

March 1, 2023

To whom it may concern

**Notification for the Winning Joint Award at Middle East Oil & Gas Show (MEOS) and
Middle East Geosciences Conference & Exhibition (GEO)**

Nissan Chemical Corporation announced it won the Innovation and Technology Award at the Energy Awards of the Middle East Oil & Gas Show and the Middle East Geosciences & Exhibition (MEOS GEO) on February 19, 2023 with INPEX CORPORATION and OILMIND LLC for their development of new generation chemical water shut-off (WSO) technology based on emulsion with nanoparticles. This innovative technology results from a multi-year cooperation between the three companies and was recognized as having considerable potential for being efficiently applied to carbonate oil formations in the Middle East.

The award ceremony took place at the MEOS GEO conference venue located in the Sakhir area of the Kingdom of Bahrain, with the commemorative shield being presented by His Highness Khalid bin Abdullah Al Khalifa, deputy prime minister of Bahrain. MEOS GEO is one of the upstream industry's oldest international conferences in the Middle East region.

The new WSO technology was developed to overcome issues posed by existing technologies and inhibit the water cut that causes the reduction in production and economic efficiencies. The MEOS GEO committee commended the technology for its contribution to improving oil recovery, minimizing CO2 footprint during water shut-off operations, and reducing the intensity of CO2 emissions associated with the treatment of produced water.

Award Summary

Award Name: MEOS GEO Energy Awards, Innovation and Technology Award

About the WSO technology:

The new-generation chemical WSO technology was developed for the purpose of selectively reducing the volume of produced water at oil wells with high water cut. The technology is expected to address issues of water encroachment in geologically complex carbonate oil formations the Middle East characterized by high temperature and salinity.

The technology deploys a water shut-off agent with ideal pseudoplasticity and can be easily handled during make-up and injection operations. When injected, the agent is practically selective wherein it works only in areas predominantly saturated with water and disperses in the oil zone, avoiding damage to oil columns. Its reversible physical properties enable it to be neutralized when injected into unintended targets.

Due to these characteristics, the technology does not require temporary mechanical isolation work to protect oil columns as with existing technology, enabling the significant reduction of operating costs and CO2 footprint.

Companies : Nissan Chemical Corporation (<https://www.nissanchem.co.jp/>)
INPEX CORPORATION (<https://www.inpex.co.jp/>)
OILMIND LLC (<https://oilborn.com/en/oilmind/>)

Reference

MEOS GEO Energy Awards (<https://meos-geo.com/conference/meos-geo-energy-awards/>)
 Technical Literature (<https://doi.org/10.2118/211167-MS>)
 Technical Video (https://youtu.be/_O4uVbGU4hQ)



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