

PREPARATION OF AL- METAL FOAMS USING POWDER METALLURGY METHOD

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CERTIFICATE

This is to certify that the project entitled is the record of the work carried out by **T.HRUTHIK[19815A0377]**, **M.KISHORE [19815A030A5]**, **Y.RAJKUMAR [19815A0384]**, **S.RUDRI [19815A0391]** students of final year B. Tech in the department of Mechanical engineering. This work is done for the partial fulfilment for the award of **BACHELOR OF TECHNOLOGY** during the year **2021-2022**.

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ABSTRACT

Aluminum Metal foams are now becoming very popular because of their excellent energy absorbing property, and due to presence of pores the overall density decreases which is a desirable feature for structural application automobile. Because any reduction in density of material used in the automobile industry will increase the specific fuel efficiency of the vehicles. There are several methods explained or reported till now for the preparation of Al foams; and out of all the ALPORAS method or liquid metallurgy route for the synthesis of Al foams considered as one of the best methods. However, there are certain challenges such as non-uniform pore size and their distribution within the matrix makes it little unfamous. Therefore, alternative routes for foam synthesis is being tried by both researchers and industries. Conventionally, foaming agent or blowing agent such as CaCO_3 or TiH_2 is being used for the synthesis of foam via liquid metallurgy route. There is a wide scope for the preparation of Al foams of uniform pore and distribution using powder metallurgy route, and in this method salt crystals are mixed with fine Al powder prior to sintering process, and later the salt crystals are removed by dissolving in water.

Keywords:-

Powder metallurgy, Liquid metallurgy, Sintering process, ALPORAS methods