Title (en)

OXYGEN DOPING OF SILICON OXYFLUORIDE GLASS

Title (de)

SAUERSTOFFDOTIERUNG VON SILICIUMOXIDFLUORIDGLAS

Title (fr)

DOPAGE A L'OXYGENE DE VERRE D'OXYFLUORURE DE SILICIUM

Publication

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Application

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Priority

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Abstract (en)

[origin: WO02068350A1] High purity silicon oxyfluoride glass suitable for use as a photomask substrates for photolithography applications in the VUV wavelength region below 190 nm is disclosed. The doped glass (20) is made by providing an O>2< doping atmosphere (26) to a silicon oxyfluoride glass (22) in a doping vessel (28). The inventive silicon oxyfluoride glass is transmissive at wavelengths around 157 nm, making it particularly useful as a photomask substrate at the 157 nm wavelength region. The inventive photomask substrate is a "dry," silicon oxyfluoride glass which contains doped O>2< molecules and which exhibits very high transmittance and laser transmission durability in the vacuum ultraviolet (VUV) wavelength region. In addition to containing fluorine and having little or no OH content, the inventive silicon oxyfluoride glass contains interstitial O>2< molecules which provide improved endurance to laser exposure. Preferably the O>2< doped silicon oxyfluoride glass is characterized by having less than 1x10?17> molecules/cm3 of molecular hydrogen and low chlorine levels.

IPC 1-7

C03B 32/00; C03C 23/00

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CPC (source: EP KR)

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