**Experiment name :** Benzoin

**Classification:** Condensation reaction (Benzoin condensation)

**Reaction scheme:**



**Experimental procedure and purification technique:**

In a two-necked round-bottomed flask (100 ml) equipped with a reflux condenser and a dropping funnel, initially place NaCN[[1]](#footnote-1) (0.5 g) then followed by the addition of water (5 ml), ethanol (6 ml, 95%) and benzaldehyde (5 g, 4.7 ml; 47 mmol), respectively. Heat the entire mixture to the operational reflux temperature and maintain it for ~30 min under gently stirring. After completion of the reaction, cool the flask content preferably in an ice bath. After some time a mass of crystalline needles of benzoin separates. Filter the resulting crystalline with suction on a Buchner funnel, wash with cold water and dry in the air upon pads of filter paper. mp: 134-136 °C, predicted yield: 4.5-4.6 g (90-92%). Recrystallise the crude product (~ 0.5 g) from hot ethanol (4 ml, 95%) in order to obtain completely pure benzoin. Cool in ice, filter off the purified benzoin (0.45 g) as a white solid. mp: 137 °C.

Reference source (1): “Vogel’s Textbook of Practical Organic Chemistry (5th edition)”: 1044.

Reference source (2): “Denel Organik Kimya (6th edition)”: 387.

1. NaCN is very poisonous and great care has to be taken in handling this substance. Do not handle this compound near places where acids is handled. In order to avoid any accidental contamination, no one should ever eat, drink or smoke in the laboratory. Your working place must always keep clean and wash your hands thoroughly on leaving the laboratory. In case of poisoning or chemical exposure please contact with your responsible lecturer. [↑](#footnote-ref-1)