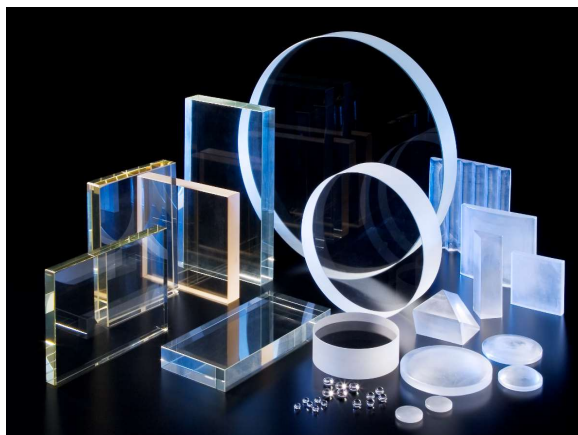


For more than 80 years OHARA has been recognized as a worldwide leading provider of optical and technical materials. OHARA's materials have been designed into many challenging optical and optoelectronic key technologies.



### Optical Glass

With over 140 glass types, OHARA offers a broad portfolio of leading edge materials which are used in binoculars, camera lenses, microscopes, measurement devices, and all other classical optical applications. Special glasses like high UV transmitting Y-types are used in microlithography or astronomical applications. Over 20 different L-types are adapted to the requirements of low process temperature in precision moulding. OHARA's optical glasses are available in strip form, and also as near lens shape mouldings for economical use in the polishing processes at our customer's production site.



### Glass-Ceramic

OHARA'S low-thermal-expansion glass ceramic CLEARCERAM-Z® offers superior properties including chemical resistance, dimensional stability, and machinability. Our material is specified when the highest performance is needed. For example, in reference elements for semiconductor production devices, as bodies for modern laser gyroscopes, or as mirror substrates for astronomical applications. OHARA supplies discs, and machined blanks, with diameters up to 2000mm.

### Fused Silica

OHARA produces high quality fused silica utilizing the VAD production method. Our SK-1300 Fused Silica series offers excellent homogeneity and internal quality. Our materials are widely used in visible, infrared and laser applications. For fiber production, OHARA supplies various types of fused silica in the forms of tubes and rods.

### Polished Wafer and Substrates

All OHARA materials are available in extremely thin double side polished substrates. Typical dimension ranges surface quality:

- diameter: 4 -12 inch
- thickness:  $100\mu\text{m} \pm 10\mu\text{m}$
- $R_a > 0.1 \text{ nm}$  (available in square or round shapes - if requested, with SEMI orientation flat or notch and laser labelling of your specified serial number in barcode or clear writing formats)

### NANOCERAM®

OHARA's latest development is a clear glass-ceramic material with embedded nano crystals. To use as cover glass for automotive lense, camera lense, or all applications where high strengthness as a protecting glass is needed. Not as hard as sapphire, but due to the special characteristic of this outstanding material, cracks on the surface won't grow.

### Non-Browning Optical Glass

For optical elements used in high radiation environment, i.e. nuclear plant or space, OHARA offers non-browning optical glasses. In the portfolio are five different glass-types in the range  $n_d$  1.51..1.61 and  $v_d$  36.3 .. 64.1 available.

## Products and Services:



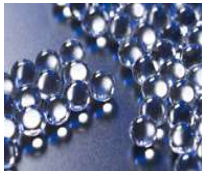
Optical Glass



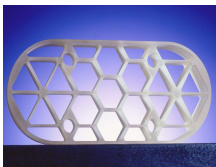
Fused Silica



Polished Substrates



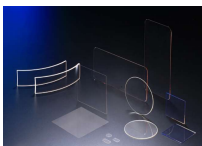
Low Tg Optical Glass



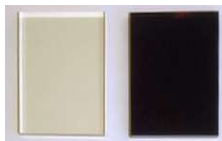
CLEARCERAM-Z®



Measurements



NANOCERAM®



Non-Browning  
Optical Glass



**OHARA GmbH**  
Im Langgewann 4  
65719 Hofheim, Germany

Phone: +49 6192 9650-50  
Fax: +49 6192 9650-51  
E-Mail: [info@ohara-gmbh.com](mailto:info@ohara-gmbh.com)

[www.ohara-gmbh.com](http://www.ohara-gmbh.com)



**Your Supplier  
for  
Optical Materials**