Fundamentals of Contamination Control

Introduction
- Objective
- Nomenclature
- Definitions

Molecular Contamination
- Qualifying Contamination Effects
  - Reflecting or Radiating Surfaces
  - Transmitting Surfaces
- Quantifying Contamination Levels
  - MIL STD 1246C
- Contamination Mechanisms
  - Generation
    - Outgassing
    - Thruster Plumes
  - Transportation
    - View Factors
  - Deposition
    - Sticking Coefficients
  - Synergistic Effects
    - Photochemically Deposition
- Estimating End of Life Levels
  - Solar Arrays
  - Thermal Control Surfaces
  - Optical Surfaces
- Design Guidelines

Particulate Contamination
- Qualifying Contamination Effects
  - Surface Obscuration
    - Reflecting Surfaces
    - Transmitting Surfaces
  - Scattering
- Quantifying Contamination Levels
  - MIL STD 1246C
  - Percent Area Coverage (PAC)
  - Bidirectional Reflectance Distribution Function (BRDF)
- Contamination Mechanisms
  - Generation
    - Air Quality: FED STD 209E
  - Transportation
  - Deposition
  - Redistribution
    - Launch Environments
    - Micrometeoroid & Orbital Debris Impact
- Estimating End of Life Levels
  - Solar Arrays
  - Thermal Control Surfaces
  - Optical Surfaces
- Design Guidelines

Contamination Control
- Preventing Contamination
  - Spacecraft Design
  - Payload Accommodation
  - Ground Equipment
  - Manufacturing and Test
  - Launch Processing
- Monitoring Contamination
  - Molecular Contamination
  - Air Quality
  - Particulate Contamination
- Cleaning Contaminated Surfaces
  - Removing Molecular Films
  - Removing Particulates
- Maintaining Surface Cleanliness
  - Storage
  - Transportation
  - Accident Recovery
  - On Orbit Contamination

All Sections Will Address:

- Modeling and Simulation of the Environment and its Effects
- Design Examples to Illustrate Application of the Principles

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