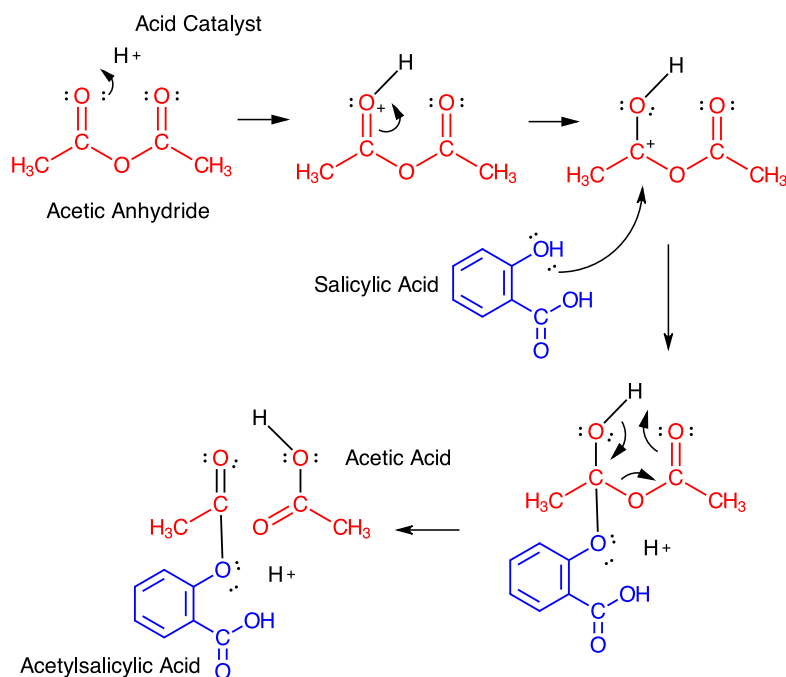


RESOURCE

IR Analysis of Aspirin

Chem 210 — Cañada College

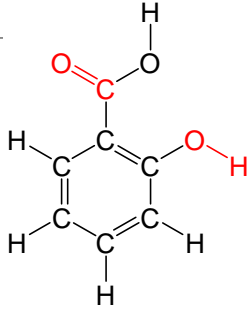
In today's experiment you synthesized the substance acetosalicylic acid (aspirin) from acetic anhydride and salicylic acid. After the synthesis was complete, you analyzed both the crude and recrystallized product using IR analysis.



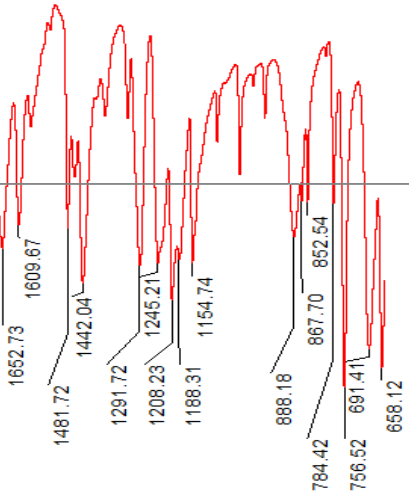
IR spectra of the starting material salicylic acid and the product acetosalicylic acid (aspirin) are attached. The two substances have many structural features in common, resulting in similar peaks of their spectra. Each has a strong peak near 1689 cm⁻¹ due to stretching of the C=O bond of the acid group [-(C=O)-O-H]. Each also has a large peak near 1605 cm⁻¹ due to a skeletal vibration of the benzene ring.

But you can also see the differences. A key difference is acetylsalicylic acid shows two strong peaks in the carbonyl (C=O) stretching region (1650 – 1800 cm⁻¹), because it has two different carbonyl groups — while salicylic acid has only one.

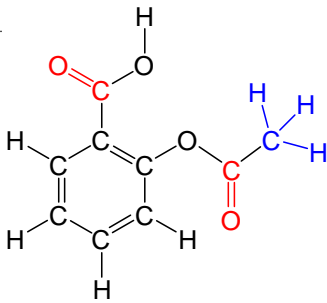
Wed Feb 22 12:38:04 2012 (GMT-05:00)



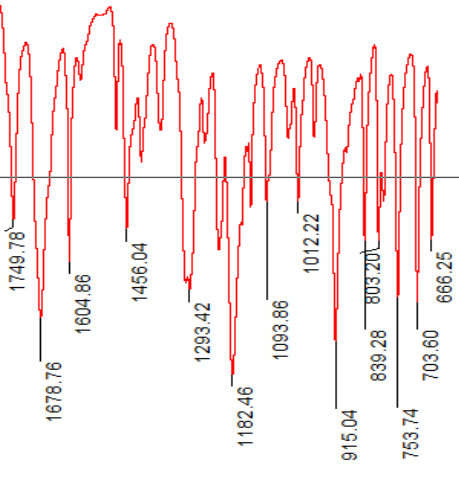
Salicylic Acid (SA)



Wed Feb 22 12:41:10 2012 (GMT-05:00)



Acetylsalicylic Acid (ASA)
(Aspirin)



Wed Feb 22 12:46:08 2012 (GMT-05:00)

50/50 Mixture of
SA & ASA

