

- active iron species. *Catal. Today*, 110(3-4): 211-220. <https://doi.org/10.1016/j.cattod.2005.09.041>
- [39] Campelo, J.M., Lafont, F., Marinas, J.M., Ojeda, M. (2000). Studies of catalyst deactivation in methanol conversion with high, medium and small pore silicoaluminophosphates. *Appl. Catal. A.*, 192(1): 85-96. [https://doi.org/10.1016/S0926-860X\(99\)00329-4](https://doi.org/10.1016/S0926-860X(99)00329-4)
- [40] Bonura, G., Cannilla, C., Frusteri, L., Mezzapica, A., Frusteri, F. (2017). DME production by CO₂ hydrogenation: key factors affecting the behaviour of CuZnZr/ferrierite catalysts. *Catal. Today*, 281(1): 337-344. <https://doi.org/10.1016/j.cattod.2016.05.057>
- [41] Ordonsky, V.V., Cai, M., Sushkevich, V., Moldovan, S., Ersen, O., Lancelot, C., Valtchev, V., Khodakov, A.Y. (2014). The role of external acid sites of ZSM-5 in deactivation of hybrid CuZnAl/ZSM-5 catalyst for direct dimethyl ether synthesis from syngas. *Appl. Catal. A: Gen.*, 486: 266-275. <https://doi.org/10.1016/j.apcata.2014.08.030>
- [42] Niwa, M., Katada, N. (2013). New method for the temperature-programmed desorption (TPD) of ammonia experiment for characterization of zeolite acidity: A review. *The Chemical Record*, 13(5): 432-455. <https://doi.org/10.1002/tcr.201300009>