Some Considerations in Choosing the materials for Vacuum Chambers

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Materials for Vacuum Chambers

Candidates

- Chambers
  - Main
    - Stainless Steel
    - Aluminium
  - Possible
    - Titanium
    - Copper
    - Ceramic

- Components
  - Copper
  - Glidcop
  - Ceramic
  - etc.
Materials for Vacuum Chambers

Properties (Vacuum)

- Desorption
  - Thermal
  - Photon Stimulated
    - “Cleanup”

Pumping Schemes

- Lumped
- Distributed
“Typical” psd yields

Materials for Vacuum Chambers

Properties (Material)

- **Mechanical**
  - Strength
    - Wall thickness
    - Distortion
    - Complexity
  - Fabrication
    - Joining
    - Seals
- **Thermal Conductivity**
- **Stability**
- **Electrical Resistivity**
- **Coating/Plating**
To be considered

- Cleaning
- R&D
  - Efficacy of Glow Discharge
  - NEG Coatings
  - Sealing techniques
Probable Outcome

- Mainly Stainless Steel
  - Known and loved
- Some Aluminium
  - Narrow Gap ID vessels
- Maybe Titanium
  - Close tolerance vessels
- Some Ceramic
  - Septa