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Subject: New passivation epoxy?

Posted by [Chilo Garabatos](#) on Tue, 04 Oct 2005 13:35:49 GMT

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Dear Chamber builders,

after the recent experience with the glue 106 in all construction sites, I think it is clear that this epoxy, as used for passivating the anode wire tips, has a high enough surface conductivity to produce self-sustained currents towards the pads, whenever it provides a surface path. This seems to be the reason of (at least one of) our problems when testing the chambers. This suspicion is supported by the fact that the current persists when the chamber is exposed to air, and the pads where the current goes are near the ledges (and other observations).

This effect has not been observed with e.g. the TPC chambers, perhaps because in this case the electrodes were shielded from each other by L-shaped ledges and the assembly procedure was different.

In parallel to using less glue in this critical regions, the use of an alternative glue would also be, in my opinion, a possible solution to this problem, and many of us are looking for one.

It turns out that the ATLAS TRT group, which discarded the 106 in 1998 for having too high surface conductivity, chose, after several tests, the ARALDIT AY 103/HY 991. It has good outgassing, electrical and mechanical properties, the only draw back is its low viscosity (4-6 Pa.s). But perhaps this is OK for using as passivation glue? I think it is worth testing it.

About Stycast, the one I know about, 1266, is very fluid (viscosity = 0.65 Pa.s) and the ALTAS group has found that it is not perfectly plastic (it cracks), but it also may be worth trying.

Best regards,

Chilo

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Subject: Re: New passivation epoxy?

Posted by [Clemens Adler](#) on Wed, 05 Oct 2005 13:34:38 GMT

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Hello,

I got a sample of AY103/HY991 from the HE group here at Heidelberg and was just playing around a bit with it. I would say in terms of viscosity the glue is fine. I would actually even prefer it to the AW 106. The glue flows, but it has enough surface tension that it stays e.g. on a ledge without flowing down. So I think it would also be fine for gluing anode wires.

The HE group in fact fills the glue with some silica so that it becomes more thixotrope. So this might be a possibility in case the viscosity turns out to be a problem, but I think it would be OK as it is.

From the datasheet I learned that the shear strength is 30% lower than for AW106, but this might also not hurt us. And the curing time is a bit longer, but below 24h, so I would also say that this is acceptable. So let's see what some more tests show...

cheers,

Clemens

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