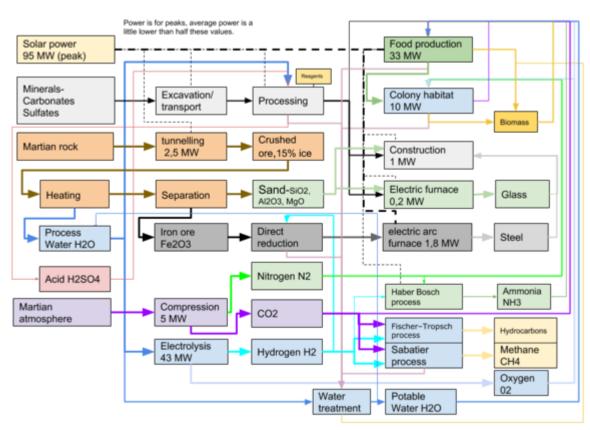
List of ISRU

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The idea of In-Situ Resource Utilization (ISRU) is essential for a Martian colony. As part of the Mars Direct initiative it aims at the production of propellant material for a Mars return mission. The following issues are specifically considered:



Colony process diagram- Power and materials

This diagram shows a flowchart for In-Situ resources utilisation. Values are for a settlement of about 1000 people.

- Sabatier/Water Electrolysis Process (methane fuel, CH4)
- Reverse Water-Gas Shift Reaction (CO and hydrocarbons)
- Fischer-Tropsch Reaction (hydrocarbons)
- Water Electrolysis (Hydrogen-Oxygen)
- Glass production (SiO2)
- Steel production
- Atmospheric compression and separation (N2,CO2,O2,Ar)
- Water treatment (Water)
- Carbon dioxide electrolysis (CO and hydrocarbons)
- Atmosphere absorption methods

ISRU is also part of the NASA reference mission as well as the SpaceX Mars colonisation plans.

Web links

Clark, David L.: In-Situ Propellant Production on Mars: A Sabatier/Electrolysis Demonstration Plant (http://adsabs.harvard.edu/abs/1997isru.meet...41C)

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