

HYDROSTATIC TEST REPORT**DATE: 11-16-05 DS**

Couplings: ChemJoint Coupling: 2" male x female
-Coupling/ferrule rated to 250psi. WP

Hose: Chemical Hose: 2" Goodyear XLPE rated to 150 psi.

Attachment: Crimped: stainless steel ferrules

Goal: To exceed 600 psi. (hose WP of 150 psi. @ 4 to 1 Safety Factor)

Results: Couplings and hose exceeded 5 times WP. Hose burst at 1426 psi.

This test was conducted to ASTM D380 standards, except for slow pressurization process; all other aspects were in conformance. See engineering details below.

HOSE: 2" Goodyear XLPE Chemical Transfer hose, 150 psi. WP; initial length of 19."

END CONNECTION #1: Assembled by Campbell, CJMS-8, a 2" interlocking chem joint male stem with an FSS200240 stainless ferrule. No lubrication was used during assembly. The hose wall on this end measured from .275" to .295" for an average of .285." The ferrule was crimped to $\phi 2.594$ " by interpolating the crimp chart due to expire on 12-31-5 using Uniflex S10i crimper with 62 dies. No noise was heard during the crimping process. Crimp diameter was verified at ferrule mid length to $\pm .005$ ". This end was connected to our tester manifold using a 2" female NPT adapter through our usual 3/4" ground joint style connection. Teflon tape and pipe dope was used on the NPT threads. See first end connection photo.

END CONNECTION #2: Assembled by Campbell, the same measurements, components, crimp, procedures, etc. as above; a FSS200240 stainless ferrule was used. The CJMS-8 was fitted with a 2" female NPT valve adapter with valve attached. Teflon tape and pipe dope was used on the NPT threads. See second end connection photo.

TEST: The assembly was filled with water and air was evacuated from the system by use of the valve at the free end of the assembly. Pressure was raised in steps to allow observation. See in tester photo. The assembly was made up a day before the test.

Pressure was raised to hose working pressure of 150 psi. No leaks or fitting separation was detected. The hose became erect and only elongated about 1/4."

Pressure was raised to multiples of the hose working pressure of 300, 450, 600, 750, 900, 1050 and 1200 psi. No leaks or fitting separation was detected. The hose elongated a total of 1-1/8," 2," 2-3/4," 3-1/8," 3-5/8," 4-1/8," and 4-5/8" respectively.

Pressure was raised to 9 times hose working pressure or 1350 psi. No leaks or fitting separation was detected. The hose continued elongating to a total of 5" or about 34% of the initial exposed length of 14-1/2."

Enroute to the next pressure level, the hose blew near the first end. The highest recorded pressure was 1426 psi. See burst photo of total hose destruction.

CONCLUSION: Raising the pressure in a slower manner allows observation that is not usually possible by rapid pressurization. Seeing any problems before failure is as important as noting the failure pressure.

This assembly exceeded the pressure rating of the hose with a 9 times safety factor. The assembly did surpass the suggested fitting/attachment pressure rating of 250 psi. by more than 5 times and verifies the published rating for this system.

prepared by Dave Street, Engineering Manager