

DISCUSSION

*F. G. Hammitt*¹ (*written discussion*)—You show pressure differences across the specimen face of the order of 1 psi or less, and attempt to relate these to damage patterns. Since the overall pressure oscillation induced by the horn in an open beaker test for a 20 kHz, 2 mil unit is the order of 30 bar, and I am quite sure it would be more in the restricted geometry, I am not sure that the small pressure differences you measure could have a very large effect.

As you mention we have done tests in our laboratory which are somewhat similar to those you report except that we have no central hole for fluid circulation and cooling, and have not yet measured the temperatures in the gap (though we intend to). I think your inclusion of the cooling circuit is a very good idea.

J. M. Hobbs and D. Rachman (*authors' closure*)—The authors are most grateful to Professor Hammitt for his comments.

While the pressure differences across the specimen face are only of the order of 1 lb/in.², the induced pressure oscillation under cavitating conditions would probably be much less than 30 bar owing to the effect of the gaseous phase on the bulk modulus of the liquid. Thus, there is a significant shift in the mean film pressure with reduced separation, which does affect the rate of damage. It should be noted that similar observations have been made in the open beaker test and even relatively small pressure variations, that is, atmospheric changes, are reflected in the measured damage rate.

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