

## Pressurex® Film Provides Optimum Calibration and Quality Control for Solar Module Manufacturing

(Madison, NJ, USA) – Sensor Products Inc. introduces Pressurex®, a pressure indicating film that reveals pressure magnitude and distribution between any contacting or mating surfaces. In the Photovoltaic Industry, the need to reduce peripheral cracks on solar cells has received much attention. Thin film modules of CDTE or CIGS on glass or flexible substrates are particularly susceptible to moisture ingress and require stringent quality control checks. Pressurex® provides a low cost solution for quality control checks during equipment setup, calibration, as well as re-qualification of a solar module production line. Negative occurrences such as cracked substrates, squeeze out of materials from the module, and unwanted encapsulant thickness can be reduced, if not eliminated, by measuring and optimizing the quantity of applied pressure with the sensor film.

Pressurex® uniquely provides a quick and low-cost solution for measuring applied pressure magnitude and distribution. When placed at the interface of two contacting surfaces that are compressed together (as in a lamination or heat press for example), the film measures and reveals pressures from 2 - 43,000 PSI (0.14 - 3,000 kg/cm<sup>2</sup>). Pressurex® assures proper pressure magnitude to cause polymerization and securely bond multiple layers together during EVA and PVB lamination. To ensure pressure is evenly distributed over the entire module during the press cycle, Pressurex® is placed into the assembled module layup stack and the force from the press is applied. The film captures this applied force permanently and irreversibly by virtue of its changing color. The intensity of the color change is proportional to the amount of pressure applied. Precise determination of pressure magnitude and distribution can be obtained by comparing the resultant sensor film's color to a color calibration reference chart. A "pressure map" control sample can then be created and used for process control.

During the frame press stage, Pressurex® helps verify adequate frame-to-module placement and edge sealing. During the solar cell metallization stage, Pressurex® is used to check uniformity of applied pressure of the heat press that applies wire grid and bus bar components to the top conductive layer of the solar cell. Pressurex® provides a quick quantitative indication of pressure uniformity. In the above press operations, there is no other way to measure actual results as cylinder pressure gauges are not indicative of applied pressure distribution. Due to the relatively high temperature of the heat-press in the metallization process (>200°C), Pressurex® is covered by a layer of TemprX® film to shield it from the heat. The film stack is placed on top of solar cell and when the press is engaged it forms a pressure imprint. Alternatively, the pressure imprint can be taken with the heat turned off and without TemprX®.

To request a sample of pressure-indicating film in a range appropriate for your application and equipment, contact Sensor Products Inc. at 973.884.1755 (USA), email [info@sensorprod.com](mailto:info@sensorprod.com) or visit [www.sensorprod.com/sample](http://www.sensorprod.com/sample)

### About Sensor Products Inc. (USA)

Headquartered in New Jersey and established in 1990, Sensor Products Inc. is a world leader in the manufacture and distribution of tactile pressure indicating solutions. Their customized and off-the-shelf products are installed within all of the Fortune 500 industrial companies as well as thousands of smaller manufacturing firms. Their sensors are used in applications as diverse as tire testing to semiconductor manufacturing and from R&D labs to space missions. Additionally, Sensor Products Inc. provides in-house and on-site stress and pressure mapping analysis and consulting, as well as a variety of regional technical seminars. Visit them at [www.sensorprod.com](http://www.sensorprod.com)