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(54) Title (EN): ZINC OXIDE-BASED SORBENTS USING ALKALI METAL HYDROXIDES AND PROCESSES FOR PREPARING AND USING SAME

(54) Title (FR): SORBANTS À BASE D'OXYDE DE ZINC UTILISANT DES HYDROXYDES DE MÉTAUX ALCALINS ET LEURS PROCÉDÉS DE PRÉPARATION ET D'UTILISATION

(57) Abstract:

(EN): Zinc oxide-based sorbents, and processes for preparing and using them are provided, wherein the sorbents are preferably used to remove one or more reduced sulfur species from gas streams. The sorbents contain an active zinc component, optionally in combination with one or more promoter components and/or one or more substantially inert components. The active zinc component is a two-phase material, consisting essentially of a zinc oxide (ZnO) phase and a zinc aluminate ($ZnAl_2O_4$) phase. Each of the two phases is characterized by a relatively small crystallite size of typically less than about 50 nm (500 Angstroms). Preferably the sorbents are prepared by using an alkali metal base to convert a precursor mixture, containing a precipitated zinc oxide precursor and a precipitated aluminum oxide precursor, to the two-phase, active zinc oxide containing component, with the resulting sorbent having a sodium level within a desired range.

(FR): L'invention concerne des sorbants à base d'oxyde de zinc, et leurs procédés de préparation et d'utilisation, où les sorbants sont de préférence utilisés pour éliminer une ou plusieurs espèces de soufre réduites contenues dans des flux gazeux. Les sorbants contiennent un composant de zinc actif, éventuellement en combinaison avec un ou plusieurs composants de promoteur et/ou un ou plusieurs composants sensiblement inertes. Le composant de zinc actif est un matériau à deux phases, essentiellement constitué d'une phase oxyde de zinc (ZnO) et d'une phase aluminate de zinc ($ZnA1_2O_4$). Chacune des deux phases est caractérisée par une taille de cristallites relativement petite, généralement inférieure à environ 50 nm (500 Angströms). De préférence, les sorbants sont préparés à l'aide d'une base métal alcalin pour convertir un mélange précurseur, contenant un précurseur d'oxyde de zinc précipité et un précurseur d'oxyde d'aluminium précipité, en composant contenant de l'oxyde de zinc actif à deux phases, où le sorbant obtenu a une teneur en sodium dans une plage souhaitée.

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Declaration made as applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate
Declaration of inventorship (Rules 4.17(iv) and 51bis.1(a)(iv)) for the purposes of the designation of the United States of America