(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/04/2023

(21) Application No.202321030907 A
(43) Publication Date : 02/06/2023

(54) Title of the invention : METHOD FOR SYNTHESIZING METAL-ORGANIC FRAMEWORKS WITH TUNABLE PORE SIZES FOR GAS SEPARATION

(51) International classification	:B01D 530200, B01D 530470, B01D 532200, B01D 670000, B01J 202200
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
This invention relates to a method for synthesizing metal-organic frameworks (MOFs) with tunable pore sizes for gas separation applications. MOFs are porous materials that consist of metal ions or clusters connected by organic ligands. They have high surface areas and tunable pore sizes, making them attractive for gas separation. The proposed method involves selecting an appropriate combination of metal ions and organic ligands, and controlling the synthesis conditions to obtain MOFs with a desired pore size. The pore size can be tuned by adjusting the length and/or flexibility of the organic ligands, or by introducing guest molecules into the MOF structure. The resulting MOFs have high gas separation performance and can be used in a variety of applications such as natural gas purification, hydrogen storage, and carbon capture.

No. of Pages : 17 No. of Claims : 10