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SHORT TERM STRESS RELAXATION OF ALL KAPTON WRAPPED 50mm INNER SSC CABLE

We have been conducting sizing and stress relaxation tests on model coils insulated with various wrap configurations of Dupont .001" thick type H film. The purpose of these tests are to target the curing press shims to properly process the scheduled all Polyimide insulated low temperature cured coils. We are awaiting the arrival of Dupont type HA and LT films to continue this study.

The attached graph shows the results of a three hour stress relaxation study on four SSC 50mm inner coils wrapped and cured with the following combinations:

Coil #	Inner Wrap	Outer Wrap	Cured Coil size (Avg.)	Shim	M. O. E.
128	.001", 50% Type H	.0045" Butt Glass Tape	.0139"	.011"	2.08E+06
129	.001", 50% Type H	.001", 50% Type H	.0011"	.011"	9.01E+05
130	.001", 66%, Type H	.001", 50% Type H	.0206"	.011"	1.19E+06
131	.001", 66%, Type H	.001", 50% Type H	.0148"	.0000"	1.31E+06

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OF ALL KAPTON WRAPPED 50mm INNER SSC CABLE
(Continued)

Coil 129 may be considered "under-packed" with two layers of 50% overlap yielding modulus of elasticity of only $9.01E+05$. Coil 130 suggested that a higher "packing" pressure would lower stress relaxation. For coil 131 we removed a .011" shim in the press to further pack the coil. Interestingly the stress relaxation rate is identical to coil 130 suggesting that the packing effect has been maximized and the cable is absorbing the decreased mold volume.

Future work will include Dupont LT and HA and other brands of Polyimide films. Lower stress relaxation is expected.



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SSC 50 mm INNER COIL

AZIMUTHAL COIL SIZE VS LOG TIME AT 12000 PSI

