

On the mechanism of nitric oxide decomposition over Cu-ZSM-5

- Ali Amirnazmi, TranTech Consultants, Inc.

[Download PDF \(346 KB\)](#)

Abstract

Cu-ZSM-5, a copper-containing zeolite, catalytically decomposes NO at temperatures below those of other catalysts. A mechanism is proposed which is based on active sites consisting of coordinatively unsaturated cupric (Cu^{2+}) ions in a square planar configuration. These sites are posited to chemisorb NO molecules in the gem-dinitrosyl form. The pair of adsorbed NO molecules desorbs as N_2 and O_2 . This mechanism accounts for the experimental behavior in chemisorption and decomposition without invoking a cyclical oxyreduction of the surface sites.

