Materials for Orthotics & Prosthetics

Head and Face
- PETG (Vivak™)
- TAP

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

Lower Limb
- Homopolymer Polypropylene
- High Density Polyethylene
- Engineering Plastics

Knee
- Anodized Aluminum
- Polypropylene
- Rigid Plastics

Ankle and Foot
- Talc Filled HDPE
- Acetal
- Flexible Plastics

1.877.246.7700
ainplastics.com
ThyssenKrupp Materials NA
AIN Plastics Medical Technologies Group
## Materials for Orthotic and Prosthetic Devices

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Description</th>
<th>Typical Applications</th>
<th>Flexural Modulus (psi per ASTM D790)</th>
<th>Forming Temperature (˚F)</th>
<th>Head and Face</th>
<th>Neck and Spine</th>
<th>Upper Body</th>
<th>Upper Limb</th>
<th>Lower Body</th>
<th>Lower Limb</th>
<th>Knee</th>
<th>Ankle and Foot</th>
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</thead>
<tbody>
<tr>
<td><strong>POLYOLEFIN SHEETS</strong></td>
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| Polypropylene | • Rigid  
• Impact resistant  
• No moisture absorption  
• Good resistance to chemicals and fatigue | • Dynamic lower extremity orthoses  
• Posterior AFO  
• Spiral 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  
• Spiral braces  
• Upper extremity orthoses | 160,000 | 310 - 325 | | | | | | | | | |
| LDPE | • Softest and most flexible olefin  
• Softer feel for patient comfort | • Spiral orthoses requiring rigidity  
• Upper extremity orthoses  
• Flexible prosthetic sockets | 32,000 | 275 - 330 | | | | | | | | |
| HDPE | • High durability and strength  
• Resists cracks  
• Lightweight | • Spiral 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 | • Spiral 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 | | | | | | | | | |
| TAP | • Economical vs. European products  
• Very Tough  
• Very clear  
• Zero notched izod impact  
• Easily thermoformable using traditional methods | • Ideal for high strength check sockets used for fitting lower extremity prosthetic devices.  
• Low cost yet higher performing option to European materials | 230,000 | 330 - 360 | | | | | | | | | |
| Polycarbonate | • Very high impact strength  
• Good clarity | • High strength, high durability applications where clarity is important | 345,000 | 340 - 380 | | | | | | | | | |
<p>| Acrylic (Polydor™) | • Medical grade PMMA | • High resiliency applications where resistance to creep and | 475,000 | 340 - 380 | | | | | | | | |</p>
<table>
<thead>
<tr>
<th>Listing</th>
<th>Description</th>
<th>Typical Applications</th>
<th>Forming</th>
<th>Head and Face</th>
<th>Neck and Spine</th>
<th>Upper Body</th>
<th>Upper Limb</th>
<th>Lower Body</th>
<th>Lower Limb</th>
<th>Knee</th>
<th>Ankle and Foot</th>
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<td>POLYOLEFIN SHEETS</td>
<td>• Dynamic lower extremity orthoses</td>
<td>• Impact resistant</td>
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<td>• Posterior AFO</td>
<td>• No moisture absorption</td>
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<td></td>
<td>• Spinal and upper extremity orthoses</td>
<td>• Good resistance to chemicals and fatigue</td>
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<td>Copolymer</td>
<td>• Lower extremity orthoses requiring flexibility</td>
<td>• Spinal braces</td>
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<td>• Rigid yet flexible, offers more resilience than homopolymer</td>
<td>• Upper extremity orthoses</td>
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<td>LDPE</td>
<td>• Spinal orthoses</td>
<td>• Softer feel for patient comfort</td>
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<td></td>
<td>• Upper extremity orthoses</td>
<td>• Flexible prosthetic sockets</td>
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<td></td>
<td>• Flexible prosthetic sockets / liners</td>
<td>• Flexible and soft sockets where patient comfort is a primary concern</td>
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<td>Modified Polyethylene</td>
<td>• Spinal orthoses requiring moderate to slight rigidity</td>
<td>• Improved tear resistance</td>
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<td>• Formable and can be self-adhering when hot</td>
<td>• Upper extremity orthoses</td>
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<td></td>
<td>• Highly durable</td>
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<td>CLEAR PLASTICS</td>
<td>• Check sockets</td>
<td>• Vacuum formable</td>
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<td>PETG (Vivak®)</td>
<td>• Sports masks</td>
<td>• Easy to bond and fabricate</td>
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<td></td>
<td>• Burn management orthoses</td>
<td>• Good toughness and hardness</td>
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<td>TAP</td>
<td>• Ideal for high strength check sockets used for fitting lower extremity prosthetic devices.</td>
<td>• Very rigid</td>
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<td></td>
<td>• Very clear</td>
<td>• Very tough</td>
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<td></td>
<td>• Easily thermoformable using traditional methods</td>
<td>• High strength, high durability applications where clarity is important</td>
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<td>Polycarbonate</td>
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<tr>
<td>Acrylic (Polydor®)</td>
<td>• High resiliency applications where resistance to creep and deformation is important</td>
<td>• Rigid</td>
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<tr>
<td>Polyurethane foam blocks specifically modified for the thermoforming techniques commonly utilized in O&amp;P labs</td>
<td>• Available in several densities and geometries for original performance and yields</td>
<td>• Opaque color</td>
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<td>Carving Blanks</td>
<td>• Polyurethane foam blocks specifically modified for the thermoforming techniques commonly utilized in O&amp;P labs</td>
<td>Can be used in most carvers with little modification</td>
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*Please call for support 877.246.7700
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 30 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.

The AIN Advantage

Camie 300 & Camie 100 Spray Adhesive and Silicone Lubricant & Release Agent

**Camie 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.

**Camie 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.

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.

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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AIN Plastics Division
ThyssenKrupp Materials NA

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