

Comparison of 311 and 3001 heraeus material homogeneity and OH content for
Advanced LIGO

Heraeus reports the results for the homogeneity of the suprasil 3001
(aka 311SV, or low OH) material

Heraeus has met our specification. <http://www.ligo.caltech.edu/docs/E/E050071-C.pdf>

Variation in homogeneity is mostly in the power term, which may be compensated by
traditional polishing. Variations change quite smoothly.

All values are peak to valley

70127600 Suprasil 3001 Results per Heraeus report C070187-00-D

Aperture	Spec	result
Ø 200 mm	2.5×10^{-6}	$0,45 \times 10^{-6}$
Ø 80 mm	0.5×10^{-6}	$0,04 \times 10^{-6}$

Compare these results to the homogeneity of the 311 material supplied by the UK

All values are peak to valley

7009120001 <http://www.ligo.caltech.edu/docs/E/E060005-00.pdf>

Ø 200 mm $\leq 0,17 \times 10^{-6}$

Ø 80 mm $\leq 0,07 \times 10^{-6}$

7008870001 <http://www.ligo.caltech.edu/docs/E/E060006-00.pdf>

Ø 200 mm $\leq 0,08 \times 10^{-6}$

Ø 80 mm $\leq 0,03 \times 10^{-6}$

700888000 <http://www.ligo.caltech.edu/docs/E/E060007-00.pdf>

Ø 200 mm $\leq 0,23 \times 10^{-6}$

Ø 80 mm $\leq 0,03 \times 10^{-6}$

700889000 <http://www.ligo.caltech.edu/docs/E/E060009-00.pdf>

Ø 200 mm $\leq 0,22 \times 10^{-6}$

Ø 80 mm $\leq 0,06 \times 10^{-6}$

OH content

Typical 311 material previously procured: ~200ppm

Reported for this suprasil 3001 blank: 0.38ppm

See LIGO-C070189-00 for complete certification