



SPECIFICATION

MIRROR BLANK MATERIAL, AdLIGO RECYCLING MIRROR 1 (RM1)

APPROVALS	DATE	REV	DCN NO.	BY	CHECK	DCC	DATE
AUTHOR: Rodica Martin	09-04-08	A	E080421-00-D				
CHECKED: Dave Reitze							
APPROVED: GariLynn Billingsley							
DCC RELEASE							

Applicable Documents

LIGO-D080038-B	AdLIGO Recycling Mirror 1 Blank
MIL-G-174-B	Glass, Optical

Requirements

Physical Dimensions	per LIGO- D080038-B AdLIGO Recycling Mirror 1 Blank
Clear Aperture	Central 140 mm
Serial Number	Blanks shall be serialized as RM1-XX, where XX increments starting at 01, as specified in LIGO- D080038-B AdLIGO Recycling Mirror 1 Blank
Material	Low Inclusion Fused Silica
Final shaping	Shaping shall be performed using a progression of grit size ending with a 320 or smaller grit tool.
Defect depth	Maximum on any surface or corner is less than 0.5 mm
Index Homogeneity	$\leq 5 \times 10^{-7}$ P-V within the central 30 mm $\leq 2.5 \times 10^{-6}$ P-V in clear aperture
Birefringence	≤ 1 nm/cm within the central 30 mm ≤ 5 nm/cm outside the central 30 mm within the 140 mm clear aperture
Bubble and Inclusion Cross section within the clear aperture	Total ≤ 0.01 mm ² /100cm ³ Inclusions with a diameter of 10 μ m or less are disregarded No inclusions within the central 30 mm diameter Note all inclusions.
Maximum inclusion diameter	≤ 0.1 mm
Striae within clear aperture	Class A according to MIL-G-174
OH Content	< 200 ppm



SPECIFICATION

MIRROR BLANK MATERIAL, AdLIGO RECYCLING MIRROR 1 (RM1)

Table 1. Verification Matrix - Method and Frequency

Specification	Method	Frequency of Inspection	Data Delivered
Physical Dimensions	Measurement	100%	Diameter, Thickness
Serial number	Visual Inspection	100%	Inspection Report included with Certification
Material	Process Control Material Certification	100%	Inspection Report included with Certification
Defect depth	Visual Inspection	100%	Hand sketch indicating location and dimensions
Homogeneity	Interferometric Measurement	100%	Inspection Report included with Certification
Birefringence	MIL-G-174 Section 4.4.5	100%	Inspection Report included with Certification
Inclusions	Visual Inspection	100%	Hand sketch indicating location and dimensions
Striae	MIL-G-174 Section 4.4.6, method 1 or 2 (in optical axis only)	100%	Inspection Report included with Certification
OH content	Measurement	100%	Inspection Report included with Certification

Notes:

1. Vendor should provide two copies of the Certificate of Conformance: one hard copy to travel with the material, and one copy sent to UF, either electronically, faxed or mailed.
2. Shipping instructions will be sent to the vendor in a separate document. Vendor will contact UF for authorization to proceed with material delivery.