

**1456**  
ED, IR

**C<sub>3</sub>O<sub>2</sub>**

**Tricarbon dioxide**  
Carbon suboxide

**D<sub>∞h</sub>** (quasilinear)  
O=C=C=C=O

$r_g$	Å <sup>a)</sup>
O=C	1.1640(15)
C=C	1.286 (4)

Available spectroscopic data such as the energy-level intervals and the rotational constants have also been taken into the analysis of the large-amplitude C=C=C bending vibration using a model which allows the C=C bond lengths and the C=C=O bond angles to vary with the bending displacement,  $\rho = [180^\circ - (\text{C}=\text{C}=\text{C})]$ . The effective bending potential function determined for the vibrational ground state has a barrier of 27(16) cm<sup>-1</sup> and a minimum at  $\rho = 20(2)^\circ$ . The bond lengths corresponding to the linear configuration, averaged over all the small-amplitude vibrations, are determined to be  $r_{\text{lin}}(\text{C}=\text{O}) = 1.1602(15)$  Å and  $r_{\text{lin}}(\text{C}=\text{C}) = 1.2761(12)$  Å. The present analysis shows that the C=C bonds are slightly stretched by the C=C=C bending, and the C=C=O angles are slightly bent in the direction of the C=C=C bending. The nozzle temperature was  $\approx 23$  °C.

<sup>a)</sup> Estimated limits of errors.

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See also: (ED) Tanimoto, M., Kuchitsu, K., Morino, Y.: Bull. Chem. Soc. Jpn. **43** (1970) 2776.  
(ED) Almenningen, A., Arnesen, S.P., Bastiansen, O., Seip, H.M., Seip, R.: Chem. Phys. Lett. **1** (1968) 569.  
(ED) Clark, A., Seip, H.M.: Chem. Phys. Letters **6** (1970) 452.