



Contribution ID: 452

Type: **Poster (+) Presentation**

## MOFs based CH<sub>4</sub> Hydrate Formation and Self-Preservation

*Monday, 31 May 2021 19:35 (1 hour)*

Metal-Organic Framework (MOFs) are functional crystalline porous material having an open metal site with organic linkers with a wide range of applications. Fundamental properties include a large surface area, the high degree of crystallinity. It is also known that MOFs are of low density and show high thermal stability. Their usage in gas hydrate field is unknown and has not been investigated previously.

In this study, we test different MOFs for their CH<sub>4</sub> hydrate storage capability as well as storage stability below 0°C for natural gas storage and transport. Experiments are performed under hydrate formation conditions using a high-pressure chamber. Multiple temperature cycles are performed to check the memory effect as well as improvement in hydrate storage capability in memory run. Results show enhanced hydrate formation rate in the presence of MOF. During the study, crystals are found to remain stable over multiple dissociations and formation cycles, indicating a long life cycle and reusability of MOF as a hydrate carrier. Details discussion will be provided during the presentation.

### Time Block Preference

Time Block C (18:00-21:00 CET)

### References

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**Session Classification:** Poster +

**Track Classification:** (MS1) Porous Media for a Green World: Energy & Climate