

📖 Topic Page: [Catalytic converters](#)

Definition: **catalytic converter** from *Dictionary of Energy*

Transportation. an antipollution device in an automotive exhaust system that uses a catalyst to chemically convert pollutants in the exhaust gases, such as carbon monoxide and unburned hydrocarbons, into harmless compounds.

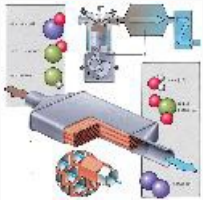


Image from: [A catalytic converter is placed in the exhaust... in Philip's Encyclopedia](#)

Summary Article: **catalytic converter**

From *The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide*

Device fitted to the exhaust system of a motor vehicle in order to reduce toxic emissions from the engine. It converts the harmful exhaust products that cause air pollution to relatively harmless ones.

It does this by passing them over a mixture of catalysts coated on a metal or ceramic honeycomb (a structure that increases the surface area and therefore the amount of active catalyst with which the exhaust gases will come into contact). **Oxidation catalysts** (small amounts of palladium and platinum)

convert hydrocarbons (unburnt fuel) and carbon monoxide into carbon dioxide and water, but do not affect nitrogen oxide emissions. **Three-way catalysts** (platinum and rhodium metals) also convert nitrogen oxide gases into nitrogen and oxygen.

Effects on emissions and pollution Over the lifetime of a vehicle, a catalytic converter can reduce hydrocarbon emissions by 87%, carbon monoxide emissions by 85%, and nitrogen oxide emissions by 62%, but will cause a slight increase in the amount of carbon dioxide emitted. Catalytic converters are standard in the USA, and since the beginning of 1993 all cars sold in the UK have been required to have catalytic converters.

Catalytic converters are destroyed by emissions from leaded petrol and work best at a temperature of 300°C/572°F. The benefits of catalytic converters are offset by any increase in the number of cars in use.

Catalytic converters emit nitrous oxide, which is itself a potent greenhouse gas. However, modern catalytic converters are less harmful in this regard.

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