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Regeneration of Pt-catalysts deactivated in municipal waste flue gas with H_2/N_2 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/TiO_2 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% H_2, 8% O_2 in N_2 for one hour, a slight better NO SCR activity was observed due to increase in the concentration V^{4+} 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