OXIDES OF LONG CARBON CHAINS: RESULTS OBTAINED ON IR AND UV/VIS ABSORPTIONS.

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Correlations between IR and UV/Vis absorptions were investigated for $C_n$ and $C_nO_m$ ($m$=1,2) molecules in oxygen containing cryogenic matrices by applying the selective laser induced oxidation technique. We have found that the oxides of long carbon chains and pure carbon chains show strong absorptions at very similar wavelengths. For the UV/VIS domain this implies that such oxides may be also relevant as carriers for the diffuse interstellar bands. Quantum chemical calculations along with isotopic substitution of carbon and oxygen atoms and laser induced reactions within the matrix allowed to assign some of the IR and UV/Vis absorptions to specific species. In particular, we could characterize the spectrum of $C_6O_2$ unambiguously.