



Transmission electron microscopy of VPO-catalysts

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TEM and EELS are used to study the micro and electronic structure of VPO/VPP. Beam damage is a highly critical issue pretending amorphous overlayers and low oxidation states. Low exposures of $500 \text{ e}/\text{Å}^2$ allow artefact-free imaging for a few seconds. Image simulations and band-structure calculations are necessary for the proof of the unusual strong variations of HREM contrast on thickness and defocus, and for the interpretation of the ELNES. VPP single crystal exhibits same microstructural features as powder VPP samples; both show tendency to form amorphous crust. The best catalyst prepared by inorganic method exhibits the most defective internal structure and the smallest crystallite size.