

INFRARED TRIGGERED REACTION IN THE $\text{SF}_6^- \cdot \text{HCOOH}$ COMPLEX

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Formic acid binds to the SF_6^- anion in a single (OH-F) H bond, with the CH group weakly tethered to a neighboring F atom. Similar to the case of $\text{SF}_6^- \cdot \text{H}_2\text{O}$ complexes, the SF bond involved in the (OH-F) H bond is significantly stretched and weakened by the attachment of the HCOOH ligand. The complex undergoes a reaction upon infrared absorption of one quantum in the OH or CH stretching mode of the formic acid moiety, leading predominantly to the formation of SF_4^- , HF, and CO_2 . The reaction can be inhibited by attachment of two Ar atoms. We present IR photodissociation spectroscopy results and theoretical data illustrating the reaction mechanism.