

$V_2O_5-WO_3/TiO_2$  supported ceramic catalytic sheet filters modified with polymer for simultaneous reduction of  $NO_x$  and particulates with  $NH_3$

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Nitrogen oxide emission in fuel from the stationary sources primarily from power stations, industrial heaters and cogeneration plants, diesel engines and emission of fine dust particulates represents a major worldwide environmental problem. The selective catalytic reduction (SCR) with  $NH_3$  over catalyst based on  $V_2O_5-WO_3/TiO_2$  (VWT) is the best effective technique to solve this problem. In order to overcome plugging of catalytic sheet filter (SF) gas flow path, highly effective catalyst supported in the pores of the ceramic SF elements is necessary to provide a low pressure drop of the system as well as the simultaneous treatment of particulates and  $NO_x$ . In our study, we have modified the  $TiO_2$  by using the polymer particles by ex-situ and in-situ preparation methods, which were used to prepare the VWT catalyst powder with increased reactive sites and surface area. We used the simple solution dip coating technique to fabricate the VWT-supported ceramic catalytic SF. We observed the effect of modified  $TiO_2$  by in-situ and ex-situ preparation methods with different coating solution concentration on the  $NO_x$  reduction performance of the prepared ceramic catalytic SF.