INFRARED PHOTODISSOCIATION SPECTROSCOPY OF METAL OXIDE CARBONYL CATIONS.

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Mass selected metal oxide-carbonyl cations of the form $MO_m(CO)_n^+$ are studied via infrared laser photodissociation spectroscopy, in the 600-2300cm^1 region. Insight into the structure and bonding of these complexes is obtained from the number of infrared active bands, their relative intensities and their frequency positions. Density functional theory calculations are carried out in support of the experimental data. Insight into the bonding of CO ligands to metal oxides is obtained and the effect of oxidation on the carbonyl stretching frequency is revealed.