

Materials for Orthotics & Prosthetics

Head and Face

■ PETG (Vivak™)

Neck and Spine

■ Kydex T® ■ Low Density Polyethylene ■ Polyethylene

Upper Body

■ ABS ■ Polycarbonate ■ Surlyn®

Upper Limb

■ Copolymer Polypropylene ■ Modified Polyethylene

Lower Body

■ PETG (Vivak®) ■ Proflex and Proflex with Silicone ■ TPE ■ AINflex

Lower Limb

■ Homopolymer Polypropylene ■ High Density Polyethylene ■ Engineering Plastics

Knee

■ Anodized Aluminum ■ Polypropylene ■ Rigid Plastics

Ankle and Foot

■ Talc Filled HDPE ■ Acetal ■ Flexible Plastics

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ThyssenKrupp Materials NA
AIN Plastics Medical Technologies Group



ThyssenKrupp

Materials for Orthotic and Prosthetic Devices

Product Type	Description	Typical Applications	Flexural Modulus (psi per ASTM D790)	Forming Temperature (°F)	Head and Face	Neck and Spine	Upper Body	Upper Limb	Lower Body	Lower Limb	Knee	Ankle and Foot
POLYOLEFIN SHEETS												
Polypropylene	• Rigid • Impact resistant • No moisture absorption • Good resistance to chemicals and fatigue	• Dynamic lower extremity orthoses • Posterior AFO • Spinal and upper extremity orthoses	190,000	310 - 325	■	■	■	■	■	■	■	■
Copolymer	• Very good formability • Improved impact properties over homopolymer • Rigid yet flexible, offers more resilience than homopolymer	• Lower extremity orthoses requiring flexibility • Spinal braces • Upper extremity orthoses • Colors: Brown, Red, Royal Blue, Light Blue, Purple, Neon Green, Pink	160,000	310 - 325	■	■	■	■	■	■	■	■
LDPE	• Softest and most flexible olefin • Softer feel for patient comfort	• Spinal orthoses requiring rigidity • Upper extremity orthoses • Flexible prosthetic sockets	32,000	275 - 330	■	■	■	■	■	■	■	■
HDPE	• High durability and strength • Resists cracks • Lightweight	• Spinal orthoses • Body jackets • C.R.O.W. Boots	170,000	275 - 330	■	■	■	■	■	■	■	■
Modified Polyethylene	• Properties in-between copolymer and LDPE • Improved tear resistance • Formable and can be self-adhering when hot	• Spinal orthoses requiring moderate to slight rigidity • Upper extremity orthoses • Flexible prosthetic sockets	52,000	275 - 330	■	■	■	■	■	■	■	■
TPE	• Ethylene propylene thermoplastic • Semi-rigid / Flexible • Highly durable	• Lower extremity orthotics • Definitive sockets for athletes	6,500	390 - 410	■	■	■	■	■	■	■	■
Note: Standard stock colors in most polyolefin products are natural, white, or black. Custom colors available upon request. Certain minimums may apply.												
CLEAR PLASTICS												
PETG (Vivak™)	• Transparent color • Vacuum formable • Easy to bond and fabricate • Good toughness and hardness	• Check sockets • Sports masks • Burn management orthoses	309,000	280 - 320	■	■	■	■	■	■	■	■
Polycarbonate	• Very high impact strength • Good clarity	• High strength, high durability applications where clarity is important	345,000	340 - 380	■	■	■	■	■	■	■	■
Acrylic (Polydor™)	• Medical grade PMMA • Very rigid • Ultra clear or colors available • Bondable	• High resiliency applications where resistance to creep and deformation is important	475,000	340 - 380	■	■	■	■	■	■	■	■
RIGID PLASTIC SHEETS												
Kivdex®	• PVC and acrylic blend	• Neck braces	335,000	380 - 390	■	■	■	■	■	■	■	■

Kydex®	• PVC and acrylic blend • Very rigid • Good strength • Variety of colors	• Neck braces • Upper extremity orthoses • Spinal orthoses • Body jackets	■	■	■	■	■	335,000	380 - 390	
ABS	• Economical • High strength and stiffness • Bondable • Easy to fabricate with high draw ration when thermoforming	• All purpose structural applications in braces offering necessary support	■	■	■	■	■	270,000	325 - 400	
Acetal	• High strength and stiffness • Enhanced dimensional stability • Low moisture absorption • FDA compliant	• Close-tolerance braces that require a great deal of stiffness and strength						400,000	Gauge Dependent*	■
FLEXIBLE PLASTICS										
Proflex	• Transparent to white-opaque color • Rubber-like ethylene based • Very durable • Very tacky when hot • Predictable heat formability	• Flexible and soft sockets where patient comfort is a primary concern	■	■	■	■	■	3,500	325 - 350	■
Proflex with Silicone	• Opaque color • Very flexible • Less sticky than Proflex when hot	• Flexible prosthetic sockets / liners	■	■	■	■	■	3,500	325 - 350	■
Surllyn®	• Translucent color • Minimal rigidity • Vacuum formable	• Fitting modules • Socket liners • Post-operative body jackets						4,300	250 - 325	
AINflex	• Black or Flesh color • Special Soft Touch Texture • Formable	• Ideal for BK, AK socket liners • AFO cushioning and shock absorbing	■	■	■	■	■	3,500	250 - 400	■
OTHER										
Volar Polyethylene Foam (Aliplast)	• White medium density foam • Thermoformable and thermobondable	• Smooth surface, extremely elastic • 30" wide x 1/8", 3/16", 1/4" Thicknesses. 50, 100 ft. and full rolls	■	■	■	■	■	-	165-170	■
USG #1 Moulding Plaster Laboratory Dental Plaster	• 50 lb. bags • USG#1 set time 25-35 minutes / Dental set time of 6-9 minutes	• Ideal for temporary patterns • Do not use as a cast material as these generate heat while setting	-	-	-	-	-	-	-	-
AIN Plastics 100 Silicone Lubricant & Release Agent	• Heavy duty 6% silicone spray • Colorless, Odorless tenacious wet film • Excellent Spray Pattern	• Use on spinal jacket liners • Outside of PVA bags for smooth gentle glide • Helps eliminate glove marks while plastics are being formed • Make transfer materials easier to remove, enhances colors	-	-	-	-	-	-	-	-
AIN Plastics 300 General Purpose Spray Adhesive	• General bonding adhesive • Consistently fine spray pattern • Light mint scent when wet	• Works as a good temporary hold as well as a permanent bond • Used to adhere foams to hard plastics and a variety of other materials	-	-	-	-	-	-	-	-

The AIN Advantage

The orthotic and prosthetic device markets are expanding rapidly and changing constantly. O&P practitioners, orthotists, prosthetists, and technicians are in need of a dedicated and diverse supplier who can provide them with quality and speed. Manufacturers of prefabricated orthotic and prosthetic devices require a forward thinking supplier who can combine extensive product knowledge with innovative supply chain solutions.

For more than 40 years the AIN Plastics Division of ThyssenKrupp Materials NA has offered customers quality products, competitive pricing, and an unsurpassed level of service by supplying industrial and orthotic grade plastic shapes from the world's leading manufacturers.

The AIN Plastics O&P Program combines decades of proven expertise in engineering plastic product solutions with ThyssenKrupp Material's long standing reputation as a leading supplier of nonferrous metals, specialty alloys, and stainless steel products. The AIN Plastics O&P Program offers an integrated source in your supply base that provides you with the inventory management expertise and value-added processing services necessary to compete in today's environment.

How We Achieve Consistency

CONSISTENCY: Not all plastic sheet extruders utilize the same manufacturing parameters which can lead to varying mechanical properties and residual stress. This is why like-named materials may form differently from one supplier to the next.

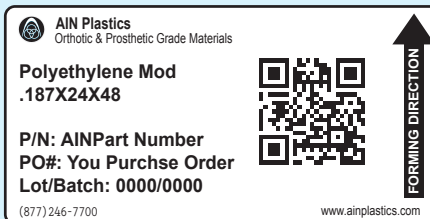
THE AIN PLASTICS O&P PROGRAM maintains strategic partnerships with industry leading extruders in order to consistently supply the same level of quality that O&P technicians have come to expect with every sheet they fabricate.

OUR STRATEGIC EXTRUSION PARTNERS provide constant lot-to-lot quality by using only resins produced to the highest standards for cleanliness and stability which makes their sheet ideal for thermoformed medical devices.

AIN PLASTICS' O&P PROGRAM POLYPROPYLENE AND POLYETHYLENE PRODUCTS meet FDA criteria reducing sensitization and cytotoxicity concerns.

COMMITMENT: The quality of our customer service is as important to the success of the AIN Plastics O&P Program as the consistent quality of our products.

- All AIN Plastics Branch Locations have fully trained O&P Program experts ready to handle your requirements with speed and accuracy.
- Every full sheet and cut-to-size piece of O&P Program material is carefully processed and labeled to ensure proper identification and traceability with each order.
- Every label contains a full material description and directional arrow indicating the forming direction which is reliant on the extrusion direction.



Beyond Plastics

AIN Plastics Is Your One-Stop Place for O&P Materials



AIN 100 HEAVY DUTY 6% SILICONE LUBRICANT & RELEASE AGENT

A high solids blend of medium and high viscosity silicone fluids. It applies as a colorless wet film that stays where it's sprayed. It is particularly good for difficult items such as rubber molds or high friction applications.

AIN 300 GENERAL PURPOSE SPRAY ADHESIVE

This adhesive has been specially formulated to bond a broad range of materials from paper, to fiberglass, wood, metal, and much more. Camie 300 Adhesive is odorless, goes on smooth, and is colorless. It becomes tacky quickly and can be used to create a temporary or permanent bond.



USG #1 MOLDING PLASTER

Also known as "Plaster of Paris" or soft plaster. This material is ideal for waste molds or temporary patterns where surface hardness and strength are not a factor. Set up time 25 - 30 minutes.

USG LABORATORY DENTAL PLASTER

Fast set up time of 6-9 minutes, this material is ideal for waste mold or temporary patterns with intricate detail.

Quadrant EPP Proteus®

Quadrant EPP Proteus® O&P Grade Polypropylene is the clear choice for O&P labs. This proprietary grade of 100% virgin homopolymer polypropylene is specially formulated to turn clear when heated which visually aids lab technicians during the thermoforming process. This sheet is also stress-relieved in order to be as stable as possible during thermoforming to ensure maximum results with every pull.



Proteus® Copolymer Polypropylene sheet is also produced using 100% virgin resin and stress-relieved to offer unmatched dimensional stability.

All Quadrant EPP Proteus® Polypropylene sheets included in the AIN Plastics O&P Program are FDA Compliant.

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