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Regeneration of Pt-catalysts deactivated in municipal waste flue gas with H₂/N₂ and the effect of regeneration step on the SCR catalyst

Johannes Due-Hansen ^{a,*}, Søren Birk Rasmussen ^a, Arkady Kustov ^a, Bernard Siret ^b, Frank Tabaries ^b and Rasmus Fehrmann ^a

^a *Department of Chemistry and Center for Sustainable and Green Chemistry, Department of Chemistry, Technical University of Denmark, DK-2800 Lyngby, Denmark*

^b *LAB S.A., 25 rue Bossuet, 69455 Lyon Ce'dex 06, France*

jdh@kemi.dtu.dk

The deactivation performance of Pt-catalysts for CO oxidation has been studied in relation to use in sewage sludge municipal waste burners, where HMDS was found to poison the industrial catalyst in a similar way to the model Pt/TiO₂ catalyst.

A promising regeneration procedure was developed based on reduction with hydrogen. This procedure had negligible effect on the performance of the SCR catalyst. After treatment with 2% H₂, 8% O₂ in N₂ for one hour, a slight better NO SCR activity was observed due to increase in the concentration V⁴⁺ sites. However, after exposure in normal NO SCR gases the activity quickly returned to normal.

Keywords: Platinum, CO oxidation, Deactivation, Regeneration, Hydrogen, Selective Catalytic Reduction