Record Nr. UNINA9910829040303321 Preventing the forward contamination of Europa [[electronic resource] /] **Titolo** / Task Group on the Forward Contamination of Europa, Space Studies Board, Commission on Physical Sciences, Mathematics, and Applications, National Research Council Pubbl/distr/stampa Washington, D.C., : National Academy Press, c2000 Descrizione fisica 1 online resource (53 p.) 523.985 Disciplina Soggetti Space vehicles - Sterilization Microbial contamination - Europa (Satellite) Europa (Satellite) Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia "Support for this project was provided by Contract NASW 96013 Note generali between the National Academy of Sciences and the National Aeronautics and Space Administration"--P. [ii]. Includes bibliographical references. Nota di bibliografia Nota di contenuto ""Preventing the Forward Contamination of Europa""; ""Copyright""; ""Foreword""; ""Preface""; ""Contents""; ""Executive Summary""; ""1 Planetary Protection Policies""; ""HISTORY""; ""PROTECTING MARS""; ""BOX 1.1 VIKINGa€?S APPROACH TO BIOLOAD REDUCTION""; ""Presterilization""; ""Sterilization""; ""REFERENCES""; ""2 Europa""; ""EUROPA EXPLORATION STRATEGY""; ""EUROPAa€?S RADIATION ENVIRONMENT"": ""REFERENCES"": ""3 Life in Extreme Environments""; ""EXTREMOPHILES""; ""EXTREME ENVIRONMENTS""; ""REFERENCES""; ""4 Sterilization and Cleaning Methods""; ""CLEANING AND STERILIZATION STANDARDS"" ""ACHIEVING THE STANDARDS""""BOX 4.1 CURRENT CLEAN-ROOM PROCEDURES"": ""REFERENCE"": ""5 Microbial Detection and Identification""; ""REFERENCES""; ""6 Recommended Planetary Protection Strategy for Europa""; ""PLANETARY PROTECTION STRATEGY FOR EUROPA""; ""MAJORITY AND MINORITY VIEWPOINTS""; ""Applicability of the Current Planetary Protection Strategies to Europa""; ""Survival of Terrestrial Microbes on Europa""; ""CONCLUSIONS""; ""REFERENCES""; ""7

Conclusions and Recommendations""; ""Appendixes""; ""A Calculating

the Probability of Contamination, Pc,""; ""A SAMPLE METHODOLOGY""
""Microbial Populations On Spacecraft"""F1a€?Total Number of Cells
Relative to Cultured Cells""; ""F2a€?Bioburden Reduction Treatment"";
""F3a€?Cruise Survival Fraction""; ""F4a€?Radiation Survival""; ""F5a€?
Probability of Landing at an Active Site""; ""F6a€?Burial Fraction""; ""F7a
€?Probability That an Organism Survives and Proliferates""; ""F7aa€?
Survivability of Exposure Environments""; ""F7ba€?Availability of
Nutrients""; ""F7ca€?Suitability of Energy Sources""; ""F7da€?Suitability
for Active Growth""; ""Joint Probability for F7""; ""Conclusions from the
Illustrative Calculation""
""REFERENCES""""B Glossary""