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NASA TECH BRIEF



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Beryllium Fluoride Film Protects Beryllium Against Corrosion

The problem:

Beryllium has been under consideration for space applications in nuclear reactors, satellites, and supersonic aircraft because of its light weight, high-temperature strength, thermal conductivity, and neutron moderating characteristics. One of the major problems with this metallic element is its poor corrosion resistance in water, especially in the presence of high chloride ion concentrations.

The solution:

It has been found that a film of beryllium fluoride (rhombic, tridymite form) approximately 2000 angstroms thick protects the substrate beryllium against corrosion and stress corrosion cracking in water containing chloride ion concentrations of up to 150 parts per million. The fluoride film is formed by exposing

the beryllium to fluorine gas at a temperature above 525°C.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio 44135
Reference: B67-10026

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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