



## MIDLAND MANUFACTURING COMPANY

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### Test Report

#### MIDCO Joint Restraint System on PVCO (IPS, C909)

MIDCO Joint Restraint System has been previously tested to ASTM F1674 and successfully used on PCV (IPS and C900) pipe, for over 30 years. The purpose of this test was to determine the viability of using the MIDCO Joint Restraints and Coupling Restraints on Molecularly Oriented Pipe (PVCO).

For the testing purposes, the sample sizes selected of the PVCO (IPS and C909) were 6", 8", and 12". For each pipe size, the test pressure was essentially 2x the working pressure rating of the pipe, which was held for 5 minutes. This test was repeated 3 times for each pipe size. In each of the tests and for all of the pipe sizes, it was observed that there was no leakage around the joints and no movement of the joint restraints. Regarding the Burst Test, it was observed that pipe failures occurred well away from the joint restraints towards the center of the pipe and above 750 psi. In all cases, the joint restraints retained their originally installed position and grip on the pipe, and, there were no signs of leakage around the joints.

Our MIDCO Coupling Restraint was installed and similarly tested on C909 gasketed bell joints at 2x the working pressure rating of the pipe. The pressure test was 5 minutes in length and there were 3 cycles for each pipe size. All observations confirmed that there were no visible signs of leakage, nor was there any movement of the coupling restraints.

Based upon our testing and application experience, we recommend the use of the MIDCO Joint Restraints and MIDCO Coupling Restraints on PVCO (IPS and C909) pipe.

Respectfully submitted,

  
George Westhoff, Jr.

President