

# Au encapsulation in zeolites

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Supported gold nanoparticles, since the first report on their high catalytic activity in low-temperature CO reduction, have been used extensively in organic chemistry reactions [1]. However, supported nanoparticles are prone to sintering which is causing a thermal deactivation of the catalyst [2]. The stability might be improved by encapsulation of individual nanoparticles inside the porous inorganic material. Such materials were proven to be size-selective and stable under extreme temperature conditions [3].

The preparation of gold nanoparticle encapsulated zeolite silicalite-1 is reported. Zeolite material is impregnated with an aqueous solution containing metal precursor using a simple incipient wetness method modified by the additional step of pressure assisted impregnation. Material is then tested in the formic acid decomposition in the flow reactor. Catalyst was characterized using TEM, N<sub>2</sub> physisorption and XRD.

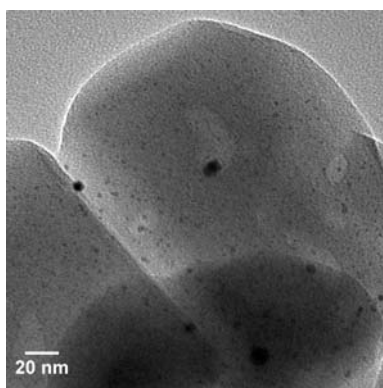


Fig. 1. TEM image of zeolite containing encapsulated gold nanoparticles.

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## References

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