

Carbon dioxide electrolysis

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Carbon dioxide electrolysis is an alternative path to creating hydrocarbons for a Martian settlement using In-Situ resources.^[1]

Rather than generating methane through Electrolysis of water and the Sabatier process, Carbon dioxide electrolysis in an aqueous solution using catalysts creates Carbon Monoxide (CO) and water (H₂O).

The CO can be used to create feedstocks such as urea, formic acid, methanol, ethylene and methane.

The carbon monoxide can also be used to reduce oxidized metals, into pure metals.

It can also be used in carbon monoxide - metal carbonyl vapours to allow the laser printing of 3D metallic parts.

References

1. https://en.wikipedia.org/wiki/Electrochemical_reduction_of_carbon_dioxide

// For a discussion of CO - metal carbonyls, see page 217-218. "The Case for Mars 2nd edition", Robert Zubrin, 9-781451-608113

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