

GLOBAL

Oilfield firsts:

1995	Downhole fiber-optic sensing
2004	Subsea fiber-optic deployment
2006	Hybrid fiber-optic electric cable
2008	Sandface fiber-optic deployment
2010	Fiber-optic pressure gauge
2015	Hydraulic fracturing assurance

Background

Since 1995, when Schlumberger began using fiber optics for distributed temperature sensing (DTS) in wells, R&D has been focused on enhancing fiber reliability. Optical fiber tends to degrade when exposed to high levels of hydrogen or high temperatures. The fiber begins to darken, causing incorrect temperature readings.

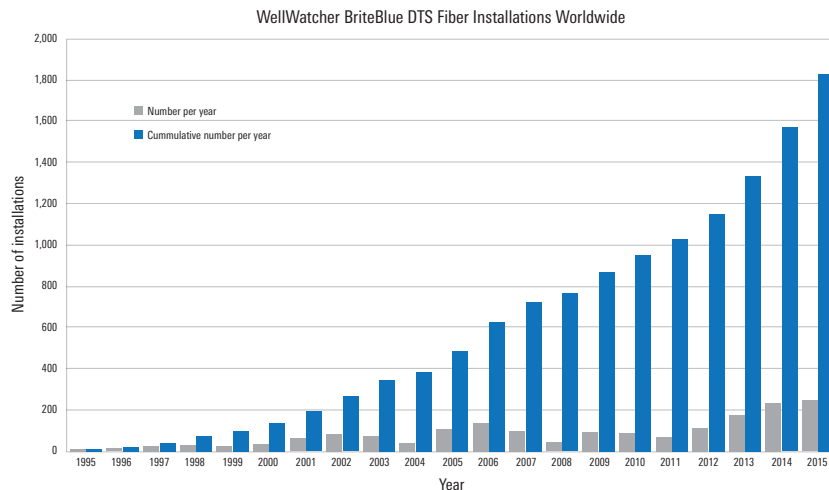
Schlumberger then pioneered accelerated aging tests for optical fibers at high temperatures. WellWatcher BriteBlue HT* high-temperature multimode DTS fiber, which resulted from this research, increased light transmission by almost 50-fold. The results were exceptional resistance to hydrogen, longer life, faster response time, and better spatial resolution.

Technology

- WellWatcher BriteBlue* multimode DTS fiber
- WellWatcher BriteBlue HT high-temperature multimode DTS fiber
- WellWatcher Neon* DTS, DAS, and PT gauge system

WellWatcher BriteBlue DTS Fiber Leads Industry in Reliability, with 20-Year Track Record of Success

More than 1,800 permanent installations, more than 18.5 million ft [5.64 million m] of fiber, and a life span of more than 10 years



Since 1995, Schlumberger has deployed WellWatcher BriteBlue multimode DTS fiber in more than 1,800 installations worldwide.

The WellWatcher BriteBlue multimode DTS fiber is used to monitor downhole distributed temperature profiles from the surface in real time. The fiber has field-proven resistance to hydrogen and chemical darkening up to 572 degF [300 degC]. It provides enhanced spatial resolution and faster temperature response for high-temperature wellbore monitoring in steam-flood, steam-assisted gravity drainage (SAGD), and other extreme applications.