Ceramic Armor
Superior Lightweight Protection
CoorsTek offers an unparalleled selection of extreme-duty, advanced ceramics. We help you select the best-fit material for your application and budget.

CoorsTek produces lightweight technical ceramic tiles using tight-tolerance standards, high-purity formulations, and controlled microstructures to ensure a consistently reliable defense to unexpected threats.

Advanced ceramic vehicle tiles

Exceptionally well-suited for vehicular applications, CoorsTek offers lightweight, superior-quality torso plates in a variety of shapes, sizes, thicknesses, and materials including:

- CeraShield™ high-density aluminum oxides
  - Using this traditional monolithic plate material, CoorsTek offers high-volume, multi-facility production capacity
  - Standard sizes and shapes including all SAP sizes
  - Custom thicknesses available from 1mm and up

- CeraShield™ boron carbides
  - Lowest density for ultra-lightweight designs

- CeraShield and Cercom® silicon carbides
  - Many sizes and shapes are offered in all CeraShield and Cercom materials. Custom shapes, sizes, and thicknesses are readily manufactured to customer specifications.

- CeraShield RB B4C armor plates

Many sizes and shapes are offered in all CeraShield and Cercom materials. Custom shapes, sizes, and thicknesses are readily manufactured to customer specifications.

**CERASHIELD™ AND CERCOM® ARMOR CERAMICS**

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<tr>
<th>PROPERTY</th>
<th>UNITS</th>
<th>TEST</th>
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<tr>
<td>Density</td>
<td>gm/cc</td>
<td>ASTM-C 20</td>
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<tr>
<td>Flexural Strength (MDR), 20°C</td>
<td>MPa (psi X 103)</td>
<td>ASTM-F407</td>
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<tr>
<td>Elastic Modulus, 20°C</td>
<td>GPa</td>
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<td>Poisson’s Ratio, 20°C</td>
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<td>Compressive Strength, 20°C</td>
<td>MPa (psi X 103)</td>
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<tr>
<td>Hardness</td>
<td>GPa (kg/mm²)</td>
<td>Knoop 1000 gm</td>
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<tr>
<td>Fracture Toughness, Kc</td>
<td>MPa m/²</td>
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<td>Thermal Conductivity, 20°C</td>
<td>W/m K</td>
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<tr>
<td>CTE, 25-1000°C</td>
<td>X 10⁻⁶ / °C</td>
<td>ASTM-C372</td>
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**CeraShield and Cercom® silicon carbides**

- Superior hardness for advanced threats
- Lower weight with higher performance benefits

**CeraShield and Cercom® silicon carbides**

- Lowest density for ultra-lightweight designs

**CeraShield™ and Cercom® silicon carbides**

- Superior hardness for advanced threats
- Lower weight with higher performance benefits

**Vacuum-bonding capabilities**

CoorsTek has perfected bonding processes to perform under some of the harshest industrial environments on the planet. Our specialized process bonds the ceramic to a variety of customer-specified substrate materials for a thoroughly robust and integrated solution.

**Modular assembly**

CoorsTek provides assembly services to form multiple tiles into custom panels of complex shapes and configurations — including holes & cutouts. Perfect for aircraft, armored vehicles, and executive vehicles, our panels provide a custom fit and superior performance.

CoorsTek offers lightweight, superior-quality torso plates in a wide variety of shapes, sizes, thicknesses, and materials including:

- CeraShield™ high-density aluminum oxides
  - Using this traditional monolithic plate material, CoorsTek offers high-volume, multi-facility production capacity
  - Standard sizes and shapes including all SAP sizes
  - Custom thicknesses available from 1mm and up

- CeraShield™ and Cercom® silicon carbides

- CeraShield RB B4C armor plates

Many sizes and shapes are offered in all CeraShield and Cercom materials. Custom shapes, sizes, and thicknesses are readily manufactured to customer specifications.

Contact us for more information
+1 303 271 7100 or info@coorstek.com

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Ceramics for Advanced Armor

Proven performance for advanced armor
CoorsTek CeraShield and Cercom ceramics offer many advantages over conventional materials. Specially formulated ceramic armor materials provide:
• Low weight
• High hardness
• Controlled, uniform microstructure
• Dimensional stability over a wide temperature range
• Compatibility for use in finished armor systems with proven ballistic performance for National Institute of Justice (N.I.J.) and international design standards (C).

Expert design assistance for amazing performance
CoorsTek engineers offer assistance:
• Selecting the best material for individual applications
• Designing for manufacturability:
  - Optimized performance
  - Competitive manufacturing costs

Quality with a passion for excellence

Technical ceramics for over 100 years
Since 1910, CoorsTek has solved technical challenges for innovative customers. With armor tile production dating back to the 1960’s, our long-term experience, broad range of materials, variety of cost-effective manufacturing techniques, and unparalleled capacity provide peace of mind for manufacturers around the globe.

Leaders in technical ceramics
A recognized worldwide leader in the engineering and manufacturing of technical ceramics, CoorsTek provides advanced materials and design configurations for ballistic-grade ceramics used in appliqué and integrated armor systems. Call us today at +1 303 271 7100 for assistance.

Variety of materials for a wide range of applications
CoorsTek offers a broad selection of CeraShield and Cercom materials for specific ballistic applications:
• High-density aluminum oxides
• Zirconia-toughened aluminas
• Boron carbides
• Silicon carbides

Advanced manufacturing capabilities
With state-of-the-art forming methods and statistically controlled processing, CoorsTek ensures leading-edge, low-cost manufacturing. Advanced capabilities in green machining and precision grinding enable extreme customization of design to meet the most demanding applications.

The chart is intended to illustrate typical properties. Engineering data is representative. Property values vary somewhat with method of manufacture, size, and shape of part. Any suggested applications are not made as a representation or warranty that the material will ultimately be suitable for such applications. The customer is ultimately responsible for all design and material suitability decisions. Data contained herein is not to be construed as absolute and does not constitute a representation or warranty for which CoorsTek assumes legal responsibility. ANY WARRANTY OR REPRESENTATION FOR WHICH COORSTEK IS RESPONSIBLE SHALL BE SUBJECT TO A SEPARATELY NEGOTIATED AGREEMENT. CeraShield armor ceramics are not rated by the National Institute of Justice (N.I.J.). Manufacturers of finished ceramic armor systems have achieved N.I.J. Level III and IV ratings for complete armor systems incorporating CeraShield armor ceramic components. CoorsTek and Cercom are registered trademarks of CoorsTek, Inc. CeraShield and OpX are trademarks of CoorsTek, Inc.

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