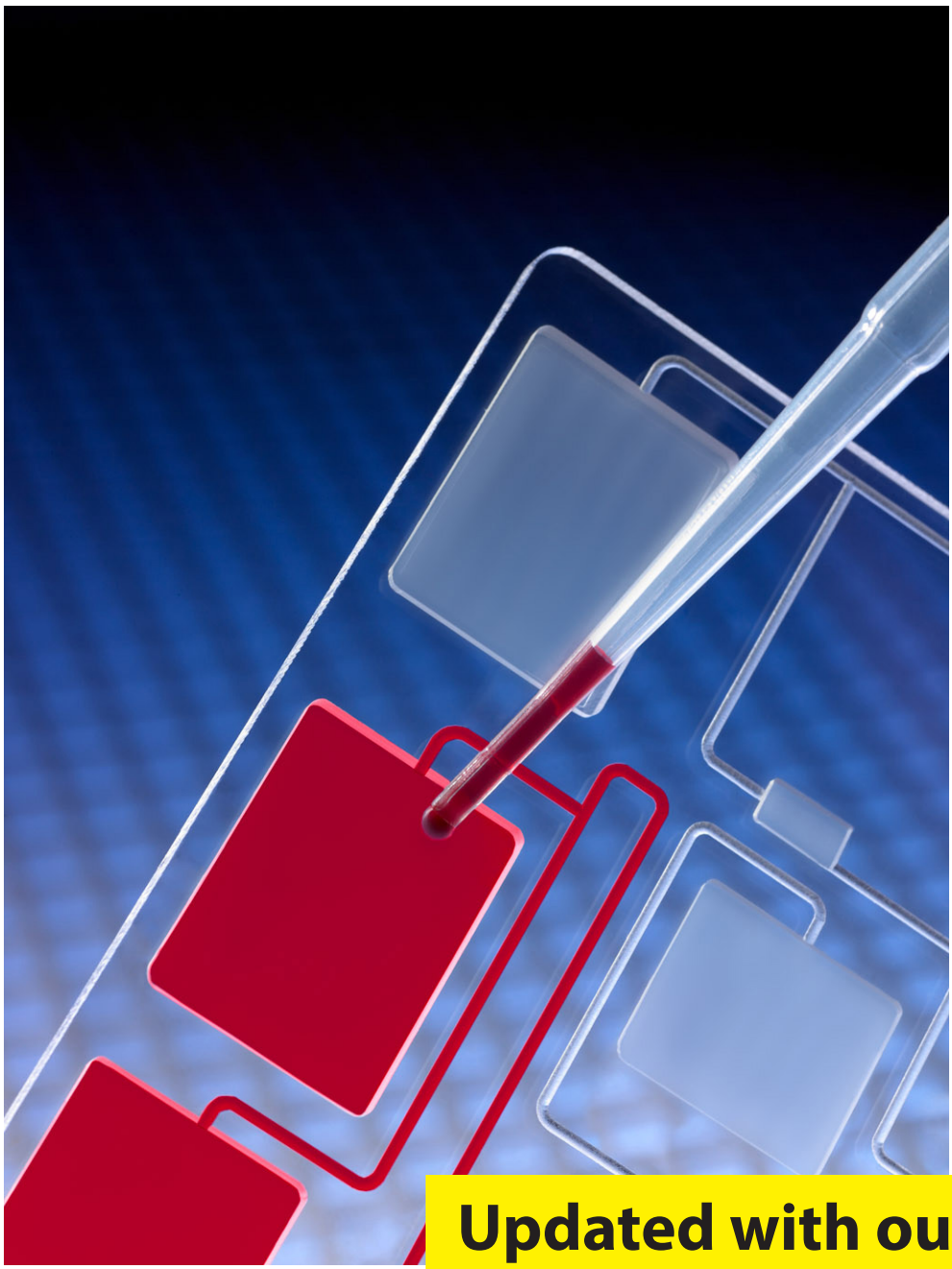
Adhesives Research®

Solutions for Diagnostic Device Applications



Updated with our new PFAS-free Products

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Diagnostic Device Applications

As a global technology leader, Adhesives Research (AR) provides solutions to critical healthcare segments, including Diagnostic Devices. AR's portfolio of pressure sensitive adhesives and heat seals is designed for a broad range of Blood Glucose Test Strip, Lateral Flow Immunoassay, Microplate, and Microfluidic Device applications including cover, spacer, transfer, and hydrophilic tapes. Our chemists and engineers are passionate about developing innovation-rich products that help our customers overcome challenging applications in meeting the demands of an ever-evolving Diagnostic Device market.

Typical applications include:

Sealing/Cover Tapes
Permanent and removable pressure sensitive adhesive (PSA) sealing tapes, available in both acrylic and silicone options, provide a range of protective cover material options in applications such as reagent packs, microplates and microfluidic devices. Our updated offering now includes PFAs-free options.

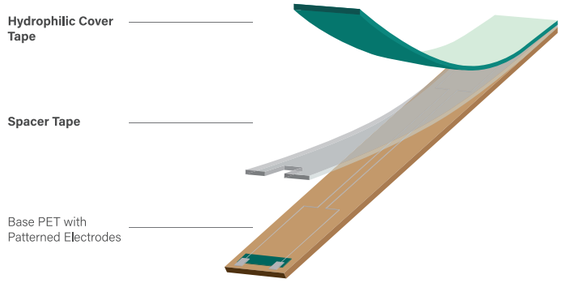
Microfluidic Spacer Tapes
Double-coated spacer tapes are used in devices to create channels with tailorable volumes and flow rates, accommodating a variety of substrate chemistries and surface energies. Our advanced manufacturing process, coupled with in-line measurement gauges, ensures precision in tape thickness and adhesive performance, guaranteeing optimal device functionality.

Fluid Management
AR's proprietary ARflow® hydrophilic adhesive technologies reduce the surface tension of aqueous fluids (water, urine or blood), allowing for rapid flow from the inlet area to a remote reagent site within diagnostic and microfluidic devices.

General Bonding
Transfer tapes for versatile bonding options throughout the device (including low VOC, low surface energy and high surface energy substrates)

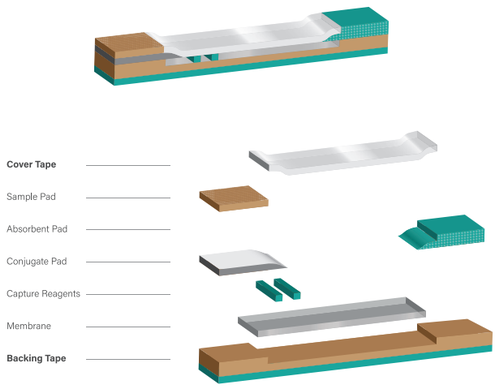
Process Aids:
Ultra-clean release liners and protective films to withstand extreme process conditions for medical device production with no chemical contamination.

Blood Glucose Test Strip

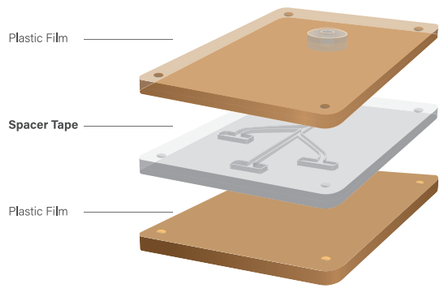


Microplate Cover/Seal Tape

Lateral Flow Immunoassay



Microfluidic Device



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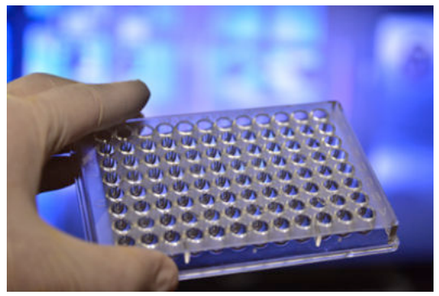
Technology Highlights
PFAS/Flourine-Free Sealing/Cover Tapes

ARseal™ 32000 Series

Key features:



- ✔ Non-tacky to skin and gloves
- ✔ Chemically inert and resistant to solvents commonly used in PCR
- ✔ Good temperature resistance up to 100 C° and withstands thermocycling
- ✔ Low haze, high transmission and high clarity
- ✔ Adherence to a wide range of substrates

Product construction:

Product	Construction	Release Liner (Type/ Thickness)	Adhesive (Type/Thick-ness)	Carrier/Backing (Color/ Type/Thickness or Basis Weight)	Total thickness (excluding liners)
ARseal™ 32440	SCT	White siliconized polyester (PFAS-free / 51 µm	Silicone / 51 µm	Clear polypropylene / 51 µm	102 µm
ARseal™ 32460				Clear polyester / 100 µm	151 µm

Technical properties

Product	Peel Adhesion on Stainless Steel	Release of liner	Optical clarity (Transmission, Haze, Clarity)	Recommended storage of unconverted product	Shelf life of unconverted product
ARseal™ 32440	60 oz/in	20 g/2 in	100% 1% 98%	70°F±20°F 21°C ±11°C 50% ± 20% RH	Not to exceed one year from the date of manufacture
ARseal™ 32460	94 oz/in	10 g/2 in	98% 0.6% 99%		

Technology Highlights
PFAS/Flourine-Free Microfluidic Spacer Tape

ARcare® 32456

Key features:

- ✔ Mid-layer component in microfluidic designs
- ✔ Barrier to evaporation
- ✔ Instant adhesion to low energy substrates prevents cross contamination
- ✔ Low auto-fluorescence
- ✔ Withstands rapid thermal cycling
- ✔ Adhesive resistant to dilute solutions of DMSO, acids, alcohols, and organic solvents

Product construction:

Construction	1st and 2nd Release Lin-er (Type/Thickness)	1st and 2nd Adhesive (Type/ Thickness)	Carrier/Backing (Color/Type/ Thickness or Basis Weight)	Total thickness (excluding liners)
DCT	White polyester / 51 µm	Silicone / 46 µm	Clear polypropylene / 51 µm	143 µm

Technical properties

Peel Adhesion on Stainless Steel - both sides	Release of polyester liner	Recommended storage of unconverted product	Shelf life of unconverted product
115 oz/in	8 g/2 in	70°F±20°F 21°C ±11°C 50% ± 20% RH	Not to exceed one year from the date of manufacture

Adhesive Guide

Sealing Tapes

Product	Description	Construction	Release Liner (Type/ Thickness)	Adhesive (Type/ Thickness)	Carrier/ Backing (Color/Type/ Thickness)	Thickness (without liner)	Adhesion to Stainless Steel (ozf/ in [N/25.4 mm])
ARseal™ 32440	Silicone PSA with non-fluorinated, PFAS-free release liner for laminating and assembly of in-vitro diagnostic and related membrane-based immunoassay devices.	SCT	White siliconized polyester (PFAS-free) / 51 µm	Silicone / 51 µm	Clear polypropylene/ 51 µm	102 µm	60 (17.0)
ARseal™ 32460		SCT	White siliconized polyester (PFAS-free) / 51 µm	Silicone / 51 µm	Clear polyester/ 100 µm	151 µm	94 (26.0)
ARseal™ 94090	Silicone PSA for laminating and assembly of in-vitro diagnostic and related membrane-based immunoassay devices.	SCT	Fluorosilicone coated polyester / 51 µm	Silicone / 51 µm	Clear polypropylene/ 51 µm	102 µm	65 (18.1)
ARseal™ 94126		SCT	Fluorosilicone coated polyester / 51 µm	Silicone / 51 µm	Clear polyester/ 100 µm	151 µm	100 (27.8)
ARcare® 7759	Acrylic PSA for laminating and assembly of in-vitro diagnostic and related membrane-based immunoassay devices	SCT	Clear polyester/ 51 µm	Acrylic / 30 µm	Clear polyester/ 25 µm	56 µm	50 (13.9)
ARcare® 7815		SCT	Clear polyester/ 51 µm	Acrylic / 30 µm	Clear polyester/ 51 µm	81 µm	75 (20.5)
ARcare® 92104		SCT	Clear polyester/ 51 µm	Acrylic / 30 µm	Clear polyester/ 76 µm	106 µm	91 (25.0)
ARcare® 7922		SCT	53# off-white paper/ 81 µm	Acrylic / 20 µm	Aluminum Foil / 76 µm	96 µm	63 (17.5)
ARcare® 8192		SCT	Clear polyester/ 51 µm	Acrylic / 18 µm	Clear polyester/ 127 µm	145 µm	68 (18.9)
ARcare® 8259		SCT	Clear polyester/ 51 µm	Acrylic / 30 µm	White polyester/ 127 µm	157 µm	100 / (27.8)
ARcare® 9020		SCT	White 90# paper/ 142 µm	Acrylic / 30 µm	White polystyrene/ 254 µm	284 µm	56 (15.6)
ARcare® 92617		SCT	Polycoated Paper/ 102 µm	Acrylic / 13 µm	Clear polyester/ 36 µm	49 µm	45 (12.5)

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General Bonding

Product	Description	Construction	1st Release Liner (Type/ Thickness)	Adhesive (Type/ Thickness)	2nd Release Liner (Type/ Thickness)	Thickness (without liner)	Peel Adhesion to Stainless Steel (ozf/ in [N/25.4 mm])
ARclad® 7876	Silicone PSA for medical devices for excellent long-term stability and low surface energy substrates	TT	Clear polyester/ 51 µm	Silicone transfer / 56 µm	Clear polyester/ 51 µm	56 µm	62 (17.0)
ARcare® 8026		TT	Clear polyester/ 51 µm	Silicone transfer / 25 µm	Clear polyester/ 51 µm	25 µm	45 (12.4)
ARcare® 92524	Acrylic optically clear PSA for bonding, laminating, assembly of medical devices	TT	Clear polyester/ 51 µm	Acrylic optically clear / 25 µm	Clear polyester/ 51 µm	25 µm	50 (13.9)
ARcare® 93551	Acrylic PSA for adhering medical devices with high and low surface energy materials	TT	Clear polyester/ 51 µm	Acrylic / 28 µm	Clear polyester/ 51 µm	28 µm	65 (18.1)
ARcare® 93977		TT	Clear polyester/ 51 µm	Acrylic / 51 µm	Clear polyester/ 51 µm	51 µm	130 (36.0)

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Adhesive Guide

Microfluidic Spacer Tapes

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Product	Description	Construction	1st Release Liner (Type/Thickness)	1st Adhesive (Type/Thickness)	Carrier/Backing (Color/Type/Thickness)	2nd Adhesive (Type/Thickness)	2nd Release Liner (Type/Thickness)	Thickness (without liner)	1st Adhesive Peel Adhesion to Stainless Steel (ozf/in [N/25.4 mm])
ARseal™ 32456	Silicone PSA evaporation barrier for bonding, laminating and assembly of medical devices	DCT	Clear polyester (PFAS-free) / 51 µm	Silicone / 46 µm	Clear polypropylene / 51 µm	Silicone / 46 µm	White polyester (PFAS-free) / 51 µm	143 µm	65 (18.1)
ARseal™ 94119		DCT	Clear polyester / 51 µm	Silicone / 46 µm	Clear polypropylene / 51 µm	Silicone / 46 µm	Clear polyester / 51 µm	143 µm	65 (18.1)
ARcare® 8252		DCT	Clear polyester / 51 µm	Acrylic / 43 µm	Clear polyester / 25 µm	Acrylic / 43 µm	Clear polyester / 51 µm	111 µm	70 (19.5)
ARcare® 8939		DCT	Clear polyester / 51 µm	Acrylic / 25 µm	White polyester / 76 µm	Acrylic / 25 µm	Clear polyester / 51 µm	127 µm	50 (13.9)
ARcare® 90445Q		DCT	Clear polyester / 51 µm	Acrylic / 28 µm	Clear polyester / 25 µm	Acrylic / 28 µm	Clear polyester / 51 µm	81 µm	70 (19.5)
ARcare® 93836	High-tack self-wound tape for bonding, laminating and assembly of medical devices	DCT	Off-white 55# paper / 81 µm	Acrylic / 33 µm	Clear polyester / 13 µm	Acrylic / 33 µm		79 µm	75 (20.9)
ARclean® 90176	“Acid-free, low outgassing acrylic PSA for use in medical applications	DCT	Off-white 84# paper / 165 µm	Acrylic / 38 µm	Clear polyester / 51 µm	Acrylic / 38 µm	Clear polyester / 51 µm	127 µm	55 (15.0)
ARcare® 8915-6970		DCT	Clear polyester / 51 µm	Acrylic / 38 µm	Clear polyester / 76 µm	Acrylic / 38 µm	Clear polyester / 38 µm	152 µm	60 (16.7)
ARcare® 8915W-6970		DCT	Clear polyester / 51 µm	Acrylic / 38 µm	White polyester / 76 µm	Acrylic / 38 µm	Clear polyester / 38 µm	152 µm	60 (16.7)
ARcare® 92660	High tack, shear and adhesion acrylic PSA for medical device assembly.	DCT	Clear polyester / 51 µm	Acrylic / 38 µm	White polyester / 178 µm	Acrylic / 38 µm	Clear polyester / 51 µm	254 µm	85 (23.6)
ARcare® 92712	Flexible, thin, conformable acrylic adhesive for bonding, laminating and assembly of medical devices	DCT	Clear polyester / 51 µm	Acrylic / 18 µm	Clear polyester / 13 µm	Acrylic / 18 µm	Clear polyester / 51 µm	49 µm	66 (18.3)
ARcare® 92848	Thermoplastic, heat sealing adhesive for joining of polymer plastic and metalized plastic substrates in medical devices	HDCT	Clear polyester / 51 µm	Heat seal / 23 µm	White polyester / 51 µm	Heat seal / 23 µm	Clear polyester / 51 µm	97 µm	-
ARcare® 92448	Rubber PSA for bonding, laminating, and assembly of medical devices	DCT	Clear polyester / 51 µm	Rubber / 76 µm	Clear polyester / 250 µm	Rubber / 76 µm	Clear polyester / 51 µm	402 µm	198 (55.0)
ARcare® 90106NB	High tack and peel adhesion acrylic PSA ideally suited for bonding, laminating and assembly of low surface energy medical	DCT	White polyester / 51 µm	Acrylic / 58 µm	Clear polyester / 25 µm	Acrylic / 58 µm	White polyester / 51 µm	141 µm	150 (41.7)

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Adhesive Guide

Fluid Management

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Product	Description	Construction	1st Release Liner (Type/Thickness)	1st Adhesive (Type/Thickness)	Carrier/Backing (Color/Type/ Thickness)	2nd Adhesive (Type/Thickness)	2nd Release Liner (Type/Thickness)	Thickness (without liner)	Contact angle with water (2µL DI water drop, 30 sec. dwell)
ARflow® 93687	Double sided tape with hydrophilic PSA on both sides for use in medical devices	DCT	Clear polyester/ 76µm	Hydrophilic / 76 µm	Clear Polyester / 13 µm	Hydrophilic / 76 µm	Clear polyester/ 51 µm	165 µm	6°
ARflow® 93025	Single coated tape with hydrophilic coating for use in in-vitro diagnostic and applications that require enhanced wettability with water, blood or other hydrophilic liquids	SCT	Clear polyester/ 38 µm	Hydrophilic / 11 µm	Clear polyester / 102 µm	-	-	113 µm	4° - 10°
ARflow® 93049		SCT	Clear polyester/ 38 µm	Hydrophilic / 25 µm	Clear polyester / 76 µm	-	-	101 µm	6° - 7°
ARflow® 93699		SCT	Clear polyester/ 51 µm	Hydrophilic / 46 µm	Clear polyester / 76 µm	-	-	122 µm	6°
ARflow® 93450	Hydrophilic PSA with excellent wettability with water, blood, and other hydrophilic liquids for in-vitro diagnostic device assembly	TT	Clear polyester/ 51 µm	Hydrophilic / 25 µm	-	-	White polyester / 51 µm	25 µm	< 10°
ARflow® 93361	Polyester heat seal with single-sided hydrophilic coating for enhanced surface wettability to water, blood and other hydrophilic liquids are required	Heat-activated	Low density polyethylene / 51 µm	Hydrophilic heat seal/ 25 µm	Clear polyester / 102 µm	-	-	127 µm	~ 10°
ARflow® 90128		Heat-activated	Clear polyester/ 51 µm	Hydrophilic heat seal / 30 µm	Clear polyester / 127 µm	-	-	157 µm	~ 10°
ARflow® 93234	Acrylic heat seal with single-sided hydrophilic coating for enhanced surface wettability to water, blood and other hydrophilic liquids are required	Heat-activated	Clear polyester/ 51 µm	Hydrophilic heat seal/ 25 µm	Clear polyester / 76 µm	-	-	101 µm	< 10°

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Adhesive Guide

Process Aids

Product	Description	Construction	Carrier (Color/ Type/ Thickness)	Adhesive (Type/ Thickness)	Peel Adhesion to Stainless Steel (ozf/ in [N/25.4 mm])	Release Classification	Release Force (g/2 in)
ARclad® 79027	Low-tack acrylic self-wound tape suitable for temporary protection or as a process aid for casting	SCT	Clear polyester / 51 µm	Acrylic / 18 µm	0.3 (0.08)	-	-
ARclad® 79029		SCT	Clear polyester / 51 µm	Acrylic / 23 µm	2 (0.6)	-	-
ARclean® W-5000	Thermally cured, solventless silicone coating suitable for clean and consistent removal of liner from adhesive or coated material	SCT / Liner	Clear polyester / 76 µm	-	-	Medium-tight	40-80
ARclean® W-5002		SCT / Liner	Clear polyester / 51 µm	-	-	Easy	15
ARclean® W-5003		SCT / Liner	Clear polyester / 51 µm	-	-	Easy-medium	25
ARclean® W-5004		SCT / Liner	Clear polyester / 51 µm	-	-	Medium-tight	50-70
ARclean® W-5005		SCT / Liner	Clear polyester / 51 µm	-	-	Tight	70-130
ARclean® W-6000	UV-cured silicone coating suited for medical applications where clean and consistent removal of release liner is required	SCT / Liner	Clear polyester / 51 µm	-	-	Easy	20
ARclean® W-4013	Ultra-clean liner with ultra-low extractables; ideal for sensitive medical components and materials	SCT / Liner	Clear polyester / 76 µm	-	-	Easy	10
ARclean® W-5030		SCT / Liner	Clear polyester / 51 µm	-	-	Medium-tight	54

Adhesives Research®

Types of Tape Construction

Transfer Tape (TT)

Unsupported adhesive is coated directly onto a release liner, allowing transfer films to be the most flexible and conformable of all bonding systems.

- ✔ Provide thinnest overall height
- ✔ Medical grade, non interacting adhesives
- ✔ High bond strength to a variety of substrates

Single-Coated Tape (SCT)

Single-coated tapes consist of a backing that is coated on one side with an adhesive. Single-coated tapes are available either in selfwound rolls or with a release liner for ease of application.

- ✔ Used as cover tapes
- ✔ Suitable for PCR, ELISA and other assays
- ✔ Hydrophilic options available

Double- Coated Tape (DCT)

Double-coated tapes have a carrier that is coated on both sides with an adhesive. The instant bonding capabilities of double-coated tapes make them very conductive to automation and high-speed processing.

- ✔ Offers ease of handling
- ✔ Spacer thickness from 48 to 250 microns
- ✔ Highly uniform thickness (± 2 microns)
- ✔ Allows for differential adhesion

Heat-activated Film Tape

Heat-activated film tapes require heat and pressure to achieve final bonding to any surface.

- ✔ Clean die cutting
- ✔ High ultimate bond strength
- ✔ Hydrophilic options available

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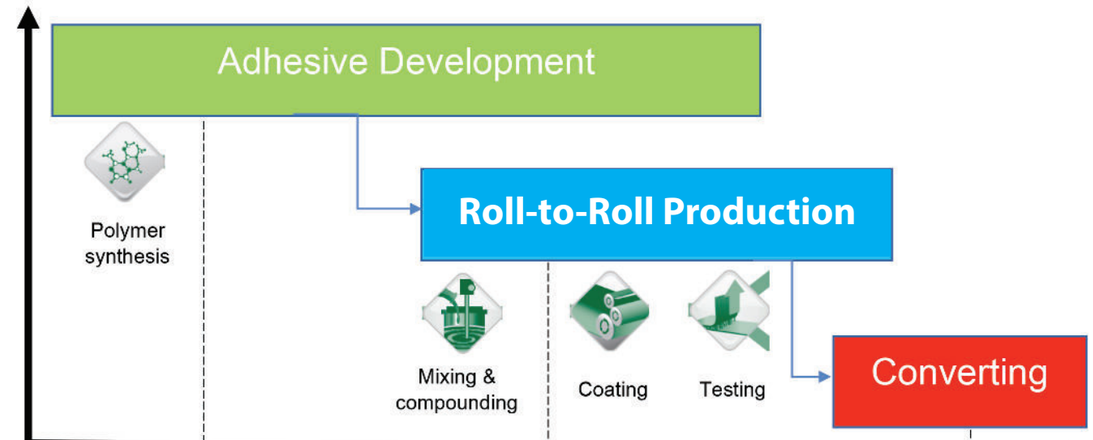
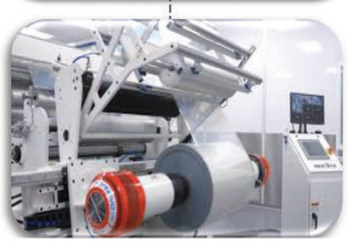
About Adhesives Research

Full-scope development-to-production partnership

Do you need a specific product for your wearable design? Adhesives Research (AR) provides a one-stop shop for design, production, and converting. Consider AR as your program partner for your next development. For more than 60 years, we have positioned ourselves as a technology leader through continuous innovation programs. We are committed to working in partnership with our customers towards the qualification of application-specific products that fill your unmet needs.



Adhesives Research's primary guiding principle is to be the best in our market. Our Innovation Team, with many PhD's, is constantly developing high performance products and solutions for our customers and target markets.



Coating capabilities to manufacture a broad range of commercial products and vertical integration from polymer synthesis to converting.

Utilize our state-of-the art converting suite to finalize your design whether in a roll-to-roll or single piece solution. We can also help to optimize your final product with design iterations throughout the development process.

Additional brochures

From skin bonding to display screen applications

Diabetes Care

Diabetes Care is a growing market within healthcare and is focused on providing glucose monitoring and insulin delivery systems for patients with Diabetes type 1 or 2. **ARcare®** products minimize skin irritation to maximize patient comfort and improve bonding at the skin and device level for more accurate readings. Customizable solutions for total device constructions further enhance performance by tailoring wear times, managing moisture mitigation and improving processing performance.

Wearables

For product developers involved in the design of **Remote Patient Monitoring (RPM)** solutions, Adhesives Research provides skin adhesion, connectivity, device assembly, and attachment solutions for a wide range of wearable monitoring, rehabilitation, and medical device applications, including ECG (Electrocardiography), skin temperature, respiration, pulse, blood pressure, body kinematics.

Display Applications

Displays and Touchscreens see a constant development into new technical requirements and performance criteria. They face relatively short development cycles and require high performance Optical Clear Adhesive technologies. **ARclear®** products have been developed directly with Display and Touchscreen OEM's and are offering a unique group of PSA technologies for the assembly for these type of applications.

Adhesives Research®

About Adhesives Research:

Adhesives Research is a permanently independent developer and manufacturer of adhesives and coatings for various markets.

We utilize our material knowledge, polymer synthesis/formulation expertise, and versatile manufacturing capabilities to supply key components to the industry. We offer robust products and technologies and can also rapidly customize to meet the specific needs of an application.

Headquartered in Glen Rock, PA. Adhesives Research has also sales and manufacturing facilities in Ireland and sales offices in China and Singapore.

To learn more information about how Adhesives Research can help solve tape and materials engineering challenges, contact us today.

Scan me for more details

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