



RELATIVE SPUTTERING RATES OF FeS, MgS, AND Mg SILICATES: IMPLICATIONS FOR ISM GAS PHASE DEPLETIONS OF ROCK-FORMING ELEMENTS

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- **FeS and MgS sputter at a much higher rate than typical silicate minerals. ~14 S atoms sputtered from FeS for every Si atom from pyroxene or olivine.**
- **Preferential sputtering may account for the lack of significant depletion of S from the gas phase in the ISM.**
- Irradiation effects limited to preferential sputtering of S and the formation a thin (2-3 nm) Fe⁰ layer on the surface. FeS doesn't amorphize.
- Rare nanophase FeS grains occur as inclusions in circumstellar amorphous silicate grains found in comet dust particles analyzed in the laboratory (Keller and Messenger 2011). These results show that a finite amount of S in the ISM occurs in solid grains.

