Going greener offshore

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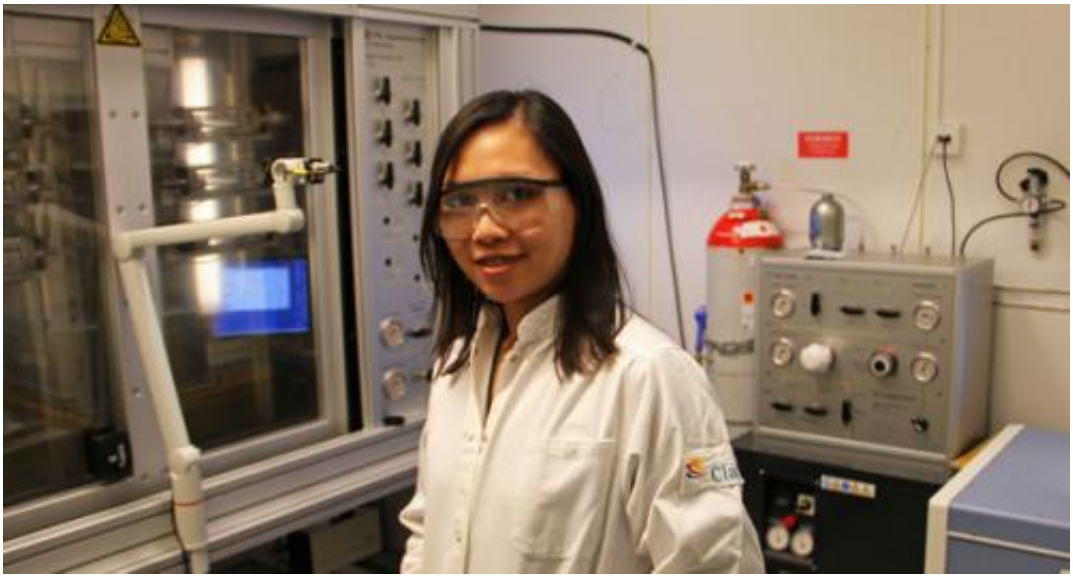

Pei Cheng Chua at the University of Stavanger (UiS) has developed new and better environment-friendly chemicals for use in oil and gas production. The 32-year-old from Malaysia defended her PhD thesis on studies of new classes of low-dosage hydrate inhibitors (LDHIs) at the university on 24 January.

These chemical substances are used in the petroleum industry to prevent gas hydrate – a kind of hydrocarbon ice – from forming in and blocking pipelines.

Pressure

Natural gas and produced water can react together under high pressure and low ambient seabed temperatures to create this problem, which can completely halt flow in the worst case.

Various methods are used to overcome the icing, depending on conditions in the various oil or gas fields. In many cases, the simple answer is to add a type of anti-freeze to the hydrocarbons.

The difficulty is that large amounts of water are needed. This does not harm the environment, but costs money, calls for a lot of logistics and poses health risks for offshore workers.

Developed

However, scientists have developed LDHIs over the past 10-15 years as an alternative to anti-freeze. They either delay hydrate formation or disperse the ice particles to prevent blocking.

Chua has designed, produced and pressure-tested new LDHIs, which have proved to perform better and/or had less environmental impact than the substances currently on the market.

Some of these products have been patented and are now being subject to further testing by the oil industry before they can be adopted offshore.

Read more about green production chemistry.

Provided by University of Stavanger