

Modification of  $V_2O_5$ - $WO_3$ / $TiO_2$  Catalytic Ceramic Sheet Filters for Selective Catalytic Reduction of  $NO_x$  with  $NH_3$

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The selective catalytic reduction of  $NO_x$  with  $NH_3$  over  $V_2O_5$ - $WO_3$ / $TiO_2$  (VWT) based catalyst is the best benchmark technique to reduce  $NO_x$  emissions efficiently from stationary and mobile sources. Improvement of VWT catalytic sheet filter has been achieved by using a dip coating method with varied catalyst coating solution concentration (10-30wt%) and discussed their NO conversion at reaction temperature 220-380 °C. NO conversion from 50% (BM10SF) to >90% (BM25SF and BM30SF) with  $N_x$  leakage <50 ppm at 280-340 °C temperature has been achieved. Further, we have modified the  $TiO_2$  with polymer particles by ex-situ and in-situ preparation methods. We observed the effect of modified  $TiO_2$  by in-situ and ex-situ methods on the  $NO_x$  reduction performance of the catalytic SF. Effect of a Niobium doping on the VWT catalytic SF  $NO_x$  performance studied with varied Nb-content (1-4 wt%). The pressure drop value was low <50 at face velocity 2 cm/s decreased to <10 at 2 wt% Nb-content doped VWT SF which shows better NO conversion i.e. 95-97% at 260-340 °C.