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[Continued on next page]

(54) Title: SHIELDING AND PROTECTING ELEMENTS FOR PLASMA DOPING AND THEIR MAINTAINANCE

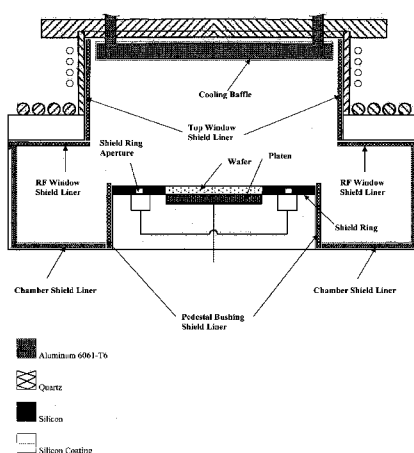


FIGURE 2 illustrates a schematic cross-sectional view of a plasma doping chamber with the process kits having textured internal surfaces according to one embodiment of the invention.

(57) **Abstract:** Techniques and systems for maintaining a plasma processing kit consisting of protection and shielding elements without causing damage are introduced. The elements may be made of aluminium, polysilicon and quartz and may be coated with silicon. The surfaces of the elements show a specified roughness. Precision cleaning and recovery of the contaminated kit components of a plasma doping (PLAD) system is used, to extend the life and reusability of the components. The methods described cover the stages of inspection, pre-cleaning, mechanical processing and texturing, post-cleaning, clean-room class cleaning and packaging of the components consisting of quartz, aluminium and/or silicon. Techniques described employ the combination of a variety of means (primarily chemical and mechanical) to achieve the desired levels of cleanliness. The result obtained by methods that include Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) and Laser Particle Count affirm the efficacy of these techniques.



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