

(54) Title of the invention : TRANSITIONAL METAL-DOPED CERIA-PRASEODYMIUM BASED NANOFIBER CATALYSTS SYNTHESISED VIA ELECTROSPINNING TECHNIQUE FOR DIESEL SOOT OXIDATION

(51) International classification	:D01D0005000000, D04H0001728000, G03G0021180000, D01F0001100000, H01F0001060000
(86) International Application No	:NA
Filing Date	:NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
Filing Date	:NA
(62) Divisional to Application Number	:NA
Filing Date	:NA

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(57) Abstract :

A process (100) of obtaining transitional Metal-Doped Ceria-Praseodymium based nanofiber catalysts synthesised via electrospinning technique for diesel soot oxidation is disclosed. The process (100) includes preparing a spinning solution by dissolving ethanol and a distilled water in metal nitrates. The process (100) includes stirring the spinning solution to dissolve metal nitrates to obtain first solution. The process (100) includes mixing Poly Vinyl Pyrolidine with first solution to obtain second solution. The process (100) includes electrospinning collection drum and dispensing third solution through a needle from syringe onto collection drum. The process (100) includes collecting a spun nanofibers from the collection drum. The process (100) includes calcined the spun nanofibers in muffle furnace at predefined temperature for predefine time to obtain Ceria-Praseodymium based nanofiber (Ce0.9Pr0.1)0.95 O2-d. The process (100) includes doping Ceria-Praseodymium based nanofiber (Ce0.9Pr0.1)0.95 O2-d with transition metals (T.M0.05 = Cr, Mn, Fe, Co, Cu) to obtain Cr0.05(Ce0.9Pr0.1)0.95 O2-d nanofiber catalysts. Among the CeriaPraseodymium based nanofiber catalysts tested for soot oxidation 5 Cr-CP nanofiber showed lowest T50 temperature (379 ?) and highest for 5 Co-Ceria-Praseodymium nano-fiber (415 ?). <

No. of Pages : 20 No. of Claims : 10