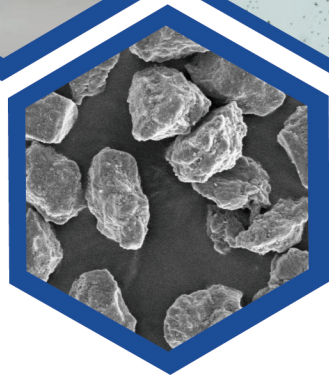
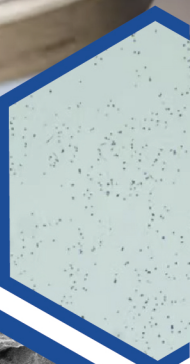
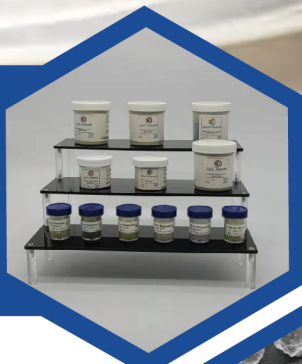




Optimized Solutions for Lapping and Precision Polishing

World-leading diamond slurries



- Hydroqual Diamond Slurry for Pitch
- Hydroqual Diamond Slurry for Pad
- Hydroqual Diamond Slurry for Plate
- Hydroqual Diamond Slurry for Diamond Wire Saw
- Hydroqual Diamond Slurry for Advanced Materials

CREATE ENDLESS POSSIBILITIES WITH THE POWER OF DIAMOND



Qual Diamond
Hi-tech Corporation

Company Overview

Qual Diamond specializes in developing and producing diamond powders and diamond slurries/suspensions for precision polishing. Qual Diamond's success is powered by collaborative relationships with our customers, profound technical expertise, and a dedicated workforce. Our technical team has 60+ years of combined experience in synthetic diamond, material science, and Nanotechnology.

Innovation and quality are in our DNA. Qual Diamond is the leading producer and supplier of highly deagglomerated and pure diamond nano- and micro-particles. Our proprietary surface treatment methods and stringent quality requirements deliver consistent results and cost benefits to our customers. These methods are developed by our nanotechnology lab, which alone generates over 20 Intellectual Properties (IP) on surface modification technology.

Another lab at our San Diego location is dedicated to developing methods and solutions for our customers. The lapping and polishing lab is equipped with lapping machines and other essential equipment for lapping and precision polishing. This lab provides us with the capabilities to test customers' samples in-house and develop customized solutions that cater to different customers' project requirements. We publish periodic case studies and share insights and tips on precision polishing with results generated by the lab.

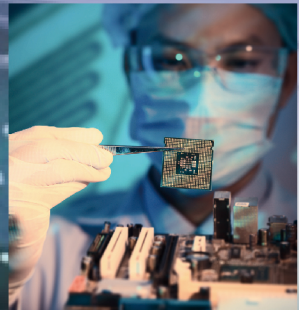
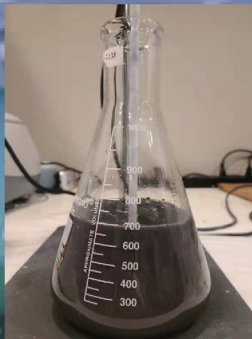
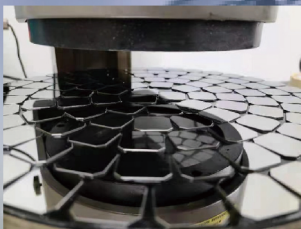
Qual Diamond is also ISO 9001 and ISO 14001 certified and compliant. We control every step of the process from procuring raw materials to producing finished products. We utilize high-precision instruments from Europe and the US for particle sizing, elemental analysis, and impurity detection. All raw materials are eco-friendly and recyclable. Whether your applications are in aerospace, photonics, electronics, advanced ceramics, automotive, or medical devices, our dedicated team is ready to help you

Our motto:

"Quality is Our Life; Customers Are Our Priority."

Our Mission:

Become the best-in-class manufacturer and supplier of diamond products for advanced industries.





Hydroqual Diamond Slurry for Pitch



Pitch polishing is often used to achieve tight tolerances for surface flatness, surface roughness, parallelism, and cosmetics. To attain roughness in single-digit angstrom levels, significant skills and craftsmanship are also required. The pitch plate where objects are polished has a semi-fluid surface with consistency similar to bitumen or asphalt. Chemical reactions can occur between the polishing slurry and pitch plate surface material during polishing, greatly reducing polishing efficiency and leading to damaged pitch plate surface.

Qual Diamond Hydroqual Diamond Slurry (Specifically Formulated) for Pitch has a matrix that is specially developed and formulated for pitch polishing by our scientists. It does not react with the surface material of the pitch plate. The inert slurry matrix eliminates the agglomeration of diamond particles due to chemical reactions and allows each diamond particle to exert its polishing potential, significantly improving pitch polishing efficiency. In addition, the pitch surface material is not damaged from chemical reactions, making cleaning after the polishing process a breeze, and further improving efficiency.

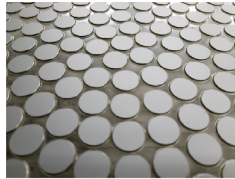
Advantages:

- ◆ Slurry matrix does not chemically react with pitch plate material.
- ◆ Significant reduction of degradation of pitch plate material.
- ◆ High material removal rate.
- ◆ Environmentally friendly.
- ◆ Easy to clean up.





Hydroqual Diamond Slurry for Pad

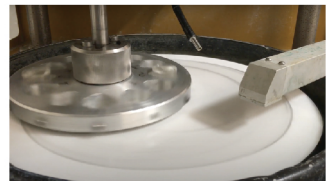


A variety of materials can be polished using polishing pads and diamond slurry to achieve great surface finishes. These include copper, tungsten, silicon carbide, sapphire, oxides, and ultra-hard nitrides. Precision polishing with specific requirements can be achieved in successive steps with the proper combination of polishing pads and diamond slurry. It is thus important to know which type of pad and which appropriate slurry to use for different materials. Hydroqual Diamond Slurry (Specifically Formulated) for Pad is specifically crafted for polishing with pads. Qual Diamond also offers customized solutions that include the appropriate diamond slurry and compatible pads for different materials and applications.

The starting materials for Qual Diamond slurries are polycrystalline and monocrystalline diamond particles treated with unique Qual Diamond surface modification technology. These surface-engineered diamond particles confer the desirable characteristics of high material removal rate, reduction of digs and scratches, and precision tuning. The performance of Qual Diamond diamond slurries is positively confirmed with results from polishing with pads on various materials with different degrees of hardness.

Advantages:

- ◆ Compatible with all commonly used polishing pads.
- ◆ Tunable precision on different requirements.
- ◆ Significant reduction of digs and scratches.
- ◆ Great surface finishes.
- ◆ High material removal rate.
- ◆ Environmentally friendly.





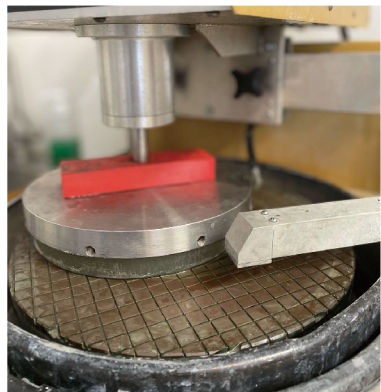
Hydroqual Diamond Slurry for Plate

Lapping of materials such as glass, crystals, advanced ceramics/composite materials, and metals is often achieved using cast iron, copper, steel, or metal-resin plate. Replacing lapping plates often can create constraints on a budget. Qual Diamond Hydroqual Diamond Slurry (Specifically Formulated) for Plate preserves the integrity of lapping plates by forming a protective film on the plate, and thus prolonging the service life of the plate.

Lapping and polishing plates usually have different groove patterns for heat dissipation and material removal purposes. Qual Diamond Hydroqual Diamond Slurry (Specifically Formulated) for Plate has the desirable rheology that prevents abrasive accumulation in the groove pattern while maintaining excellent lapping and polishing performance. It also allows for easy clean up once the task is completed. In summary, Qual Diamond Hydroqual Diamond Slurry Specifically Formulated for Plate combines high-quality, uniquely surface-engineered diamond abrasives with a specifically formulated matrix to provide excellent material removal rate and exceptional surface quality.

Advantages:

- Significant reduction of degradation of plate material.
- Significant reduction of digs and scratches from lapping.
- High material removal rate.
- Environmentally friendly.
- Easy to clean up.

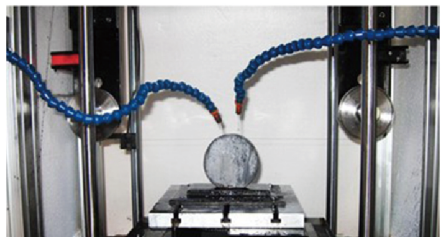
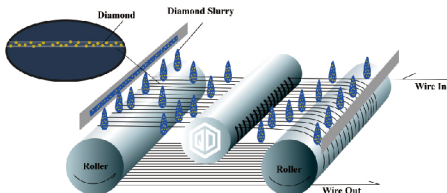




Hydroqual Diamond Slurry for DiamondWire Saw



- ◆ Excellent adherence and retention properties.
- ◆ High cutting speed and material removal rate.
- ◆ Great cutting surface qualities.
- ◆ Eco-friendly, anti-aggregation formulation for high reproducibility.



Precision Wire Saw diamond slurry and diamond Wire, for SiC, Sapphire, Si, Ge, and GaAs, etc.

Quality Control

Diamond Powder & Diamond slurry Quality Procedure Diagram

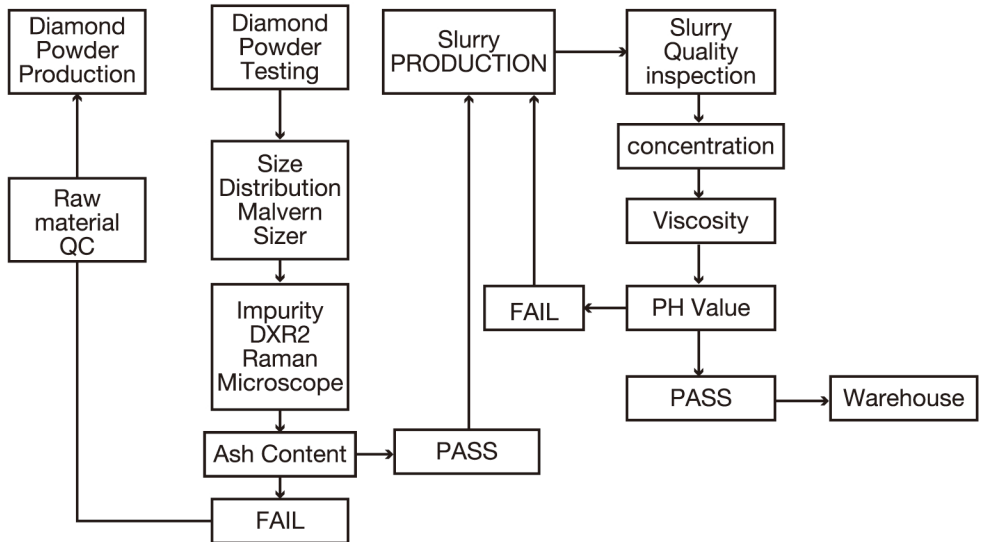
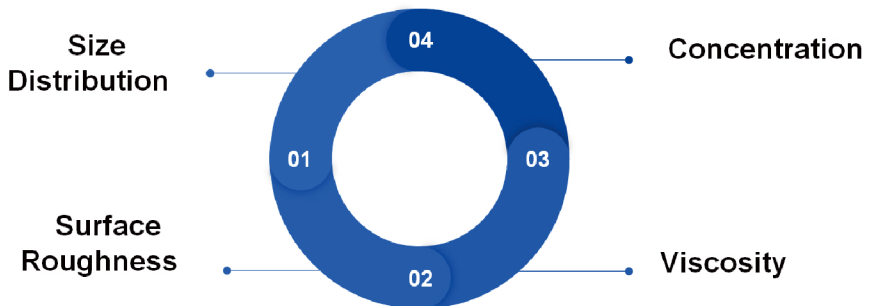
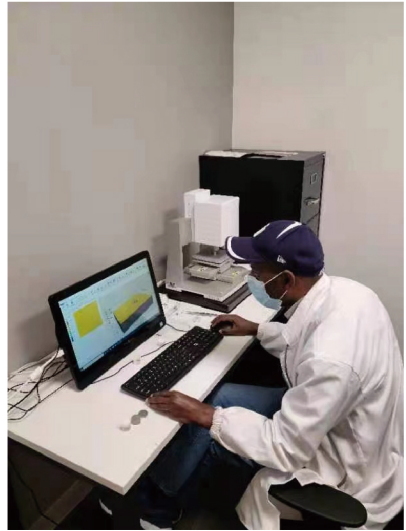


Fig. 1. Qual Diamond quality procedure diagram.

- ◆ All Qual Diamond diamond products are made in the USA.
- ◆ We are ISO 9001:2015 certified and compliant.
- ◆ QD diamond products go through a multi-point quality inspection process to ensure our products meet or exceed customer expectations (see Fig. 1.)
- ◆ Diamond particles quality and purity control: Raman Spectrometer
- ◆ Particle size, zeta potential, molecular mass, and distribution: Malvern zetasizer, microscopy.
- ◆ Nano-/Micro-diamond treatment analysis: FTIR spectrometer, Raman spectrometer, Malvern zetasizer, microscopy (SEM, TEM), UV-Vis spectrometer.

TAILORED SERVICE





Qual Diamond

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