

INFRARED SPECTROSCOPY AND PHOTOCHEMISTRY OF NCCN^+ AND CNCN^+ TRAPPED IN SOLID NEON

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When a very dilute mixture of NCCN in neon is codeposited at 4.3 K with a beam of neon atoms that have been excited in a microwave discharge, prominent infrared absorptions of the uncharged isomers CNCN and CNNC appear in the resulting solid. The ν_3 absorption of NCCN^+ is also very prominent, and the ground-state $\nu_1 + \nu_3$ absorption of that product is observed for the first time. Photoisomerization to CNCN^+ , for which the two CN-stretching fundamentals are identified, occurs in the red spectral region, and photodestruction of both NCCN^+ and CNCN^+ occurs in the near ultraviolet. The photochemistry of these two cations is correlated with recently published results of experimental and quantum chemical studies of their electronic energy levels.