



ROCKSHIELD TESTING

Description

Tuff-N-Nuff is a non-woven mat consisting of small diameter (approximately 0.050") strands of PVC. The strands are bonded to each other in a controlled random pattern. The rock shield protects pipe coatings from direct impact during backfilling operations. It also provides long term protection by keeping hard objects in the backfill away from the pipe coating during operation of the line. Pipe may move laterally as well as longitudinally, and the rock shield is the first line of defense against damage to the coating and the pipe.

Typical Properties for 3/8" Thick Rockshield:

Impact Strength: ASIM G14

The impact strength of a 16 mil thick Fusion Bonded Epoxy (FBE) coating was tested with and without a single layer of Rockshield in place. The procedure involves dropping a weight with a 5/8" diameter spherical point and then testing the coating for holidays. The Rockshield increased the average impact strength from less than 27 inch-pounds to about 120 inch-pounds.

Impact Strength: Non-standard procedure similar to ASIM G14

The impact strength of a 16 mil thick FBE coating was tested using a 90 degree angle chisel point on the impactor. The rockshield increased the average impact strength from only 7.2 inch-pounds to about 150 inch-pounds.

Penetration Resistance: ASIM G17

A 1/4" diameter blunt rod was weighted with 9.817 pounds to produce an effective load of 200 psi. At 75 deg F, the rockshield reached a maximum penetration of about 50% within 48 hours.

Compressive Strength: Similar to ASIM DI621

Squares were cut and stacked to form a specimen measuring 3"x3"x3". It was compressed at a rate of 0.30 inch per minute. The load-deflection diagram shows a rapid rise after 20% deformation, and a value of about 90 psi at 50% deformation.

Cathodic Protection Shielding

Two methods were used to simulate field conditions in wet environments. The highly porous rockshield gave no indication of inhibiting the flow of cathodic protection currents. The small diameter strands essentially allow current to reach the entire pipe surface.

Tests were conducted at an independent laboratory