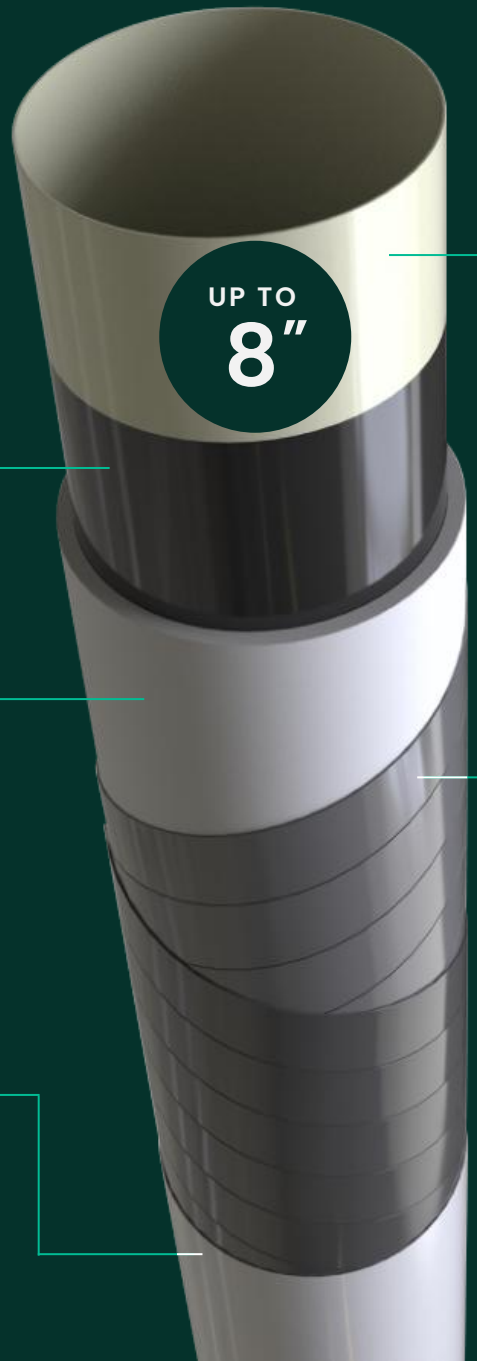
PythonPipe™

spoolable composite pipe



TIEBOND LAYER

HDPE BASE PIPE LAYER FOR HIGH-TEMPERATURE STRENGTH (Up to 180°F)

ABRASION-RESISTANT HDPE OUTER JACKET

PROPRIETARY PERMEATION RESISTANT LINER OPTIONS

Nylon
- Adds gas permeating resistance vs HDPE
- Improved resistance to paraffin deposition

PPS
- Highest permeation resistance
- Best for extremely corrosive environments

PROPRIETARY REINFORCEMENT LAYER OPTIONS

Glass fiber
- Optimal weight to pressure resistance
- For applications **up to 1,500 psi**
- Good for **sour service** and **cyclic applications**

Steel wire
For highest pressure resistance—**up to 3,000 psi**

Aramid fiber (Non-API Thermoflex)
- Best tensile strength to weight ratio
- Best suited for pull-through or pipe rehabilitation applications

Baker Hughes

PythonPipe™ – Proven Rapid Crack Propagation Resistance

CHALLENGES

Why RCP Matters in CO_2 Transport?

Rapid Crack Propagation (RCP) is a critical design load case for steel pipelines transferring dense-phase or supercritical CO_2. A single defect can lead to catastrophic failure. Traditional solutions like composite crack arresters add complexity and cost.

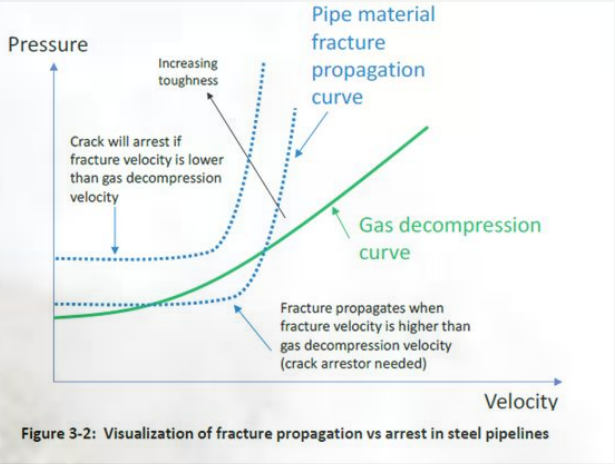


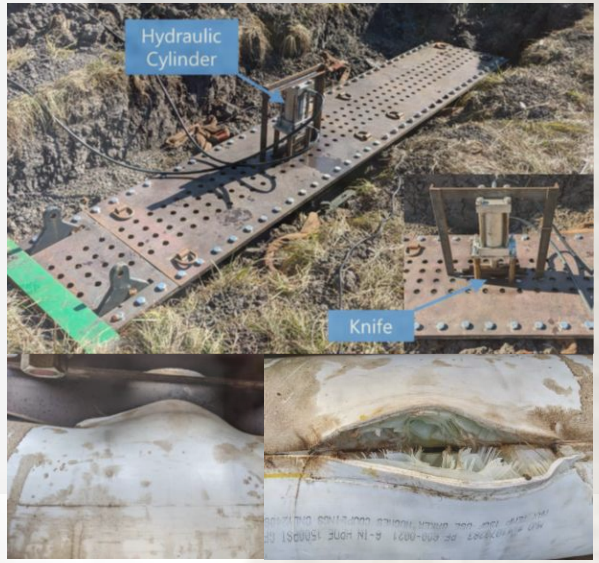
Figure 3-2: Visualization of fracture propagation vs arrest in steel pipelines

SOLUTION

Industry-Leading Validation

Baker Hughes partnered with external lab to conduct full-scale RCP testing, confirming non-metallic PythonPipe as a safe, reliable solution for CO_2 transport.

PythonPipe exhibits much higher crack propagation resistance than steel. Multi-layer composite reinforcement ensures structural integrity under extreme conditions, eliminates the need for external crack arresters. Reinforcement shows behavior analogous to a composite crack arrestors.



RESULTS

1500psi

rated for 6-inch PythonPipe™

120 hours

test duration saturated with CO_2 at 1520 psi.

< 1-inch

crack propagation beyond initial cut using hydraulic power knife to release CO_2 over 15 seconds.

Please refer to full technical paper published at Offshore Technology Conference (OTC).
https://doi.org/10.4043/35840-MS

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Discover how PythonPipe spoolable composite pipe can reduce your capital and operations expenditures, reduce production downtime, and improve your profits for the entire life cycle of the installation. Learn what to look for to determine which pipe configuration is right for your applications.

Request more information or connect with a Baker Hughes representative at: bakerhughes.com/onshore-composite-pipe

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