Catalyst turns carbon dioxide into jet fuel

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An inexpensive and efficient new catalyst for turning carbon dioxide into jet fuel has been developed. The process could lead to an industrial-scale method of extracting the gas from the air and reusing it in jet engines, leading to the possibility of zero CO_2 emission flights.

The new catalyst is based on iron – an abundant and inexpensive element – with manganese and potassium, and can produce hydrocarbons with a typical chain length of between 8 and 16 carbons from carbon dioxide in a single step. Tests with the catalyst using a laboratory source of carbon dioxide and hydrogen in a reactor at 350°C produced several grams of long-chain hydrocarbon fuel. At the same time, the process generated useful amounts of other petrochemicals.

Aerial refueling of an F16 Falcon

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1. What is a catalyst?
2. What environmental problem could this process help solve?
3. Explain how the process could lead to zero carbon emission flights.