

INFRARED SPECTRA AND PHOTOISOMERIZATION OF HSO₂ AND HOSO TRAPPED IN SOLID NEON

MARILYN E. JACOX and WARREN E. THOMPSON, *Optical Technology Division, National Institute of Standards and Technology, Gaithersburg, MD 20899-8441.*

When a Ne:H₂:SO₂ mixture is codeposited at 4.2 K with a beam of neon atoms that have been excited in a microwave discharge, the resulting solid deposit has infrared absorptions characteristic of several neutral and ionic products. Among these are HSO₂ and *cis*-HOSO, recently identified among the products of the reaction of photoproduced H atoms with SO₂ in the heavier rare gas matrices ^a. The assignments and the photoisomerization behavior reported in the earlier study are supported by the neon-matrix observations, which include studies of the sulfur-34 and oxygen-18 substituted species. After photodestruction of the HSO₂ and *cis*-HOSO, slight warmup of the deposit to induce H-atom migration leads to regeneration of HSO₂.

^aE. Isoniemi, L. Khriachtchev, J. Lundell, and M. Räsänen, Phys. Chem. Chem. Phys. 4, 1549 (2002).