ADVANCED DIAMOND TECHNOLOGIES, INC.

UNCD® Wafers—Thin. Smooth. Diamond.

A Family of Diamond Materials

UNCD Wafers are thin film wafer-scale diamond products used for MEMS development, tribological testing, and unique nano-scale processing applications. UNCD Wafers offer the ability to create and experiment with the extraordinary properties of diamond using the award winning family of UNCD materials. UNCD Wafers meet a set of baseline wafer-level specifications for thickness and property uniformity, wafer bow, and particle counts suitable for direct insertion into a MEMS foundry.

Aqua Series

(electrically insulating diamond)

UNCD Aqua 25 - Thin, smooth (~7 nm rms) UNCD film. Perfect for MEMS devices and smooth nanotechnology applications like nano imprint lithography. An even smoother film is available with a post-deposition CMP process (see 'Horizon' below).

UNCD Aqua 50 - The best tribological UNCD product for industrial low-friction coatings.

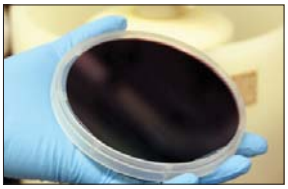
UNCD Aqua 100 - The highest thermal conductivity UNCD, appropriate for heat spreading and transparency in the optical spectrum.

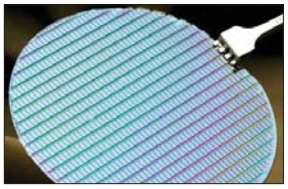
UNCD®
A FAMILY OF DIAMOND MATERIALS

Also Available

Lightning - The Lightning series of UNCD films from ADT are electrically-conductive versions of the Aqua series. UNCD Lightning has a resistivity of approximately 0.1 ohm-cm.

Horizon - The Horizon technology delivers UNCD in ultra-smooth form. The surface of a Horizon 25 wafer has a roughness value of less than 1 nanometer rms.

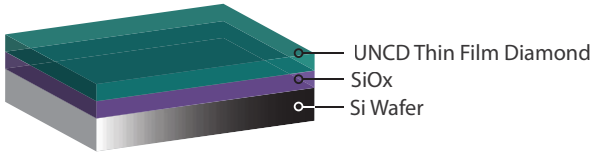




		UNCD Solution		
Property	**Applications**	**Aqua 25**	**Aqua 50**	**Aqua 100**
Smooth surface (less than 10 nm rms)	Low stiction coatings, MEMS, and RF electronics	◆◆◆	◆◆	◆
High thermal conductivity	Heat spreader and thermal management	◆	◆◆	◆◆◆
Corrosion resistance	Electrochemical electrodes, food & pharmaceutical processing	◆◆◆	◆◆◆	◆◆◆
Optical transparency	Wear resistant optical coatings and windows of diamond thin film	◆	◆◆	◆◆◆
Low friction and wear resistance	Mechanical seals and bearings	◆◆◆	◆◆◆	◆◆◆
Biocompatibility	Orthopedic implants	◆◆◆	◆◆	◆◆
Foundry compatibility	Mass MEMS production	◆◆◆	◆◆◆	◆◆◆

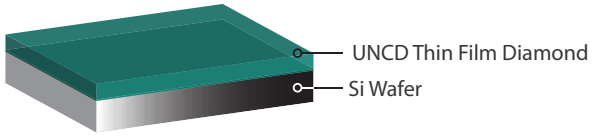
◆ good, ◆◆ better, ◆◆◆ best

DOI™ Wafer
(Diamond on Insulator)



Standard silicon wafers with a thermal SiO_2 layer (nominal 1 micron thickness) followed by UNCD Aqua 25, 50, or 100. These substrates are ready for further MEMS processing using standard surface micromachining techniques to make UNCD-based cantilevers, resonators, diaphragms, and diamond windows. UNCD DOI Wafers are offered for all of the family of UNCD materials. Wafer sizes available are 100, 150, 200, and 300 mm.

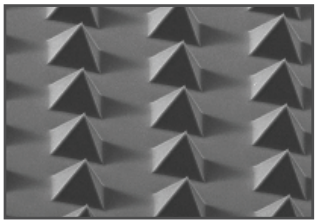
DoSi™ Wafer
(Diamond on Silicon)



A prime silicon wafer with a thin film of UNCD. DoSi Wafers are offered for all of the family of UNCD materials. Wafer sizes available are 100, 150, 200, and 300 mm.

Custom UNCD Wafers

ADT is happy to work with its customers to develop custom wafer stacks suitable for creating complex MEMS devices. ADT will also integrate UNCD into a customer's patterned wafer stack. Please contact us for pricing and availability.



Custom MEMS Development

ADT is happy to work with its customers to develop a variety of custom MEMS diamond products. An example of a project is the array of diamond pyramids, a few microns in height, pictured above. If you are interested in creating your MEMS product with diamond, contact us at sales@thindiamond.com.

UNCD Wafer Specifications

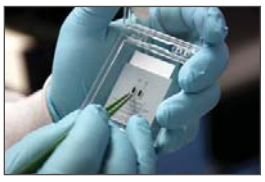
A UNCD Wafer data sheet can be found at www.thindiamond.com/products/uncd-wafers/, detailing physical properties, processing recipes and application references.

For more diamond applications, visit us at www.thindiamond.com

Water Purification

Bio Materials

Industrial Bearings



All-Diamond AFM Probes

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