

**Subject:** VRB response to L070089

**From:** John Worden <worden\_j@ligo-wa.caltech.edu>

**Date:** Fri, 26 Oct 2007 11:43:50 -0700

**To:** Dennis Coyne <coyne@ligo.caltech.edu>

**CC:** Rainer Weiss <weiss@ligo.mit.edu>, Fred Raab <raab\_f@ligo-wa.caltech.edu>, Michael Zucker <zucker\_m@ligo.mit.edu>, Riccardo DeSalvo <desalvo\_r@ligo.caltech.edu>

Refer to: L070091-00-V

Dennis;

No objections noted. Waivers granted. No VRB member has asked for FTIR samples.  
John

LIGO-L070089-00

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>
> To the Vacuum Review Board (VRB):
> The IO group have asked for waivers to not vacuum bake the following materials
for ELI:
>
> -DKDP: is hygroscopic crystal and according to E960022-B, Appendix A.2.G,
cannot be cleaned or baked. There will
> only be one of these optics per IFO, 1" diameter, 0.2" thick.
>
> -Calcite: may be somewhat hygroscopic. There is no cleaning or baking advice in
E960022-B. UFL/IO prefer not to
> bake. There will be two of these per IFO, 1" square, 0.2" thick.
>
> - Half wave plates: each of these is made from two optically contacted
pieces. UFL/IO are worried that the
> optical contact could pop apart during the bake and would like to get a waiver
to forego a bake of these parts.
> There are two HWPs per IFO, 1" diameter, .05" thick. I presume that we would
clean per the small optics cleaning
> procedure (E990034-B)
>
> Does the VRB have any comments or advice on the request to waive a bake (vacuum
or air)? Are there any
> recommended cleaning procedures? Should we FTIR test the surfaces?
No objection to these proposals. FYI the silica septum windows are also not being baked
per COC/AOS procedure
for bare optics. Mike Zucker
John,
You have my concurrence on all these optical materials.
RW
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Hi John,

At 11:19 AM 10/24/2007, John Worden wrote:

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Dennis,
I do not see DKDP on the approved materials list E960050-B. There is KDP - is this the
same?
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DKDP = Deuterated KDP

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What does "optically contacted" mean - is there a fluid or paste between the optics?
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No adhesives - the polishing of the optics is sufficiently good (flat) and clean that the two pieces bond together via molecular (Van der Waals) forces of the constituent surface material.

Best,

Dave

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