two parts then have to be disbonded through the application of acetic acid at high temperatures. Under its Loctite brand, Henkel has developed the two-component epoxy adhesive Loctite 3388P that has proved its worth at leading wafer manufacturers. The product cures very fast, resulting in high-strength and reliable bonding even of extremely thin wafer edges.

Cleaning process vastly simplified

The new technology also offers the exceptional advantage that the adhesive can be removed easily and without residues during the following cleaning process, simply with water at a temperature of approx. 60 degrees centigrade. Acetic acid, which causes problems due to its acidity, is thus no longer necessary to disbond the wafer from the glass plate. Since there is no more risk of acid attack, the cleaning equipment can be manufactured from less costly materials with a lower level of corrosion resistance. Another plus for manufacturers and line operators is the elimination of odor nuisance at the workplace.

An innovative development is the new color change during curing of Loctite 3388P that ensures high process reliability. The product changes its color from pink after mixing, to purple at a cure rate of 75 percent, and to blue at 87 percent cure rate.

Customers looking for more information regarding these innovations or who would like to talk to an adhesives, sealants or cleaners expert will find Henkel at the 26th European Photovoltaic Solar Energy Conference in Hamburg in Hall B6, Stand B11.

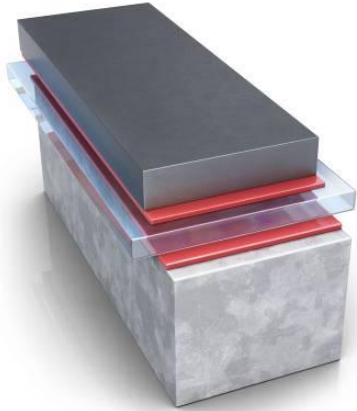
Photo material is available at <http://www.henkel.com/press>

Henkel operates worldwide with leading brands and technologies in three business areas: Laundry & Home Care, Cosmetics/Toiletries and Adhesive Technologies. Founded in 1876, Henkel holds globally leading market positions both in the consumer and industrial businesses with well-known brands such as Persil, Schwarzkopf and Loctite. Henkel employs about 48,000 people and reported sales of 15,092 million euros and adjusted operating profit of 1,862 million euros in fiscal 2010. Henkel's preferred shares are listed in the German stock index DAX and the company ranks among the Fortune Global 500.

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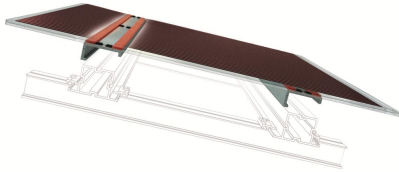
The following picture material is available:



The new two-component adhesive Loctite 3388P not only enables high-strength ingot bonding, but can later be removed quickly and easily with water.



Achieves handling strength fast when framing crystalline modules: Terostat MS 650.



Henkel's solutions improve design and installation of solar modules: backrail bonding on thin-film glass/glass module.

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