



Custom Solutions

P-DERM® Skin Contact Adhesive
Custom Coating Guide

POLYMER

SCIENCE, INC.

OUR SERVICES

Custom Solutions

Polymer Science is committed to providing you with today's most innovative skin contact adhesives for the medical industry.

Our diverse team of highly skilled engineers and technical staff, in conjunction with our state-of-the-art equipment, provide you with a quality product that is consistent with your application requirements.

Our design team works quickly to provide the solutions you need, allowing your project to expeditiously move from conception to commercialization giving you the edge to ensure your next project is a success.

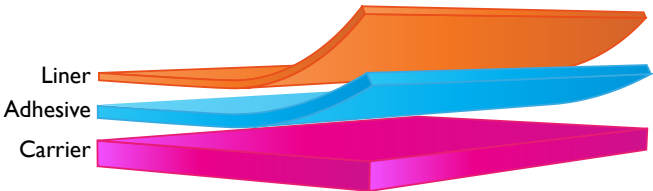


OUR CAPABILITIES

Custom Construction Solutions

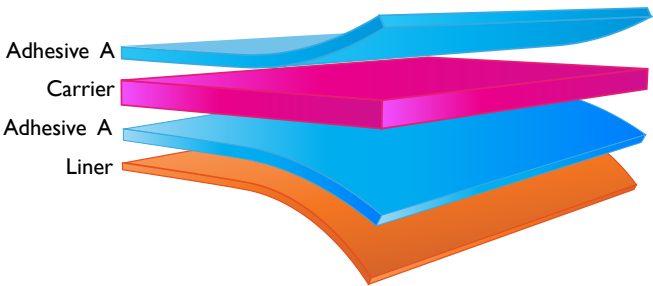
Designing a product that meets every desired requirement can seem like a daunting task. Choosing the right adhesive may seem tricky enough, but there are a wide variety of carrier and liner options available that will also give your product different characteristics.

Working with a supplier that understands the material characteristics and how they will impact your project will save you a lot of time in the research and development phase of your project. Polymer Science is dedicated to ensuring that you are not only using the correct materials for your project, but that the construction enhances your project. We have the ability to offer many different construction types, as well as, perforation to a single or multiple layers of your product.



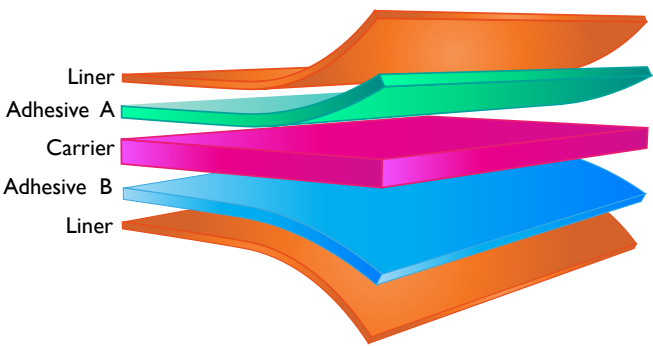
Single Coated

Our single coated construction consists of a single layer of adhesive with a carrier and a single liner. Our single coated materials can be supplied as transfer adhesives.



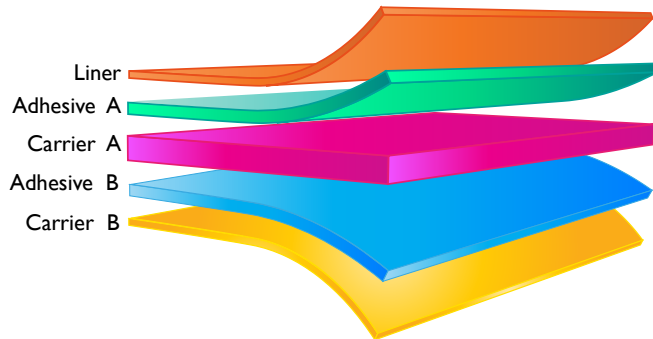
Double Coated

Our double coated construction consists of a single layer of the same adhesive on each side of a carrier. This construction is supplied with only one liner. Our double coated materials can be supplied with two liners as well.



Trilaminate

Our trilaminate construction consists of a single layer of adhesive coated on one side of the carrier and another single layer of a different adhesive coated on the opposite side of the carrier. This construction is supplied with two liners.



Multi-Laminate

Our multi-laminate construction consists of infinite combinations of our adhesives, carriers and liners supplied on a single roll of product.

OUR CAPABILITIES

Coating Solutions

Polymer Science has been coating medical grade adhesives for almost two decades. We have extensive experience and knowledge coating silicone gel adhesives, hydrogel adhesives and medical grade PSAs (Pressure Sensitive Adhesive). We are proud to state that all of our P-DERM® skin contact adhesives are made in the USA.

Materials Available

Adhesive Systems: Silicone Gel, Hydrogel, Acrylic, Medical Grade Adhesives

Liners: Films (Polycarbonate, Polyester, Polypropylene, Polyethylene, Polypropylene, Fluorosilicone Polyester, Fluorocarbon Polyester) and Siliconized Paper (Dense Kraft, Bleached Kraft, Clay Coated)

Carriers: Polyurethane, Polyethylene, Polyethylene Foam, Nonwoven Polyester, Nonwoven Polyurethane, Elastic Fabric, Micro-porous Polypropylene

Coating Capabilities

Polymer Science is a roll-to-roll manufacturer of skin contact adhesives. We have the ability to produce our rolls in various widths, lengths and constructions. Polymer Science also has Corona Treatment technology for surface energy modification when necessary as well.

Widths: Up to 750mm

Construction Types: Single Coated, Double Coated, Trilaminate, Multi-Laminate

Coat Weights: Silicone Gel Adhesives -- 25 gsm - 1400 gsm
Acrylic Adhesives -- 20 gsm - 200 gsm
Hydrogel Adhesives -- 120 gsm - 2000 gsm
Medical Grade Adhesives -- 20 gsm - 250 gsm

Coating Techniques: Knife over Roll
Slot Die
Reverse Roll
Gravure
Hybrid Technologies
Pattern/Zone
Calender
Comma

Curing Techniques: Thermal
Infrared
Ultraviolet

OUR CAPABILITIES

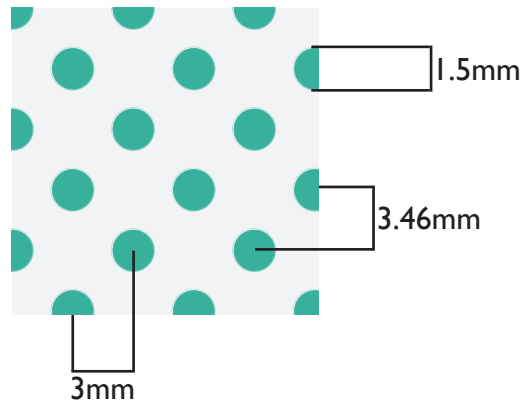
Converting

Polymer Science has the ability to **perforate, slit** and **lamine** roll stock materials. We have a wide range of trusted converting partners who have the capabilities to slit, print, laminate, die cut, laser cut, assemble, seal and package your product. We would be happy to recommend one of our converting partners to you.

Perforation Capabilities

We can perforate all of our P-DERM® skin contact adhesive products. Our flexibility allows us to perforate one or multiple layers of your construction. We have our standard perforation pattern available or we can create a custom pattern specific to your application. Our perforated products boast the highest quality providing clean and consistent holes throughout.

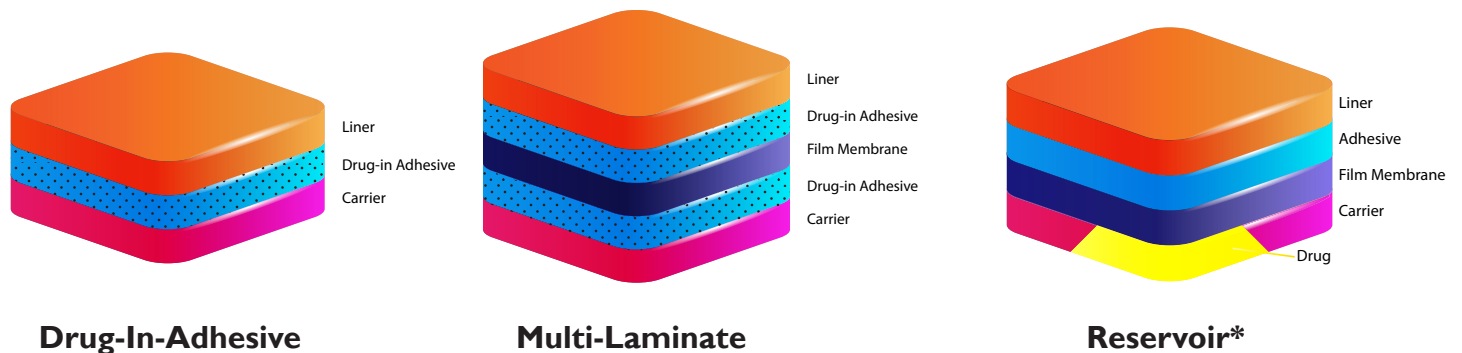
Open Area: 17%



Additive Loading Capabilities and Constructions

Transdermal drug delivery patches provide patients with a pain free, convenient delivery method of an active pharmaceutical or cosmeceutical ingredient. Selecting the correct components and constructions for these systems are critical. Polymer Science will work with you from start to finish, developing the highest quality product available. All of our additives are compounded on-site.

Types of Additives Available: Antimicrobials, Cosmeceuticals, Pharmaceutical Actives



* Polymer Science can supply the liner, adhesive and film membrane for the reservoir construction. The carrier and drug will need to be added by a converter.

OUR PRODUCTS

Adhesive Characteristics

	Silicone Gel	Hydrogel	Acrylic	Medical Grade PSA
Sterilization Method (sterilization done via 3 rd party)	EtO	EtO, Gamma, E-Beam	EtO, Gamma, E-Beam	EtO, Gamma, E-Beam
MVTR	Moderate	Moderate	High	High
Biocompatibility (ISO 10993)	Yes	Yes	Yes	Yes
Adhesion	Low - High	Moderate - High	Moderate - High	High
Solvent Resistance	High	Moderate	Moderate	Moderate
Permeability to Air	High	Low	Moderate	Moderate
Repositionability to Skin	High	Moderate	Low	Low
Skin Trauma Upon Removal	Low	Low	Moderate	High
Cohesive Strength	High	High	High	Moderate
Adhesion Stability Upon Aging	High	Moderate	Moderate	Low
Initial Tack	Low - Moderate	Moderate - High	Moderate - High	High
Oxidation Resistance	High	Moderate	Moderate	Moderate
Removal Force	Low	Moderate	Moderate	High

OUR MARKETS



Advanced Wound Care

Advanced wound care products are designed to cure and treat complex wounds. Advanced wound management provides moisture to the wound site to allow cells to heal and repair naturally.

Applications: Anti-Microbial Dressings
Traditional Foam Border Dressings
Negative Pressure Wound Therapy Dressings
Incise Drapes
Surgical and Wound Closure Tapes
Pressure Ulcer / Pressure Injury Dressings
Minor Burn Care Dressings



Consumer Healthcare

Consumer healthcare products mainly consist of over-the-counter (OTC) drugs, dressings and other specialty products that can include medicines, which are sold directly to a consumer without a prescription from a healthcare professional.

Applications: Bandages
First Aid Dressings
Minor Burn Care
Blister Prevention
Fashion Adhesives
Scar Therapy

Wearable Device

Wearable devices are non-invasive, body worn devices that are attached by a skin contact adhesive and often include a device capable of tracking information related to health and fitness.



Applications: Continuous Glucose Monitoring (CGM)
Vital Sign Monitoring Devices
Pulse Oximetry
Telemetric Monitoring
EEG
Fetal Monitoring
Thermometer and Fever
Activity and Fitness Monitoring
Sweat Analysis
Sleep Analysis
UV Exposure
Athlete Contact/Force Analysis
Step and Calorie Tracking

OUR MARKETS



Ostomy & Incontinence Care

Ostomy and incontinence care takes place following a bowel or bladder diversion surgery creating a stoma. The stoma drains into a pouching system attached by an adhesive creating a secure seal, as well as, a barrier protecting the skin around the stoma.

Applications: Ostomy Flanges
Ostomy Extenders
Incontinence Gaskets
Incontinence Seals



Transdermal Drug Delivery

A transdermal drug delivery patch is a medicated adhesive patch that is placed on the skin to deliver a specific dose of medication or vitamins through the skin and into the bloodstream.

Applications: Cosmeceutical Patches
Under Eye Patches
OTC Therapeutic Patches
Wart Remover Patches



In Vitro Diagnostics

In vitro diagnostics are tests done on samples such as blood or tissue that have been taken from the body. IVD can detect diseases or other health conditions, and can be used to monitor a person's overall health to help cure, treat, or prevent diseases.

Polymer Science offers hydrophilic coatings in the IVD market, as well as, clean adhesives that do not interfere with the delicate chemistries within in vitro diagnostic testing applications.



General Fixation

General fixation tapes are adhesive-backed paper, cloth, latex, foam, mesh, or other material used to secure wound dressings or other devices to the body.

Applications: IV Securement
Medical Tapes
Surgical Tapes
Catheter Placement
Post-Op Dressings

OUR STANDARDS

Compliance and Quality

It is our goal to provide the highest quality products for your medical grade application by ensuring our manufacturing processes meet the range of regulatory boundaries that your products touch.

We have integrated a total quality management system into each and every product that we manufacture. Polymer Science is registered to ISO 9001:2015 and ISO 13485:2016. We also comply with ISO 10993 (ISO 10993-10, ISO 10993-5, and ISO 10993-1) regarding skin sensitization and irritation. Our registrar is internationally recognized BSI.

Quality standards are audited internally and by a 3rd party registrar to ensure that each product is manufactured with our customers' regulatory requirements in mind. We are cGMP compliant and registered with the FDA as a medical device and OTC drug manufacturer.

Materials Testing

In the Polymer Science testing lab, we perform a range of physical and mechanical test on our materials to ensure they meet the form, fit and function requirements of your project specifications. Our biocompatibility testing is done via a third party. We do not perform analytical testing on our products, but can have this completed via a third party when requested. This information is available on our technical data sheets or upon request.

Physical Testing

- Adhesion and Release
- Tensile Strength
- Shear
- Tack
- pH
- Coat Weight
- Viscosity
- Penetration
- Accelerated Aging
- Moisture Vapor Transmission Rate (MVTR)
- Liquid Transmission Rate (LTR)
- Elongation
- Contact Angle
- ID Testing via FTIR and TGA
- Residual Solvent
- Thickness
- Durometer / Hardness

Biocompatibility Testing

- Irritation – Primary Dermal
- Sensitization – Buehler
- Cytotoxicity

OUR PRODUCTS

Market Applications	Product Number	Product Description	
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="background-color: #0056b3; color: white; padding: 5px; writing-mode: vertical-rl; transform: rotate(180deg);">Consumer Healthcare / Scar Therapy</div> <div style="background-color: #00a0e3; color: white; padding: 5px; writing-mode: vertical-rl; transform: rotate(180deg);">Professional Wound Care</div> <div style="background-color: #e91e63; color: white; padding: 5px; writing-mode: vertical-rl; transform: rotate(180deg);">Wearables</div> </div>	General Fixation	PS-1240	0.18mm single coated silicone gel adhesive tape on 25 micron PU film carrier and 100 micron matte blue LDPE liner
		PS-2076	0.22mm trilaminate consisting of silicone gel adhesive, PU film and medical PSA with 75 micron PC and 78# bleached kraft siliconized liners
		PS-1266	0.30mm single coated silicone gel adhesive tape on 50 micron PU film carrier and 75 micron matte PC liner
		PS-1255	0.285mm single coated silicone gel adhesive tape on fleshtone elastic fabric carrier and 178 micron HDPE liner
		PS-1080	1.40mm single coated silicone gel adhesive tape on fleshtone elastic fabric carrier and 178 micron HDPE liner
		PS-1480	1.01mm single coated silicone gel adhesive tape on fleshtone elastic fabric carrier and 150 micron PET/LDPE composite liner
		PS-1202	1.45mm single coated silicone gel adhesive tape on 50 micron PU film carrier and 178 micron matte PE liner
		PS-1815	0.18mm single coated, high adhesion silicone gel adhesive tape on 25 micron PU film carrier and 100 micron matte blue PE liner
		PS-2041	0.22mm trilaminate consisting of silicone gel adhesive, PU film carrier and medical PSA with 75 micron PC and 78# bleached kraft siliconized liners
		PS-2066	0.22mm trilaminate consisting of perforated high adhesive silicone gel adhesive, PU film carrier and medical PSA on perforated 75 micron PC and non-perforated 30 micron siliconized PP liners
		PS-1832	0.18mm single coated, high adhesion silicone gel adhesive tape on 25 micron PU film carrier and 100 micron PE liner
		PS-1835	0.22mm trilaminate consisting of high adhesion silicone gel adhesive, PU film carrier and medical PSA on 100 micron PE and 54# bleached kraft siliconized liner
		PS-1836	0.22mm trilaminate consisting of perforated high adhesive silicone gel adhesive, PU film carrier and medical grade adhesive on perforated 100 micron PE and non-perforated PP siliconized liners
		PS-1446	0.12mm - 1.20mm single coated, high adhesion hydrogel adhesive with an embedded PET mesh scrim with 50 micron PE and 125 micron PET liners
		PS-1436	0.53mm single coated hydrogel adhesive with an embedded PET mesh scrim on 25 micron PU film carrier and 125 micron PET liner
PS-1438	1.03mm single coated hydrogel adhesive with an embedded PET mesh scrim on 25 micron PU film carrier and 125 micron PET liner		

Repositionable

Increasing Adhesion

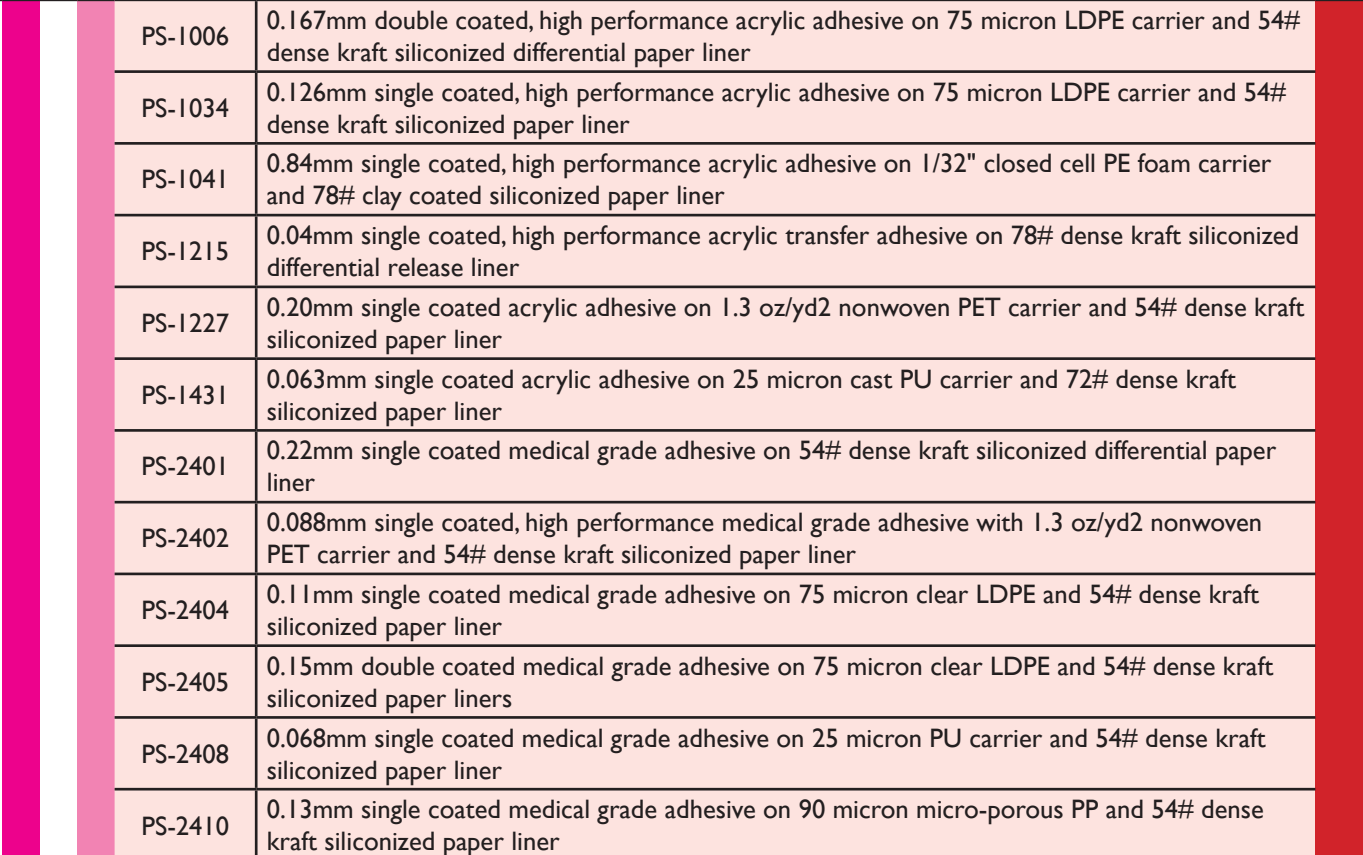



Silicone Gel Adhesives

Hydrogel Adhesives

Acrylics + Medical Grade Adhesives

OUR PRODUCTS

Market Applications	Product Number	Product Description
	PS-1006	0.167mm double coated, high performance acrylic adhesive on 75 micron LDPE carrier and 54# dense kraft siliconized differential paper liner
	PS-1034	0.126mm single coated, high performance acrylic adhesive on 75 micron LDPE carrier and 54# dense kraft siliconized paper liner
	PS-1041	0.84mm single coated, high performance acrylic adhesive on 1/32" closed cell PE foam carrier and 78# clay coated siliconized paper liner
	PS-1215	0.04mm single coated, high performance acrylic transfer adhesive on 78# dense kraft siliconized differential release liner
	PS-1227	0.20mm single coated acrylic adhesive on 1.3 oz/yd2 nonwoven PET carrier and 54# dense kraft siliconized paper liner
	PS-1431	0.063mm single coated acrylic adhesive on 25 micron cast PU carrier and 72# dense kraft siliconized paper liner
	PS-2401	0.22mm single coated medical grade adhesive on 54# dense kraft siliconized differential paper liner
	PS-2402	0.088mm single coated, high performance medical grade adhesive with 1.3 oz/yd2 nonwoven PET carrier and 54# dense kraft siliconized paper liner
	PS-2404	0.11mm single coated medical grade adhesive on 75 micron clear LDPE and 54# dense kraft siliconized paper liner
	PS-2405	0.15mm double coated medical grade adhesive on 75 micron clear LDPE and 54# dense kraft siliconized paper liners
	PS-2408	0.068mm single coated medical grade adhesive on 25 micron PU carrier and 54# dense kraft siliconized paper liner
	PS-2410	0.13mm single coated medical grade adhesive on 90 micron micro-porous PP and 54# dense kraft siliconized paper liner



Silicone Gel Adhesives

Hydrogel Adhesives

Acrylics + Medical Grade Adhesives



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