

## **The principle of purification of benzoic acid sample contaminated with sodium chloride**

Contaminated benzoic acid is weighed on a standard laboratory balance and dissolved in 1:1 acetone:water mixture. Benzoic acid is nonpolar therefore it dissolves in acetone while the ionic NaCl does not.

We filter out this white precipitation on folded filter paper. This means, that the filtrate contains mainly benzoic acid dissolved in acetone.

Then cold distilled water is added to the filtrate. The polar water does not dissolve the nonpolar benzoic acid which precipitates.

The crystals are filtered using a Büchner-funnel and an aspirator and we wash them with ice-cooled distilled water. In this way we remove the rest of the NaCl, which dissolves in water.

The purity of benzoic acid is tested as follows:

We collect the washing water going through the funnel in a test tube. We acidify it with some dilute nitric acid and add two drops of a reagent solution of silver nitrate. White precipitation ( $\text{Ag}^+ + \text{Cl}^- = \text{AgCl}$ ) indicates a large amount of contamination. In this case we continue washing it. The solid is free of chloride if the solution remains clear in this test after the addition of silver nitrate.

Then we dry the purified chloride-free sample in air.