Adhesives Research (AR) designs, develops and manufactures specialty pressure-sensitive adhesives (PSAs), tapes, films, coatings, laminates, release liners and product authentication technologies that enable our customers to do extraordinary things with their products.

A permanently independent, multinational company, AR is a trusted global leader in the PSA and coating industries with over half a century of experience in custom polymer synthesis, adhesive formulation, materials science and flexible manufacturing.

The AR product development team delivers fresh, innovative thinking driven by the desire to be our industry’s most effective developer and high-quality producer of specialized products. We function as your true partner, an extension of your project team, dedicated to openly sharing our people, technology and processes throughout the project.

This passion for excellence is evident at each stage of our development process, resulting in tailored, high-performing products that ensure a successful, timely launch for your most challenging applications.

Collaboration and Innovation

Adhesives Research has pioneered the use of many adhesive and coating technologies to enable the world’s leading pharmaceutical, drug delivery and consumer companies to innovate, launch products and enter new markets.

We share our resources with you, operate under strict confidentiality, and give you access to our custom development expertise, including:

- Polymer synthesis
- Adhesive mixing/compounding
- Coating
- Release liner design
- Extensive analytical capabilities

Whether the project demands a new technology or the modification of an existing technology, you are assured of a reliable solution within your project timeline.
We take the lead on every step of your project, from prototyping and scale-up to validation and commercial launch.

With more than 20 coating lines in our state-of-the-art U.S. and European manufacturing facilities, we can select from a variety of roll- and die-coating techniques to cast and cure aqueous, solvent and melt-based coatings.

Our rigorous product development process ensures:

- Optimum parameter selection during design of experiments.
- Alignment of specifications and process capabilities.
- Execution of a process validation study to demonstrate robustness.

Upon validation, Adhesives Research conducts on-going monitoring of our commercial manufacturing processes to ensure a continuous state of control and compliance.

**Oral Drug Delivery:**
PSA systems and films designed to bond to mucosal tissue and/or dissolve/erode in biologic fluids in gastrointestinal, sublingual and buccal delivery systems.

**Device-Assisted Drug Delivery:**
Components used in devices that enhance the therapeutic window for subcutaneous drug delivery through the use of infusion pump technology, electrical current, heat, mechanical abrasion or other stimulus.

**Transdermal Drug Delivery:**
Skin contact pressure-sensitive adhesives and polymer/active matrices with wear times up to seven days.
The Ingredients

Experience and Technology

• Decades of experience supplying products for medical and pharmaceutical applications.
• More than 100 commercialized client products launched for medical, pharmaceutical and consumer applications.
• Technical and manufacturing facilities in North America and Europe.
• Process flexibility in polymer synthesis, formulation, coating and laminating.

Regulatory Compliance

We offer diverse manufacturing capabilities to produce pharmaceutical and medical device components under the appropriate Code of Federal Regulation requirements and ISO standards:

• Five isolated manufacturing lines for the production of components used in pharmaceutical and consumer applications.
• Two dedicated manufacturing lines from ARx, LLC incorporate active pharmaceutical ingredients into dissolvable films and adhesive coatings under 21 CFR 211.

A Disciplined Approach to Product Development

We employ a cross-functional, team-based approach to product development. It features rapid prototyping, concurrent product and process development, and ongoing customer interaction from initial design to product launch. Our mission is to be the most effective company in our field at partnering with our customers in developing and producing specialized products.

The AR Product Development Process

<table>
<thead>
<tr>
<th>Feasibility Assessment</th>
<th>Identification of customer needs, design input, timing and resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity and Technology Development</td>
<td>Technology development, scale-up, field trials, process feasibility</td>
</tr>
<tr>
<td>Optimization</td>
<td>Process optimization and validation</td>
</tr>
<tr>
<td>Commercialization</td>
<td>Product launch, post-commercialization review</td>
</tr>
</tbody>
</table>

Technologies and Constructions

• Skin-friendly, low-trauma and long-term wear adhesives
• Electrically conductive adhesives and coatings
• Dissolvable films and erodible pressure-sensitive adhesives
• Ethanol- and enhancer-tolerant coatings
• Ultra-clean and non-reactive adhesives
• Weight-bearing adhesives
• Porous adhesives
• Hybrid pressure-sensitive adhesives
• Tight thickness tolerance adhesives
• Silicone and non-silicone release liners
Skin-friendly pressure-sensitive adhesives: acrylic, polyisobutylene, silicone and hybrid chemistries formulated to deliver custom bonding characteristics, including weight-bearing, low-trauma removal and extended wear times up to seven days.

Electrically conductive adhesives and coatings: polymer formulations that overcome traditional insulative properties of an adhesive to allow current transport.

Dissolvable films and erodible pressure-sensitive adhesives: polymer coatings designed to erode/dissolve at pre-determined rates when in contact with saliva, blood, urine, or other biological fluids.

Ethanol- and enhancer-tolerant coatings: systems that maintain their pressure-sensitive properties when exposed to various chemistries encountered in transdermal and other drug delivery platforms.

Ultra-clean and non-reactive adhesives: chemically inert coatings compatible with active pharmaceutical ingredients or drug delivery excipients.

Porous adhesives: coated polymer systems with tailored pore size/density to allow controlled fluid transfer or doping to create biphasic formulations.

Hybrid pressure-sensitive adhesives: rubber/acrylic graft polymer matrices that offer both high tack and chemical stability.

Tight thickness tolerance adhesives: low cold flow, chemically inert, pressure-sensitive adhesives and heat-seal systems manufactured using state-of-the-art coating lines to produce and maintain tight thickness control.

Specialty release liners: tailored release liner design and manufacturing in clean room environment featuring silicone and non-silicone, low extractable chemistries for applications demanding the highest quality, defect-free materials.
A permanently independent developer and manufacturer of pressure-sensitive adhesives, tapes, specialty films, coatings, laminates, release liners and product authentication technologies.