

SYNTHETIC DIAMONDS



Engineered To Meet Your Needs.

While retaining the durability and strength of natural diamonds, synthetic diamonds offer superior consistency and a cost-effective alternative to natural diamonds for industrial tool manufacturers. From PCD and TSP, through to single crystal diamond products, we can offer you a synthetic diamond solution engineered to meet your specific needs. By taking the time to understand your precise operational needs, we work with you to supply a tailored solution, offering fast turn-around times and a team dedicated to building long-term working relationships.

TSP (Thermally Stable Product)

TSP (Thermally Stable Product) is a high-pressure high-temperature sintered diamond & silicon composite material offering exceptional wear protection, thermal stability and durability.



GRADES

We offer two grades of TSP to cater to standard and more challenging application requirements;

Standard Grade – SATS40

Our standard grade features a bi-modal diamond content, providing a balanced combination of strength and wear resistance. This grade is suitable for a wide range of general applications.

Premium Grade – SATS80

For more demanding operations, we offer our Premium grade, which boasts a tri-modal diamond content with reduced free silicon. The Premium grade exhibits enhanced strength, durability, and improved resistance to wear, making it the preferred choice for wear protection on high-performance drilling applications.

SPECIFICATIONS

We understand that each application has unique requirements.

We offer TSP in a wide range of shapes and sizes including;

- Rounds/Cylinders
- Triangles
- Cubes
- Lozenges
- Hexagons

We can also produce TSPs to customer specifications. Whether you need cylindrical forms, inserts, or specialized shapes, we can accommodate your needs. Our flexibility in providing tailored solutions ensures that you receive the precise TSP product to meet your requirements.

FEATURES

Metal Coatings

To enhance its properties and facilitate incorporation into metal matrix bits, TSP is available with optional metal coatings. We provide metal coatings such as Titanium and Nickel, which offer several advantages. These coatings aid in the bonding of TSP with the metal matrix, ensuring excellent adhesion and overall bit integrity. Additionally, the metal coatings provide surface protection, increasing the longevity of TSP and maintaining its performance under demanding drilling conditions.

APPLICATIONS

TSP finds extensive use in the oil and gas and mining industries. It is commonly incorporated into the surface body of oil and gas bits and mining bits to protect the body of the drill bit. By utilizing TSP in the surface body, the bits can withstand the extreme temperatures and pressures encountered during drilling, ensuring extended tool life and reliable performance in challenging downhole conditions.

In addition, TSP is employed in stabilizers and paddles used in downhole directional drilling apparatus. These components play a crucial role in maintaining drilling accuracy and stability while navigating through various geological formations. TSP's exceptional thermal stability and wear resistance make it an excellent choice for these critical applications, ensuring precise and reliable drilling operations.

QUALITY

Our commitment to excellence is exemplified through a series of meticulous tests that ensure the outstanding performance and reliability of our TSP offering. We begin with dimensional accuracy assessments, where we precisely measure the size and thickness of the TSP to meet the required specifications. Next, we subject the TSP to rigorous hardness tests to evaluate their resistance to wear. Our experts also conduct a comprehensive inspection of the TSP structure, utilizing advanced imaging techniques such as microscopy and scanning electron microscopy (SEM) to examine the diamond's surface and internal composition.



Talk To Our Experts About Your Industrial Diamond Needs



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