Baker Hughes

# TerraSet, a smarter solution for well integrity in CCUS wells

## An OPC-free and $CO_2$ resistant cement system

### Applications

- Conventional primary and remedial cementing operations in $CO_2$ and $H_2S$ environments
- Ideally suited to carbon capture, utilization and storage wells (CCUS)

### Features and Benefits

- Ensures superior resistance to attacks from $CO_2$, $H_2S$, magnesium, and sulfate
- Reduces carbon footprint with a sustainable, OPC-free formulation
- Customizable solution to meet specific well conditions

Conventional ordinary portland cement (OPC) faces significant challenges in carbon capture, utilization, and storage (CCUS) wells, as well as $CO_2$/$H_2S$ producing environments. In such conditions, cement degradation can affect well integrity. It is important to use a cement system specifically engineered to withstand $CO_2$ attack and perform in the toughest conditions.

### An alternative for the future

TerraSet™ from Baker Hughes is an OPC-free cement system engineered for long-term durability in high $CO_2$ and high $H_2S$ environments. Table 1 and Figure 1 demonstrate the effectiveness of TerraSet compared to conventional OPC.

At Baker Hughes, we understand that the one-size-fits-all does not work in cementing. That's why TerraSet offers unlimited design flexibility, ensuring your well gets the right slurry mix for each specific well application.

### Designed to support sustainable operations

TerraSet has a reduced carbon footprint compared to OPC, which is known for its high $CO_2$ emissions.

Also, by utilizing advanced pumping equipment such as the Hummingbird™ all-electric cement unit, we support sustainable operations and ensure a high-quality cement job every time.

TerraSet cement slurries are part of the Baker Hughes Set for Life™ family of cement systems, which are designed to isolate and protect the targeted zone for the life of the well.

### Safety and handling

Refer to system component material safety data sheets (MSDS) for handling, transport, environmental information, and first aid.

| Typical properties | |
|---|---|
| Temperature range | Up to 180°F (82°C) |
| Typical density | Up to 15.8ppg (1798 kg/m³) |

| 4M acetic acid % weight loss | | |
|---|---|---|
| | 2 weeks | 4 weeks |
| **TerraSet** | 6.11 | 7 |
| **Conventional** | 18.38 | 33.7 |

**Table 1:** Comparison of TerraSet vs. conventional example design after curing in acetic acid as an analogue to $H_2O/CO_2$ generated carbonic acid. 190°F and ambient pressure and ambient.

**Figure 1:** Comparison of TerrraSet (Right at 4 weeks) vs. conventional OPC design (Left at 2 weeks) after curing in 4M in acetic acid as an analogue to $H_2O/CO_2$ generated carbonic acid. 190°F and ambient pressure.

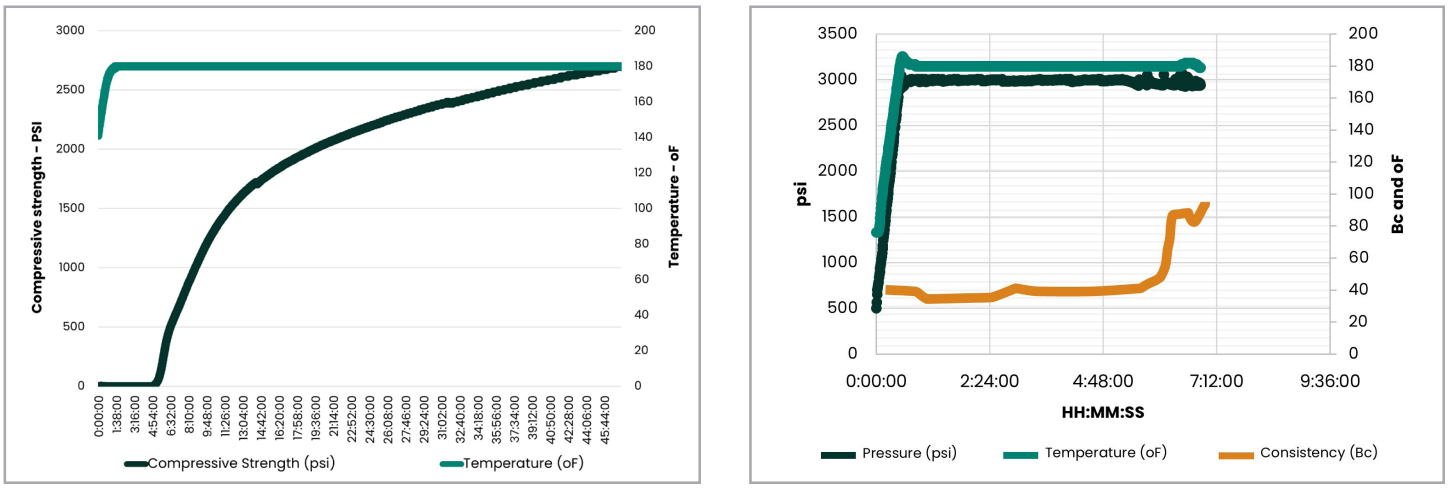


**Figure 2:** Example 15.8 ppg TerraSet compressive strength and thickening time at 180°F

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