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FITTING PARAMETERS OF A CATALYTIC CONVERTER IN A PASSENGER CAR EXHAUST SYSTEM

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FITTING PARAMETERS OF A CATALYTIC CONVERTER IN A PASSENGER CAR EXHAUST SYSTEM

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Project report

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ABSTRACT

The general purpose of this project was to investigate the literature on various techniques and materials for using in the fitting of a catalytic converter in a passenger car exhaust system and to identify the limiting parameters on the improvement of the system.

Also to investigate the selection of materials in accordance to their compatibility to the catalytic body as well as their respective properties and cost and also to plan and experimentally carry out the fitting procedure.

INTRODUCTION

An exhaustive literature survey on the topic had to be take place to assess the common practice in the building catalytic converters.

As far as the limited parameters of the improvement of the fitting are concerned the weight the temperature resistance and the adhesion properties of the material to be used are of major significance. In project the nature of the manufacturing process in such as all three factors, that is weight, adhesion and thermal stability are satisfied intrinsically. In one step the fitting material and the catalyst are presses to such on extent until they adhere to the exhaust pipe.

The selection of the materials was based entirely on the availability and the cost. We managed to avoid entirely the presents of platinum and substituted it with high surface area of ZrO_2 (zirconium oxide. The fitting material was made out of pure iron at a critical thickness which enables the adhesion both two the exhaust pipe and the ceramic body.

The experimental set-up has the flexibility to accommodate various exhaust pipe, catalyst and fitting material diameters.