PARAMETER TITLE: Time-Temperature for Sterility (K (†T))

VALUE	
UPPER	0.5 sec @ 500°C
ACCEPTABLE	Same
LOWER	Same

APPLICATION	
MISSION	All
CATEGORY	IV
PLANET	All

PARAMETER DEFINITION: The short time-high temperature conditions at which all organisms will be completely destroyed.

APPLICABLE SOURCE: Any source of terrestrial organisms associated with spacecraft hardware. Sources can be encapsulated, mated surface, open surface or airborne. The temperature must exist at the location of the microbial burden for the required time duration.

CONSTRAINTS: Spacecraft organisms and their associated environment must reach a temperature of at least 500°C and must remain at this temperature for at least one half second. This specification was derived from high temperature sterilization tests of microbial contamination.

REFERENCES:

1. Hoffman, R. K., et al. Thermal Inactivation of Aerosolized Bacillus subtilis var. niger Spores. Appl. Microbiol. 22(4): Oct. 1971.
2. Recommendations of PQAP, meeting held Feb. 1, 1973, New Orleans, LA.

Planetary Protection Officer _____ Date _____