INFRARED SPECTRA OF THE PRODUCTS OF THE PHOTODISSOCIATION AND PHOTOIONIZATION OF NCCN, ClCN, AND BrCN AT 16.6-16.85 eV

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When a Ne:C_2N_2, Ne:ClCN, or Ne:BrCN sample is codeposited at approximately 5 K with neon atoms that have been passed through a microwave discharge to provide a source of 16.6-16.85 eV excitation, prominent new infrared absorptions result. These absorptions include the CN-stretching modes of the corresponding cations and absorptions of the uncharged isocyanides. Subsequent exposure of the deposit to various wavelengths of near-infrared, visible, and near-ultraviolet radiation results in a series of changes in the product spectra. The photoprocesses which are responsible for these changes are analogous to photoprocesses which occur for the diatomic halogens, but have the advantage in the XCN studies of yielding infrared-active products.