



**SUGGESTED MASTER SPECIFICATION
SECTION 33 50 00 ROCK SHIELD PIPE PROTECTION**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Provision for rock shield pipe protection designed to provide protection from backfill rock damage and/or abrasion damage during pipe operation of the exterior coating on transport pipes.

1.02 REFERENCES

- A. American Society for Testing Materials (ASTM)
- B. National Association of Corrosion Engineers (NACE)

1.03 QUALITY ASSURANCE

- A. Rock Shield manufacturer shall demonstrate five years (minimum) continuous, successful experience in production of rock shield.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Store rock shield material under tarps to protect from oil, dirt, and sunlight.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Provide 11mm minimum thickness, flexible PVC (polyvinyl chloride), strand extruded rock shield pads as manufactured by Tuff-N-Nuff, 1-800-325-3605, 1-636-861-0443 or www.tuff-n-nuff.com.
- B. The rock shield shall be extruded from an elastomeric plastic material of which the basic resin is prime virgin polyvinyl chloride. The PVC compound shall not contain any scrapped, reclaimed or recycled material whatsoever.
- C. Minimum weight of rock shield: .825 lbs/square foot.
- D. Rock shield is to be constructed of randomly extruded strands of elastomeric PVC plastic.
- E. The rockshield must be bi-directional. This means that the rockshield should sufficiently protect the pipe regardless which side of the rockshield faces the pipe. This will reduce the risk of quality issues due to improper installation.
- F. The color of the rockshield shall be yellow to provide higher visibility to third party excavators.
- G. Performance Requirements as follows:

Property	Test Method	Required Limits
Impact Resistance	ASTM G-13 (Modified)	Protection integrity < 6" rock drop
Must be constructed from pvc plastic	ASTM D-2240	Durometer 78 (+ / - 3)
Cathodic Protection Shielding	Flange method on free film	Matrix must allow passage of CP current

Impact resistance:

The rockshield industry recognizes the ASTM G-13 rock impact test as a valid measurement of impact absorption and durability. ASTM G-13 testing consists of the following parameters:

- 35 lbs of stones
- ¾” in diameter
- Dropped from a height of 6 ft.
- Through a funneling chute onto the test surface
- This test is repeated 10 times or until a holiday (defect / damage) is discovered
- If no holiday is present after 10 repetitions, the product is said to have *passed*

ASTM G-13 is designed to test the durability of pipeline *coatings* not rockshield.

Actual field conditions requiring pipeline rockshield are substantially more severe than the scenario in a standard ASTM G-13 environment. Therefore, to more accurately assess the impact absorption and durability of the rockshield, ASTM G-13 should be modified as follows:

- The total weight of stones per repetition should be increased from 35 lbs to 55 lbs.
- The size of stones used should be larger and more representative of field conditions.
- The rockshield should protect the coating from impacts from rocks up to 6” in diameter.

These modifications will more accurately measure the capabilities and reveal the limitations of the rockshield in question under field conditions.

2.02 ACCESSORIES

- A. Provide non-metallic banding or durable filament tape to affix rock shield securely to the pipe.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Rock shield pads shall be affixed to pipe utilizing non-metallic bands of filament tape.
- B. Spacing of non-metallic banding shall not exceed 80 cm on center.
- C. Rock shield shall completely encircle the pipe with a minimum overlap of 10 cm. Overlap shall be located at the bottom radius (6 o’clock position).
- D. Back-fill should be “shaded” into the trench during back-fill procedure. Do not dump back-fill directly on protected pipe.
- E. Follow manufacturers recommendations.

END OF SECTION



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