

# The Profitable Catalytic Converter: Making a Converter that Stops the Emission of a Greenhouse Gas to Make a Fuel

Tayengwa, Shammah (School: Queen Elizabeth Girls' High School)

The profitable catalytic converter Shammah Ruvimbo Tayengwa Global warming, fuel crises and inadequate raw materials in food manufacturing are problems being faced in our globe. However, these problems can be solved by dealing with what considered as waste in most cars' exhaust pipes. My project aims at extending the currently used converter with a catalytic converter that will stop the release of carbon dioxide and instead use it to make important organic compounds. I designed a model of the catalytic converter which adopted the following procedure: Making formaldehyde from CO<sub>2</sub> by passing it through a CO intermediate and then react it with Hydrogen using a Ru-Ni/Al<sub>2</sub>O<sub>3</sub> catalyst at a temperature 373K at 100 bar which produced 19.14%. The following part of the research was polymerizing formaldehyde to sugars, polyols and hydroxy acids and was achieved by the use of a schreibersite catalyst. The converter might seem costly but only a small amount of these noble metals are fitted onto the converter and will produce tons and tons of sugars as long as the car is still functioning. This catalytic converter stops the accumulation of carbon dioxide in the atmosphere by stopping every car from releasing it! This technology can also be used in industries which emit polluting gases. The products can be used in food manufacturing and can also be the answer to fuel problems in countries such as Zimbabwe. The sugars can also be used for the production of ethanol which can be used in cars, for cooking, to make sanitizers, also for medical purposes.