Solar Energy Adhesive Solutions




Insight®

Adhesives Research®

www.adhesivesresearch.com

Insight®

Adhesives Research designs, develops, and manufactures one-of-a-kind, customized products in pressure-sensitive adhesives, tapes, specialty films, coatings, and laminates. These solutions enable our customers to do extraordinary things with their products.

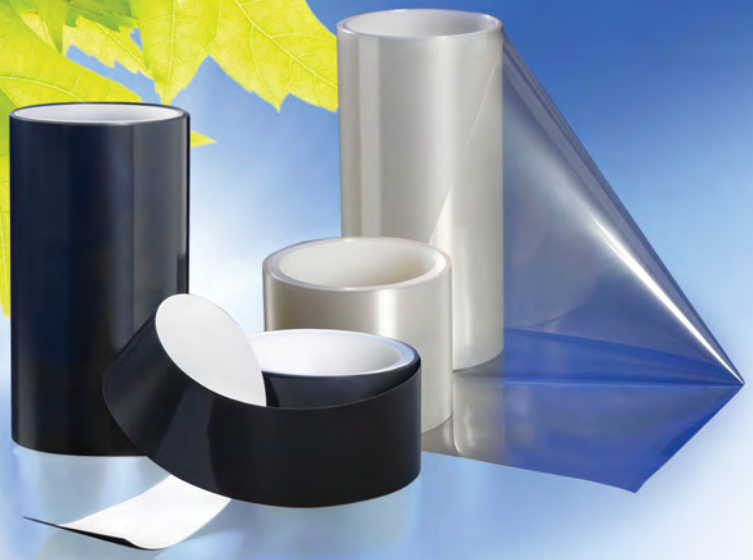
As an independent, multinational company, we bring a unique passion to the process of creating the essential component that will satisfy your specific need and help your product development process succeed.

Ours is a focused, disciplined approach that has been practiced for five decades. Insight is spurred by fresh, innovative thinking and is driven by the desire to be our industry's most effective developer and producer of specialized products.

The result is a keen understanding of design requirements and a firm grasp of our ability to support your product development, which leads to the key technology solution that ensures a successful, timely launch of your product.

In a word – **Insight®**

We are an organization capable of seeing into a situation and sharing with you our people, technology, and processes.



Adhesives Research takes your product further

Our proven adhesive technologies deliver reliable bonds with enhanced performance characteristics to increase the functionality of thin film photovoltaics, polysilicon photovoltaic modules, and concentrated solar thermal applications. While we offer a wide range of proven standard products, our expertise and capabilities in polymer formulation, cutting-edge manufacturing, and customization give us the ability to quickly develop highly specialized adhesive components that match our customers' exact needs.

Product Development & Manufacturing Capabilities

The Adhesives Research R&D and ISO-9001 certified manufacturing facilities located in Glen Rock, Pennsylvania and Limerick, Ireland provide extensive product development capabilities backed by complete in-house analytical testing, quality, and certification support.

We offer equivalent formulation and manufacturing capabilities at each facility including polymer synthesis, mixing and compounding, casting and drying, slitting and packaging, as well as custom release liner development.

bonding applications

Crystalline Silicon Photovoltaic
- Bus bars and coverlay
- Junction box bonding
- Interconnection
- Wafer positioning
- Module and frame assembly

Thin Film Photovoltaic
- Bus bars and coverlay
- Junction box bonding
- Interconnection
- Barrier adhesives
- Module and frame assembly

Building Integrated Photovoltaic
- Bus bar
- Interconnection
- Encapsulation
- Barrier adhesives

Concentrated Solar Thermal
- Assembly tapes
- High-temperature silicone adhesives

Electrically Conductive Adhesives

Our electrically conductive pressure-sensitive adhesives (PSAs) feature our homogenous conductive adhesive technology that forms stable conductive bonds to electrical contact points under a wide range of environmental conditions. The adhesive can be provided in a transfer adhesive format, or coated onto a tin-plated copper foil backing as an alternative bus bar material for delivering highly-reliable conductivity in thin film photovoltaic modules.

Mechanical Bonding & Assembly

The broad range of high-performance double-coated PSA foams or films, transfer, and thermally conductive adhesives available from Adhesives Research offer significant advantages over mechanical fasteners, liquid adhesives or epoxies for general assembly. Easy-to-apply and clean to process, these PSAs require no cure time and are solvent-free. They offer consistent application thickness, allow for thermal expansion and contraction, and are ideal for bonding irregular or dissimilar surfaces.

Electronically Clean, Low Outgassing Tapes

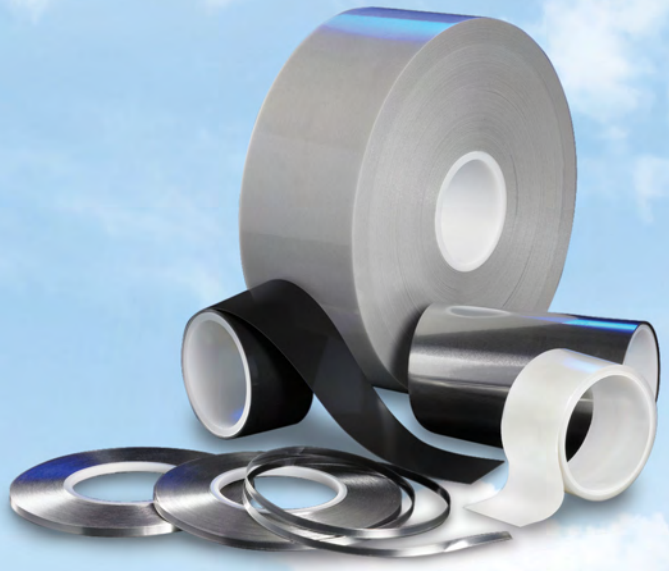
ARclean® electronically clean adhesives are acrylic, acid-free, organotin-free, have low extractable ions, pass leak tests when used as seals and offer excellent resistance to corrosion and environmental aging.

Optically Clear Tapes

The ARclear® line of defect-free optically clear adhesives offers low haze, high clarity and light transmission while reliably bonding flexible-to-flexible or flexible-to-rigid optical components. These adhesives are environmentally durable to resist temperature extremes, humidity and UV exposure.

Flexible Encapsulation and Barrier Systems

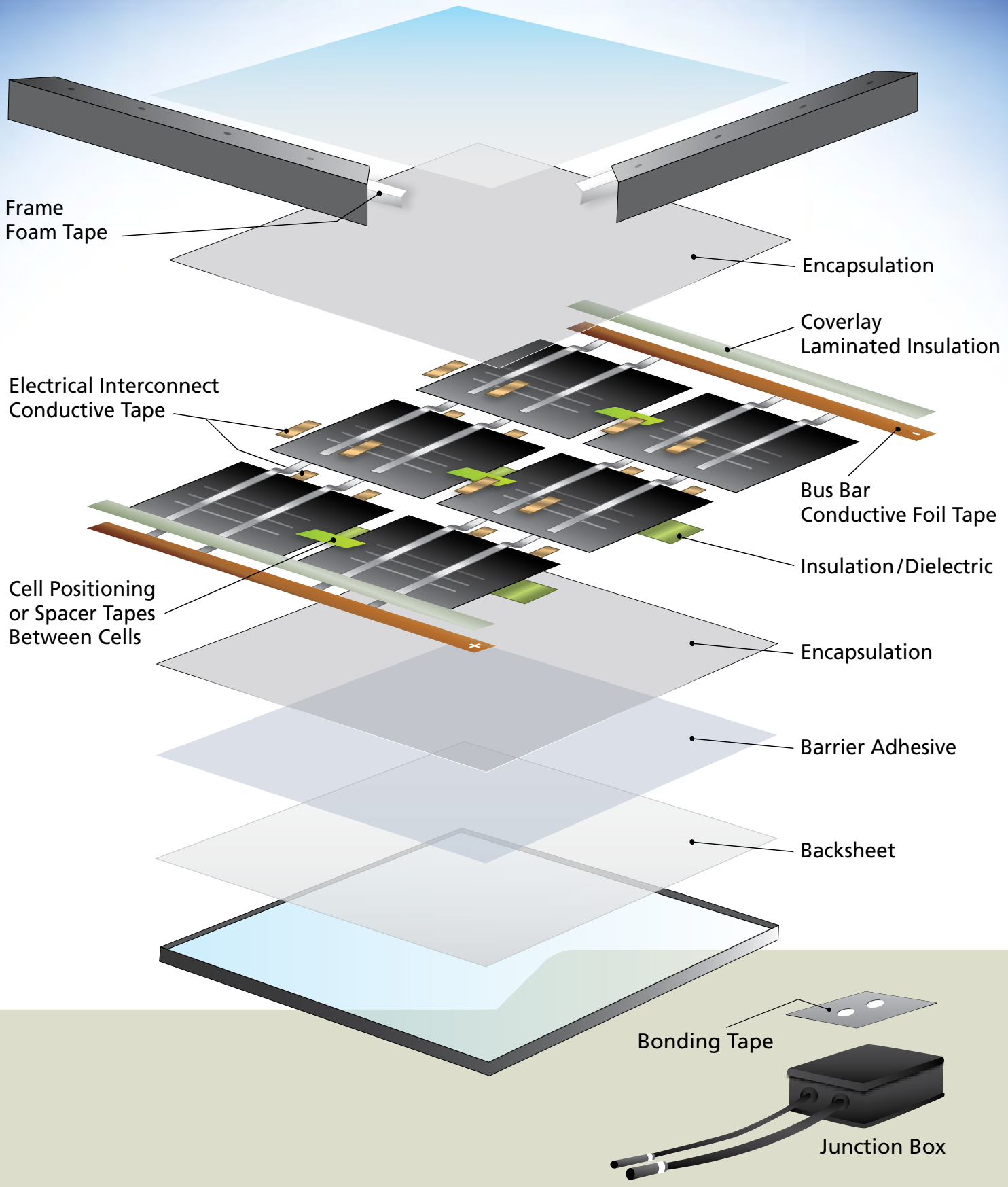
Our adhesive technologies form strong, flexible bonds while providing moisture and oxygen barrier properties required for dependable encapsulation.



Insight®

Adhesives Research

Photovoltaic Bonding Applications



the ingredients

Bus Bar Tapes

Product	Construction	Adhesive	Liner	Description
ARclad® 90038	Single-faced foil	Electrically-conductive acrylic	2 mil polyester film	A 1 oz electronic-grade, tin-plated copper foil coated with 1 mil of highly conductive acrylic adhesive. Withstands elevated temperature and humidity environments.
ARclad® 92929	Single-faced foil	Electrically-conductive acrylic	2 mil polyester film	A 1 oz electronic-grade, tin-plated copper foil coated with 1 mil highly conductive acrylic heat seal adhesive.

Electrical Interconnect Tape

Product	Construction	Adhesive	Liner	Description
ARclad® 9032	Transfer adhesive	Electrically-conductive acrylic	2 mil polyester film	A 1 mil electrically conductive adhesive featuring high Z-axis conductivity and limited X-Y conductivity.

Junction Box and Frame Assembly Tapes

Product	Construction	Adhesive	Liner	Description
ARclad® 92446	Double-faced foam	High-performance acrylic	2 mil polyester film	A 31 mil closed-cell foam tape coated with a high-performance acrylic adhesive. Demonstrates excellent conformability and adhesion to a wide variety of surfaces.
ARclad® 92709	Double-faced foam	High-performance acrylic	2 mil polyester film	A 40 mil high-temperature tolerant foam coated both sides with a high-performance acrylic adhesive. Designed for superior performance in elevated temperature and humidity environments.

Insulation and Coverlay Tapes

Product	Construction	Adhesive	Liner	Description
ARclad® 92735	Double-faced film	High-performance acrylic	2 mil polyester film	A 1 mil insulative polyester film coated on both sides with 2 mils of high-performance, low-outgassing acrylic adhesive.
ARclad® 92638	Single-faced film	High-performance acrylic	2 mil polyester film	A 1 mil polyester film coated with 1 mil of a high performance, low-outgassing acrylic adhesive for bus bar protection.

Cell Positioning Tape

Product	Construction	Adhesive	Liner	Description
ARclad® 92486	Single-faced film	High-performance, low-outgassing acrylic	2 mil polyester film	A 2 mil polyester film coated with a low-outgassing acrylic adhesive. Secures cell in place during lamination processes and is also compatible with encapsulants.

Barrier Adhesive Tape

Product	Construction	Adhesive	Liner	Description
ARclad® 92734	Transfer adhesive	High-barrier elastomer	2 mil polyester film	A 2 mil coating of a high-barrier elastomer that offers excellent adhesion to many common barrier films such as FEP and Tedlar.

Adhesives Research offers UL-rated products and we work directly with customers to obtain the proper certifications for their products as necessary.

PSAs enhance performance & efficiency

- Bond instantly to low surface energy surfaces
- Conform to flexible constructions
- Deliver uniform adhesive thickness
- Demonstrate UV and environmental stability
- Resist corrosion with electronically clean formulations
- Demonstrate reliable and stable conductivity
- Facilitate in-line process/roll-to-roll manufacturing

Insight®

Adhesives Research®

An independent developer and manufacturer
of pressure-sensitive adhesives, tapes
specialty films, coatings, and laminates.

www.adhesivesresearch.com

North America - Headquarters
Adhesives Research, Inc.
400 Seaks Run Road
PO Box 100
Glen Rock, PA 17327
Phone: (717) 235-7979
Toll-free: (800) 445-6240
Fax: (717) 235-8320

Europe
Adhesives Research
Ireland Ltd.
Raheen Business Park
Limerick, Ireland
Phone: +353 61 300 300
Fax: +353 61 300 700

United Kingdom
Adhesives Research Ltd.
The Old Exchange
Mill Lane, Great Dunmow Essex
UK CM6 1BG
Phone: +44 (0) 1371 856300
Fax: +44 (0) 1371 856380

Singapore
Adhesives Research PTE Ltd.
20 Maxwell Road
#10-06 Maxwell House
Singapore 069113
Phone: +65 6774 9580
Fax: +65 6777 7261

China
Adhesives Research Shanghai
Representative Office
Unit 3526A, Level 35 CITIC Square
1168 West Nanjing Road
Shanghai 200041, China
Phone: (86) 21 6150 4358
Fax: (86) 21 6135 7120