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NON-THERMAL PLASMA TECHNOLOGY- TO LET HUMANS BREATH ON MARS.

Abstract

Mars atmosphere has Carbon Dioxide in abundance, that is 95% of the total atmosphere, whereas only 0.16% of Oxygen. To plan Human Colonies on Mars, presence of enough Oxygen is crucial. In this paper, the use of Non-thermal plasma technology for the conversion of Carbon Dioxide present in Martian atmosphere to Oxygen at low or room temperature is proposed. It is difficult to overcome the high stability of Carbon Dioxide molecules and high temperature is required to break Carbon dioxide's double bond, making the conventional methods less efficient. In this paper, Non-thermal Plasma Technology is proposed for this conversion. Several methods that can be used under this technology includes: glow discharge, Radio frequency discharge and microwave discharge, which are studied in this paper. Using this method, the Carbon dioxide can be converted into Oxygen even at low temperature with an efficiency as high as 90% depending on the kind of plasma system used.