

Oxidation of organic materials with perchlorates: Relevance to the chemistry on the Martian surface

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Vera M. Kolb*

Department of Chemistry, University of Wisconsin-Parkside, Kenosha, WI, USA 53141-2000

ABSTRACT

No organic materials have been found so far on the Martian surface, based on the Viking and Phoenix missions. This is disappointing since organic materials are necessary for life. One of the Viking mission experiments suggested the presence of strong oxidizing agents, possibly peroxides. The Phoenix mission detected the inorganic perchlorates, which are also potent oxidizing substances. We have surveyed the literature on oxidations of various groups of organic materials, which are relevant to life, by perchlorates. Based on this, we evaluate the possibility that some organic materials initially existing on the Martian surface may have been destroyed by oxidation with perchlorates.