Characterization of PtRe/carbon catalysts used for conversion of sugars to hydrocarbons

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The focus of this research is to investigate factors that help improve the stabilization of the PtRe on carbon supports. Initial work has addressed differences between a carbon black support (Vulcan XC72) and activated carbon (Norit SX1G).

Low magnification views of the PtRe on (upper left) Vulcan carbon and (upper right) on Norit carbon. The Vulcan carbon shows ~2nm particles in localized areas. The Norit carbon shows ~1 nm particles very well distributed throughout the carbon.

Aberration Corrected STEM images showing the differences in the particle size distribution on the Vulcan and Norit carbons. Isolated single atoms species and small clusters can be seen on the Norit carbon (lower right), while the Vulcan shows larger PtRe particles (lower left).