



ADHESIVE SHEAR FRACTURE TEST SYSTEM CAPABILITIES

SUMMARY

In this test method, samples are fractured in the presence of oxygen to determine if they are susceptible to ignition by fracture. The samples are loaded in tension along their long axis. The load is increased until the sample fails mechanically.

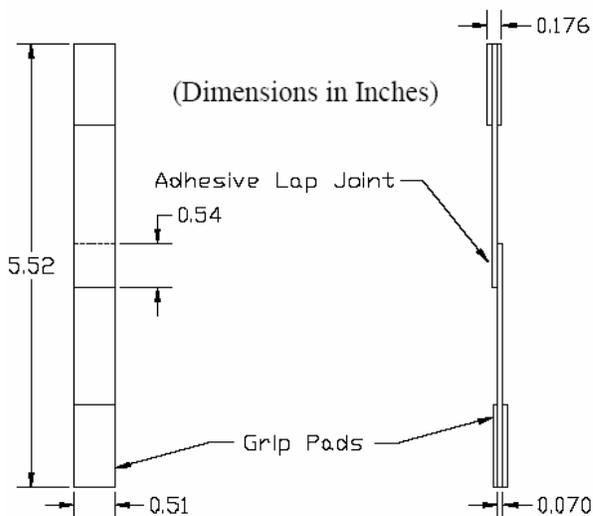
TEST APPARATUS AND PROCEDURE

The test apparatus is a small, two-piece pressure vessel containing clamps for each end of the sample, and thermocouple to indicate temperature. Gaseous or liquid oxygen can be provided to the vessel remotely.

The test sample is installed into the lower half of the pressure vessel and secured with the lower clamp. The top half of the vessel is placed over the lower half, and the sample is secured with the upper clamp. The vessel is purged and pressurized to the appropriate test pressure. The top half of the pressure vessel is released, and the pressure within the chamber imparts a tensile load to the sample, causing it to fail. The chamber is purged and the sample is removed and inspected for evidence of ignition.

TEST SAMPLES

Test samples are usually rectangular and constructed from two pieces joined in the middle by a lap joint. The lap joint is what fails mechanically during testing. The total sample height is 140 mm (5.5 in.), width is 13 mm (0.5 in.), and thickness varies. The total thickness at each end of the sample is approximately 5 mm (0.18 in.). If necessary, extra material is added to the end of the sample to fit the apparatus clamps.



TEST CAPABILITIES

Tests can be conducted in gaseous oxygen and other oxygen/diluent gas mixtures at pressures up to 700 kPa (100 psig) and temperatures from ambient to 150 °C (300 °F). The test can also be conducted in liquid oxygen at pressures up to 700 kPa (100 psig).

CONTACT

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