

signaltape®

DAMAGE PREVENTION SOLUTIONS

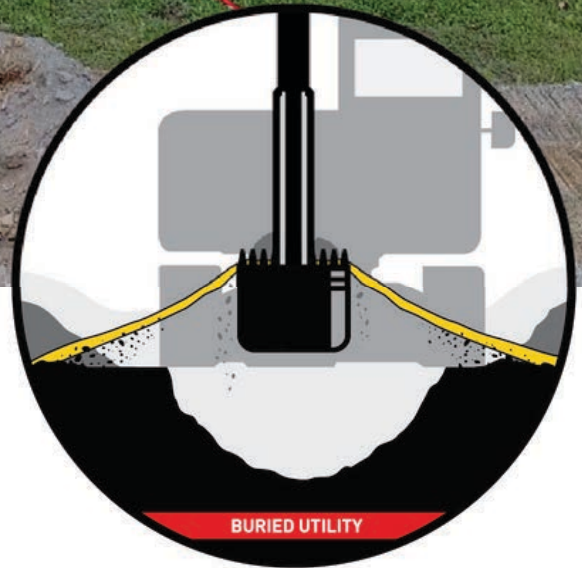




THE SIGNALTAPE® SOLUTION

Existing methods of damage prevention rely on a proactive excavation crew to either call 811, use pipeline maps, portable location devices, or be on the lookout for signs and markers that are easily damaged and obscured. Methods that do not rely on proactivity such as remote monitoring and sensors are expensive and do not directly alert the excavation crew.

Signaltape was engineered to address the root causes of excavation damage by providing



a robust and immediate visual alert directly to excavation crews with no additional proactivity or compliance required.

Signaltape was engineered to address the root causes of excavation damage.

Signaltape contains a 3000 lbf. tensile strength core material which ensures it pulls to the surface. This is unlike traditional warning tapes which shear underground.

205K

Telecommunications lines are the most frequently damaged utility type with 205,000+ damages in 2019 alone.

66%

of damage events with a known service status experienced a service interruption.

ROOT CAUSES OF DAMAGE TO TELECOMMUNICATIONS FACILITIES

15%

of damages due to **Invalid Use of Request**, such as digging before the valid start date/time or digging after the ticket has expired.

36%

of damages due to **No Locate Request** meaning no notifications was made to a one-call center.

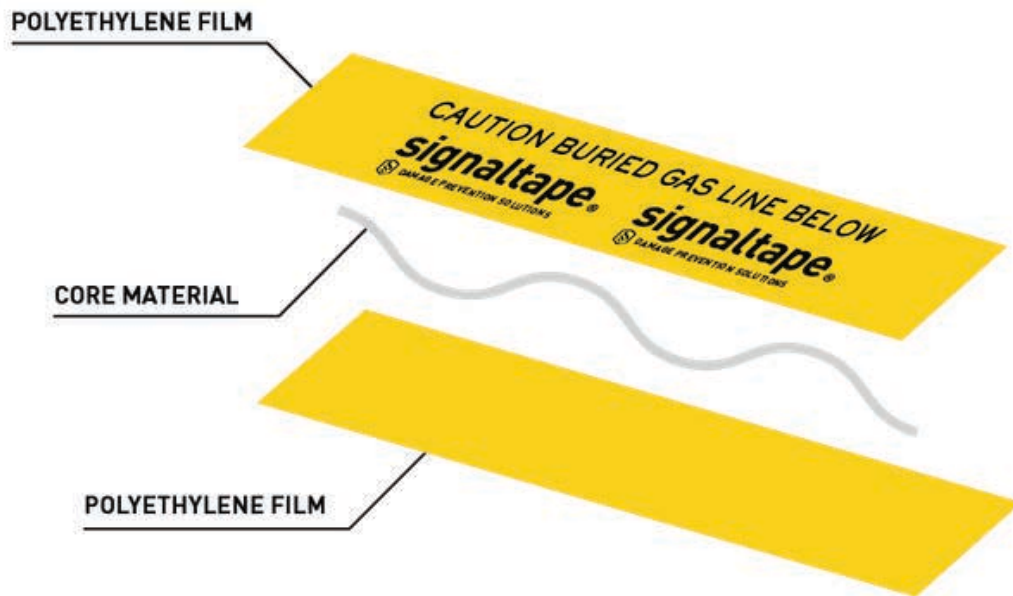
23%

of damages due to **Locating Practices** which includes incorrect marking due to locator error or inaccurate documentation.

25%

of damages due to **Excavation Practices** which includes failure to maintain clearance after verifying marks and digging prior to verifying marks by test-hole/pothole.

FEATURES + BENEFITS OF SIGNALTAPE®



HIGH-STRENGTH

High tensile core material ensures tape is seen by the equipment operator. The core material used in Signaltape is a 3,000 lb. tensile strength para-aramid fiber core material.

CUSTOM LEGEND

Text is fully customizable to include color logos, symbols, and any size/font at no additional cost.

FORM FACTOR

1,000 ft. (300,) roll length; lays flat style makes it quick and easy for installation.

HYDROPHOBIC

Makes the film more visible even in the toughest conditions.



POLYETHYLENE

the film layers of Signaltape® are made from woven polyethylene which has a strength of which are 11 mil when measured to ASTM D2103.



PARA-ARAMID

Signaltape's inner core is made of para-aramid fiber with a tensile strength of 3000 lbf. when tested to ASTM D6775.

HOW IT WORKS ◆

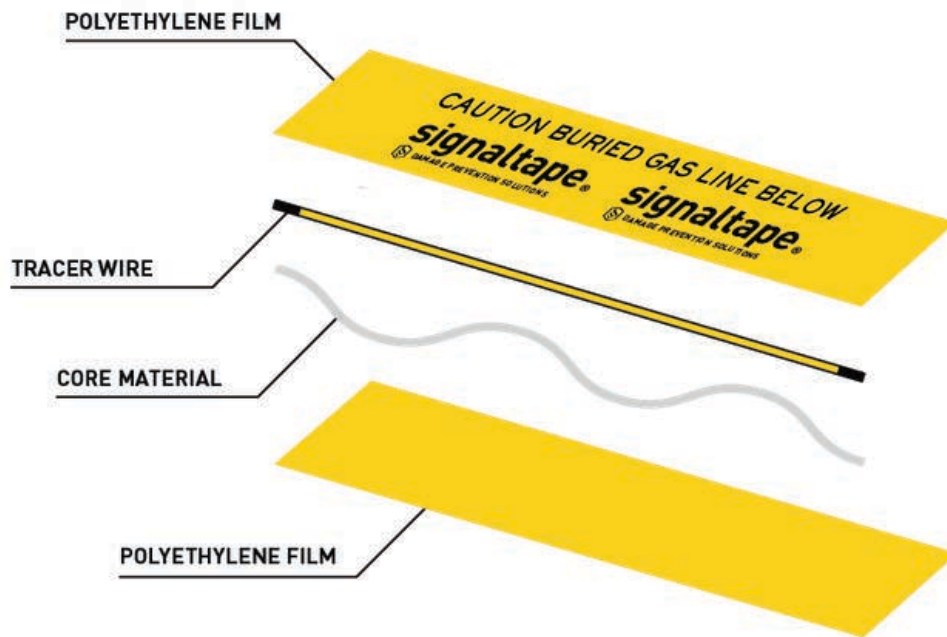
HIGH STRENGTH CORE + SINE WAVE

Signaltape's patent-pending combination of a high strength core combined with the distinct sine wave pattern allows the tape to be pulled to the surface when encountered in the excavation process.

This varies greatly from the way other tapes function as there is no core material to stop the tape from shearing underground.



SIGNALTAPE® WITH INTEGRATED TRACER WIRE

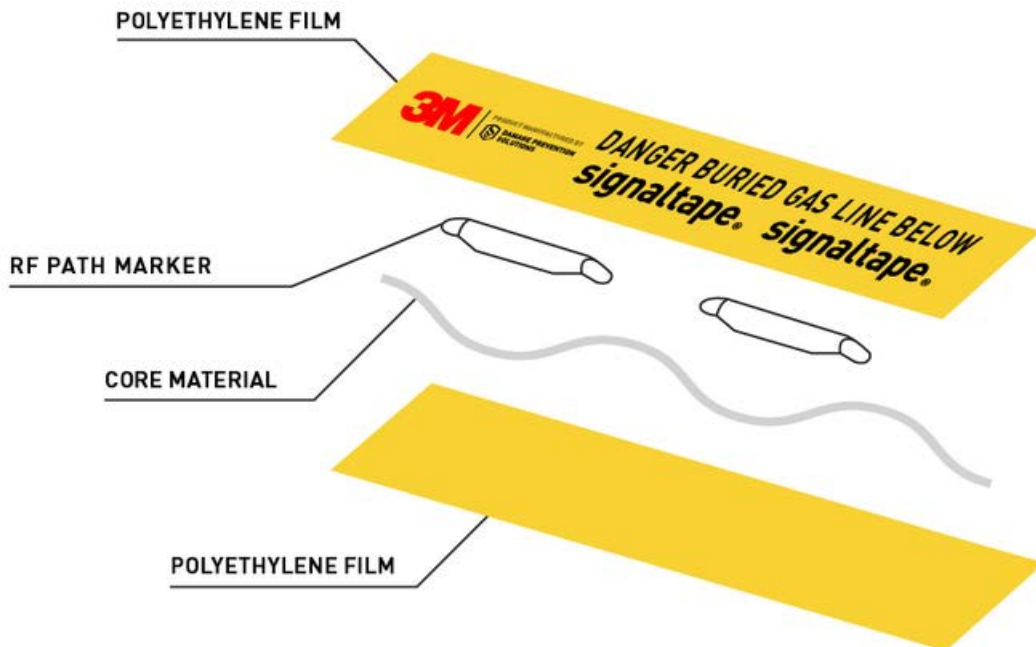


BENEFITS

- Tracer wire is an industry-standard location method, by embedding into Signaltape installation is reduced to one step for two products.
- Improves the accuracy of location by keeping wire straight, which has a tendency to revert toward its coiled state when not held straight.
- Any tracer wire specified by the customer can be embedded into Signaltape.
- When tracer wire is combined with Signaltape there is still a damage prevention system in place if tracer wire is damaged by noncompliance or is otherwise impaired.



3M™ 7900 EMS WARNING TAPE XT



BENEFITS

- Discrete method of marking utilities that does not require marking by public one call center and can be done by using an RF locator.
- Unique ability to identify utility type without consulting documentation.
- Unlike tracer wire there is no "bleed off" from signals of nearby utilities, increasing accuracy.
- Private 3M™ Asset Tracking app compatibility utilizes google maps without being accessible to the public.



SIGNALTAPE® SPECIFICATIONS

PHYSICAL DESCRIPTION

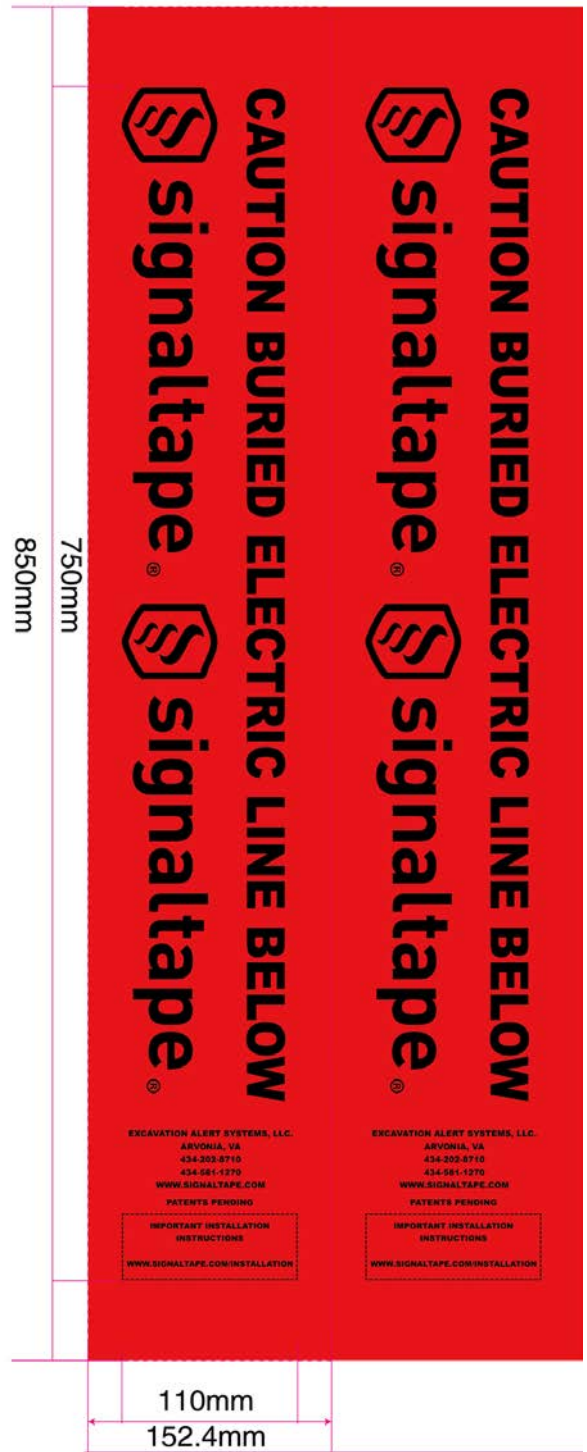
Signaltape damage prevention and marking system is primarily composed of polyethylene and less than 40% by weight aramid fiber. Signaltape is offered in 4", 6", 12", and 24" widths and is optionally detectable to include 14 AWG PE (3) Copper Clad Steel (CCS) tracer wire, RFID, or other as specified by the engineer.

PERFORMANCE

The core material has a minimum 3,000 lb tensile strength to ensure it is pulled to the surface directly alerting the equipment operator. Film legend print is fully customizable and laminated between polyethylene layers for longevity. Signaltape meets all applicable ASTM standards, and available in all APWA specified colors.

INSTALLATION

It is recommended that Signaltape be buried 12" or less below grade. The minimum distance from the top of the pipeline should be 12", with 24" - 36" recommended. Signaltape should be installed in accordance with Damage Prevention Solutions, LLC installation procedure.





PROPERTY	TEST METHODS + U.S. VALUE	
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WEIGHT

4" WIDTH SIGNALTAPE	MFG. TESTED	28 LBS/1000FT
6" WIDTH SIGNALTAPE	MFG. TESTED	35 LBS/1000FT
12" WIDTH SIGNALTAPE	MFG. TESTED	55 LBS/1000FT

THICKNESS

PE FILM	ASTM D2103	11 MIL / .28MM
PE FILM + CORE MATERIAL	ASTM D2103	80 MIL / 2.03 MM

BREAK-STRENGTH

CORE MATERIAL	ASTM D6775	3000 LBS.
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PRINTABILITY

PE FILM	ASTM D2578	34 DYNES
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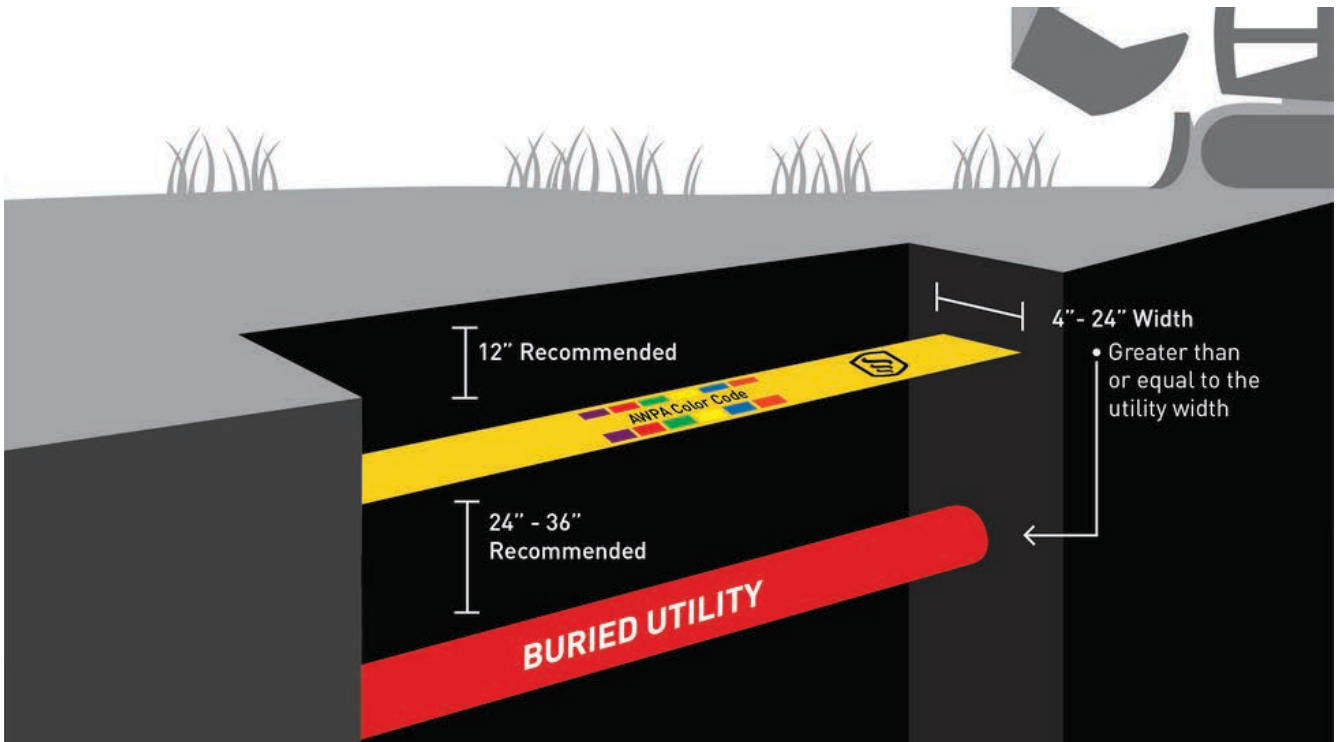
ELONGATION

4" & 6" WIDTH SIGNALTAPE	25% - 1.25/1 RATIO OF CORE MATERIAL SLACK TO FILM
12" WIDTH SIGNALTAPE	50% - 1.5/1 RATIO OF CORE MATERIAL SLACK TO FILM
CORE MATERIAL	3% TO 4% AT ULTIMATE BREAK STRENGTH LESS THAN 1.5% AT 90% ULTIMATE BREAK STRENGTH

OTHER

CHEMICAL RESISTANCE	EXCELLENT RESISTANCE TO ACIDS. GOOD RESISTANCE TO ALKALIS.
ENVIRONMENTAL CONCERNS	NOT ATTACHED BY MILDEW. EXCELLENT RESISTANCE TO AGING.

INSTALLATION



SIGNALTAPE® INSTALLATION PROCEDURE

It is recommended that Signaltape damage prevention and marking system be buried 12 in (30 cm) or less below grade. The minimum distance from the top of the pipeline should be 12 in (30 cm), with 24 in (60 cm) - 36 in (90 cm) recommended as shown above.

Each run of Signaltape must be overlapped by a minimum of 20 ft (6 m) or must be joined as shown below where possible. Signaltape may be installed with static or vibratory plow.



JOINING SIGNALTAPE

Each section of Signaltape may be joined end to end for repair of damage or installation, if not overlapped by 20 ft (6m). Peel back the two layers of each end exposing the core material (above) and tie together using a double fisherman's knot as shown (above). If optionally detectable with inclusion of tracer wire, join using a direct bury connector with strain relief (unless otherwise specified by the engineer).



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DAMAGE PREVENTION SOLUTIONS