ROTATIONAL SPECTRA AND STRUCTURES OF (OCS)$_2$CO$_2$ and (OCS)$_3$

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The structures of (OCS)$_2$CO$_2$ and (OCS)$_3$ have been determined from rotational spectra obtained using a pulsed nozzle Fourier transform spectrometer. The two trimers have a barrel like monomer arrangement commonly seen in similar complexes. In (OCS)$_2$CO$_2$, the two OCS units have an anti-parallel arrangement, like the OCS dimer, but twisted from planarity by 34°. The CO$_2$ straddles both of them in an approximately parallel orientation. In (OCS)$_3$, two of the OCS molecules are again nearly anti-parallel with the third OCS straddling them. Seven isotopic species were assigned for (OCS)$_2$CO$_2$. Two isotopic species were assigned for (OCS)$_3$, to supplement the normal species data previously reported. The dipole moments of the trimers are consistent with the derived structures. Comparisons of the structures with results from a semi-empirical model including electrostatic, dispersion and repulsive terms will be presented.