

The Kolbe-Schmitt reaction is an organic reaction used to convert a phenol to a hydroxy benzoic acid using carbon dioxide gas, a base, and acid work-up. The mechanism begins with deprotonation of the phenol by the base to form a phenoxide. The phenoxide rearranges to form a carbonyl group while the aromatic ring attacks the CO₂ molecule. The attack can happen from either the ortho or para position, which explains the two possible products, and results in the loss of aromaticity of the ring. Another deprotonation by the base regenerates aromaticity and produces the phenoxide again. Protonation of the phenoxide and the carboxy-late anions yield the final ortho- and/or para-hydroxy benzoic acids.

