



Tech-Bond Solutions

Engineering Report – Tech-Patch on steel pipe.

Description of test

A steel pipe was prepared according to the following specification.

- A half inch hole was drill in a high-pressure steel pipe. The pipe surface was then prepared to a “near white finish” according to ASTM A780 guidelines.
- A Tech-Patch was applied to the prepared area using standard techniques.
- The pipe had threaded caps screwed on either end to ensure no leaks.

Tech-Bond Solutions TP001 Burst Test Results

- ▶ The pipe was first fitted with sealant and caps on either end to ensure no leaks
- ▶ The pipe test PSI increase was at a rate of 3-5 PSI per second
- ▶ First test was to 50 PSI for 3 minutes which was held with no pressure drop
- ▶ Second test was an increase from 50 PSI to 100 PSI for 3 minutes which it held with no pressure drop
- ▶ Third test was an increase from 100 PSI to 150 PSI for 3 minutes which was held with no pressure drop
- ▶ Fourth test was an increase from 150 PSI to 200 PSI for 3 minutes. During the increase, at a gradual rate of 3-5 PSI per second, the patch let go and burst at exactly 175 PSI
- ▶ The patch split, not because of the bond, but due to the patch material. After further investigation it is apparent that the bond was intact after disassembly.
- ▶ The patch material was responsible for the burst at 175 PSI. Bond held together throughout the trial.

For further information please contact Justin Maurer at PTI Industries.

Sincerely,

Justin Maurer

Process Development Technician\Additive & Pressure Test Supervisor



2 Peerless Way

Enfield, CT 6082

TEL (860) 698-9266

DL (860) 698-9266

FAX (860) 698-6794

ptiindustries.com

Follow us on [LinkedIn](#)

After test picture



Analysis

The picture reveals that the patch split at 175 psi. There was no failure of the bond. Actually the 175 was a disappointing figure for us. With these results, our XT Tech-Patch will be rated to repair holes and cracks up to 120 psi. That rating will qualify the Patch for most repairs withing the water industry.

Steel is the most difficult substrate on which to bond Tech-Patches. When a similar experiment on HDPE pipe was conducted, the end caps blew off at 300 psi. Yes, the Process works that well ... always. Test results will be higher on copper, galvanized, iron, PVC and ABS (if the PVC and ABS is rated that high.)

There are different fluorosilicone manufacturers. We will test fluorosilicone from each manufacturer. We expect to find a patch material that will be effective on steel at 300 psi. We will continually update our testing results on our website, tbbonding.com.

Questions? Please call 877 565 7225. We welcome the discussion.