

Accepted Manuscript

Anti-corrosion cement for sour gas (H₂S-CO₂) storage and production of HTHP deep wells

Xu Bihua, Yuan Bin, Wang Yongqing

PII: S0883-2927(18)30187-2

DOI: [10.1016/j.apgeochem.2018.07.004](https://doi.org/10.1016/j.apgeochem.2018.07.004)

Reference: AG 4122

To appear in: *Applied Geochemistry*

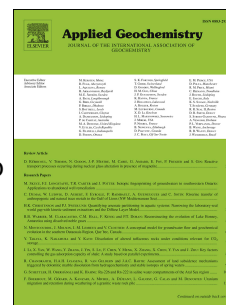
Received Date: 5 April 2018

Revised Date: 30 June 2018

Accepted Date: 4 July 2018

Please cite this article as: Bihua, X., Bin, Y., Yongqing, W., Anti-corrosion cement for sour gas (H₂S-CO₂) storage and production of HTHP deep wells, *Applied Geochemistry* (2018), doi: 10.1016/j.apgeochem.2018.07.004.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Anti-corrosion cement for sour gas (H₂S-CO₂) storage and production of HTHP deep wells

Bihua Xu, Bin Yuan*, Yongqing Wang*

State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Southwest Petroleum University, Chengdu 610500, China.

Abstract

A wellbore cement sheath exposed to an H₂S-CO₂ rich environment for long time will lose its general purpose (zone isolation, segregation, pipe strength improvement, etc.) due to corrosion, especially under high-temperature and high-pressure (HTHP) formation conditions. H₂S-CO₂ attacks cement by causing leaching, expansion, and dissolution effects. Therefore, this research work intends to investigate the corrosion-resistant properties of corrosion-resistant additive (CRA) for Fe₂O₃-amended cement. The experimental results indicate that the well cement with CRA has lower original permeability and calcium hydroxide (CH) content than cement without CRA; even after corrosion, it has higher compressive strength, lower permeability and smaller corrosion depth than that of cement without CRA. CRA can react with CH and high-Ca/Si hydration products to generate low-Ca/Si hydration products such as xonotlite and tobermorite. CRA cement has superior corrosion resistance because of reduced its original permeability due to film formation and filling effects and through the reduction of CH to achieve low-Ca/Si

*Corresponding author. Tel: +86-28-83032901.

**Corresponding author. Tel: +86-28-83032901.

E-mail address: swpiwyq@163.com (Y. Wang), yuanbin19880118@126.com (B. Yuan).

Download English Version:

<https://daneshyari.com/en/article/8863037>

Download Persian Version:

<https://daneshyari.com/article/8863037>

[Daneshyari.com](https://daneshyari.com)