SINGLE CRYSTALS OF SYNTHETIC DIAMOND FOR DIAMOND ANVILS

Description
High-quality diamond single crystals for diamond anvils used as main working elements in ultrahigh-pressure micro-devices.

Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Diamond type</td>
<td>IaA</td>
</tr>
<tr>
<td>Mass of crystal, carats</td>
<td>1 – 2.5</td>
</tr>
<tr>
<td>Dislocation density, cm⁻²</td>
<td>10 - 10²</td>
</tr>
<tr>
<td>Macro- and microinclusions</td>
<td>no</td>
</tr>
<tr>
<td>Optical transparency, nm</td>
<td>≥ 400</td>
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</tbody>
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Fig. Samples of diamond anvils

Technological appraisal and economic benefits
The presented technology is designed to grow single crystals of synthetic diamond with user-specified properties, low density of linear and planar defects, and minimum internal stress. Experimental testing by leading science centres has proved the applicability of synthetic diamonds as diamond anvils for studying properties of materials under high pressures.

Application areas
- Research in physics and chemistry of rocks at high pressures;
- Experimental mineralogy and petrology of the mantle.

Development stage
Initial stage of production, Novosibirsk.

Patent situation
Know-how protected.

Commercial offers
Production and supply contracts.

Estimated cost
Under the contract.

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