

# Industrial Deployment of a Zeolite Catalyst: *Past, Present & Future*

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## ABSTRACT

The commercial deployment of a zeolite-based catalyst, Pt/H-MOR, in light naphtha (~C<sub>5-6</sub> paraffins) hydro-isomerization process will be described. The initial goal was to increase the octane (RON & MON) of paraffinic components of gasoline. We will follow the process of a laboratory invention (thermodynamic and kinetic challenges and opportunities, fundamental characterization, shaping of a technical body...) moving to a major industrial innovation illustrating the challenges posed by a relatively simple reaction taking place under moderate conditions (T, P) where deactivation is not a major issue provided no irreversible catalyst contamination occurs. The combination of a stable bi-functional catalyst with a zeolite-based separation process will lead to superior performance of the process by a displacement of unfavorable thermodynamics.

This success on a fossil feedstock to produce high quality gasoline has been extended, albeit with different zeolites, to produce high quality gasoils and lubricants and is poised to enter the field of green fuels, particularly SAF.

**Key words:** MOR and LTA zeolites, bi-functional catalysis, separation by adsorption, future trends

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