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(54) **Title:** SYNTHESIS METHOD OF PRECURSORS TO PRODUCE MOLYBDENUM OXIDE MOO₃ AND RELATED MATERIALS

(57) **Abstract:** Abstract This invention relates to precursors of the molybdenum-containing materials such as molybdenum trioxide MoO₃. These precursors can be used to prepare polymetallic oxides materials varying metals proportions or they can be used for composite phases as well. Moreover, these precursors are highly soluble in polar solvents as the water or alcohols. It follows their potential to also obtain materials containing molybdenum as thin films. These precursors are obtained by solid state reaction of polycarboxylic acids and ammonium molybdate (NH₄)₆Mo₇O₂₄·4H₂O.



WO 2014/108841 A4

AMENDED CLAIMS

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- 1- A New temperature synthesis method of molybdenum precursors is presented
- 2- In accordance with claim 1, these precursors are prepared by reaction in the solid state by heating a well ground mixture of ammonium molybdate $(\text{NH}_4)_6\text{Mo}_7\text{O}_{24} \cdot 4\text{H}_2\text{O}$ and a poly carboxylic acid at temperatures around 150 degrees Celsius
- 3- In accordance with claim 2 poly carboxylic acid, which acts as both a reducing and complexing agent of molybdenum, may be the oxalic acid, tartaric acid, citric acid or any other poly carboxylic acid.
- 4- In accordance with claim 3 the precursors are decomposed at higher temperatures ranging from 400 to 1000 degrees Celsius depending of the desired material.
- 5- In accordance with claim 2 for polymetallic materials just add the metal salt with ammonium molybdate initially in the desired proportions.
- 6- In accordance with claim 5 these precursors can be used to prepare thin films.
- 7- In accordance with claim 5 these precursors can be used to prepare polymetallic oxides containing molybdenum.
- 8- In accordance with claim 5 these precursors can be used to prepare poly sulfides containing molybdenum metal.
- 9- In accordance with claim 5 these precursors can be used to prepare metal nitrides containing molybdenum.