

# **Performance of Metal Monolith Catalytic Converter on Kerosene Fuelled Spark Ignition Engine Gen-set Using Secondary Air Injection**

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Emission regulation for portable gensets have been enforced in India from June 2000 and tightened further from June 2001. to meet the future standards, after treatment of engine exhaust may be required in addition to engine optimization.

The 4-stroke kerosene fuelled spark ignition (SI) engine genset are widely used and operate at rich mixture conditions thereby emitting high amount of unburned carbon dioxide (CO) and unburned hydrocarbon (HC).

In the present study, application of a monolith, oxidation catalytic converter on a 4-stroke kerosene fuelled SI engine genset was investigated. The catalytic converter was installed inside the muffler. Only negligible reduction in CO and HC emissions were observed without secondary air injection (SAI). The performance of catalytic converter on this generator set was studied with the use of SAI adopting different SAI methods. With the reed valve and venture fitted in the exhaust pipe upstream of converter the desirable reduction in CO and HC emissions were not obtained. To achieve significant reductions, a blower was used for SAI with the use of blower; sufficient secondary air could be introduced. With this arrangement, the CO conversion efficiency obtained, range from 80.91% to 93.42% and HC conversion efficiency ranges from 37.77% to 53.38%.

This study concluded the emission standards for portable gensets can be further tightened and can be met with the use of oxidation catalytic converter.