

MICROBIOLOGICAL CLEANLINESS OF THE MARS EXPLORATION ROVER SPACECRAFT

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The soon to launch Mars Exploration Rover twin spacecraft, each involving a lander and a rover scheduled to land on Mars in January and February of 2004, are required to comply with the National Aeronautics and Space Administration planetary protection regulations for such space missions. The microbial cleanliness requirements are driving a major effort to assemble clean spacecraft and to verify and maintain their cleanliness.

Planetary protection for Mars missions is described, and the approach being taken by the Mars Exploration Rover Project is discussed. Specific topics include alcohol wiping, dry heat microbial reduction, microbiological assays, and the Kennedy Space center's PHSF clean room. Current best estimate for the number of aerobic spores to be found on the spacecraft at launch are presented and compared to the Viking 1975 and Mars Pathfinder 1996 values.