

## Technology Transfer Track Posters

# Innovative Diamond Material

Diamond Materials has developed an innovative material that surpasses the properties of natural diamond. By employing an industrial process based on chemical vapor deposition (CVD), diamond coatings are gradually grown on suitable substrates at temperatures around 800°C. After the coating process, the diamond layer is detached from the substrate, resulting in a freestanding disc of pure diamond.

These discs have superior properties compared to natural diamond, such as low absorption, extreme hardness, high thermal conductivity, broad band optical transparency, and chemical inertness. Additionally, this method allows for the manufacture of diamond plates up to 150 mm in diameter and 2000 µm in thickness.

These discs hold immense potential for various applications including windows for high-power radiation (microwave, X-ray, laser), X-ray anodes, UHV windows for beamlines, fluorescence screens for synchrotrons and beam splitters for FTIR spectrometers in outer space, for example. This innovation is set to open new markets and expand the scope of business opportunities.

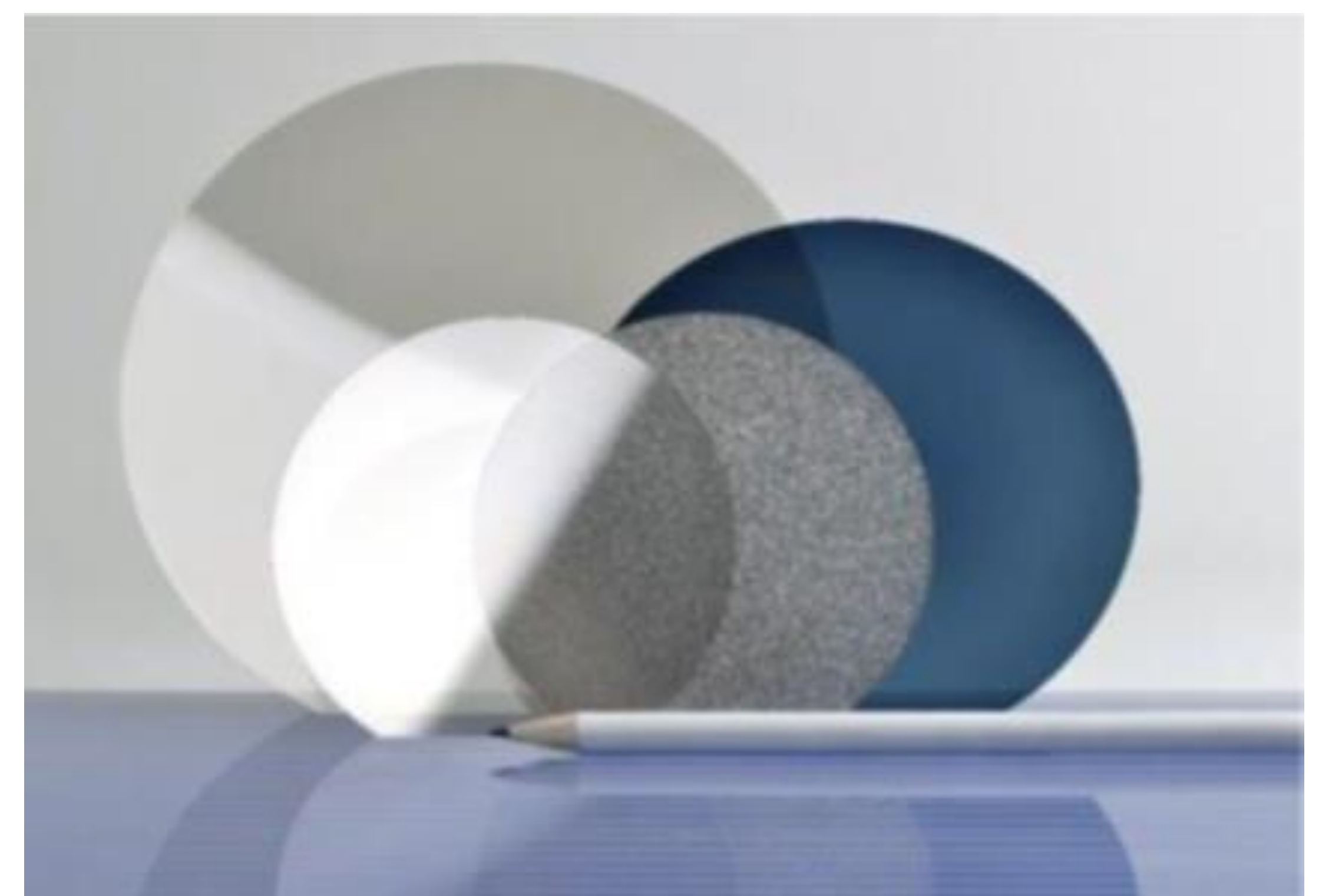
Diamond Materials is keen on collaborating with both existing and new customers to explore and develop novel applications for these advanced diamond discs, continually pushing the boundaries of what is possible in the fields of instrumentation, optics, and heat management.

### Benefits of the technology:

- Outperforms natural diamond properties.
- Natural diamond not available in the form of large disks

### Application Areas:

- High power windows (X-ray / lasers / microwaves)
- X-ray anodes
- UHV windows for beamlines
- Fluorescence screens for Synchrotrons
- Beam splitters for FTIR Spectrometers in outer space



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