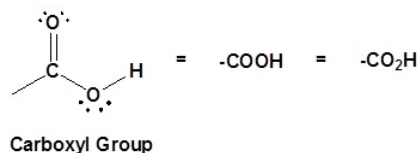


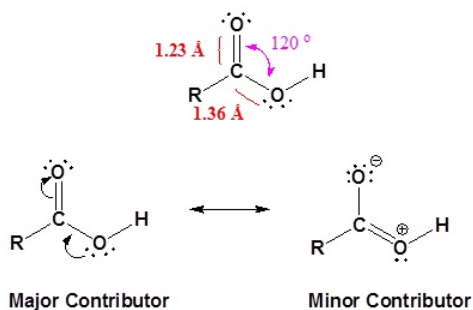
17.6: Structure and Bonding

Structure of the carboxyl acid group

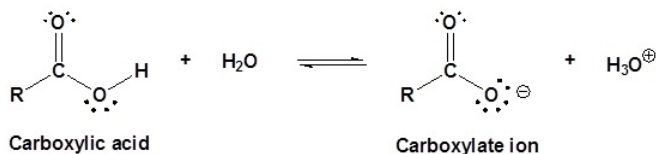
Carboxylic acids are organic compounds which incorporate a carboxyl functional group, CO_2H . The name carboxyl comes from the fact that a carbonyl and a hydroxyl group are attached to the same carbon.



The carbon and oxygen in the carbonyl are both sp^2 hybridized which give a carbonyl group a basic trigonal shape. The hydroxyl oxygen is also sp^2 hybridized which allows one of its lone pair electrons to conjugate with the pi system of the carbonyl group. This makes the carboxyl group planar and can be represented with the following resonance structure.



Carboxylic acids are named such because they can donate a hydrogen to produce a carboxylate ion. The factors which affect the acidity of carboxylic acids will be discussed later.



Contributors

- Prof. Steven Farmer ([Sonoma State University](#))

17.6: Structure and Bonding is shared under a [CC BY-NC-SA 4.0](#) license and was authored, remixed, and/or curated by LibreTexts.