
Sample Assignment: Unit 10 Synthesising Organic Chemicals

ASSIGNMENT BRIEF

Unit Name:	Synthesising Organic Chemicals	Unit Number:	10
Assignment Title:	The Preparation of the Antiseptic Triiodomethane	Assignment Number:	10.2
Date Set:	Due Date:		
Assessment Objective(s): AO3			
Brief: <p>Drugs and medicines form an important part of organic synthesis. Research chemists are working all the time to develop chemical compounds which will help to improve health and hygiene.</p> <p>In this assignment you will use a range of practical techniques to prepare a pure sample of triiodomethane (commonly called iodoform) and record the outcomes of your work.</p> <p>The compound iodoform (CHI₃) is a yellow, crystalline, volatile substance. It has a penetrating odour (the smell is sometimes referred to as the smell of hospitals) and a sweetish taste, and is analogous to chloroform CHCl₃. It was used in medicine as a healing and antiseptic dressing for wounds and sores around the beginning of the 20th century, though this use is now superseded by better antiseptics.</p>			

Assignment:

Iodoform can be synthesized by the reaction of [iodine](#) and sodium hydroxide with any one of these four kinds of organics:

- A methyl [ketone](#): CH_3CRO , where R is an organic side chain
- Ethanal: CH_3CHO
- [Ethanol](#): $\text{CH}_3\text{CH}_2\text{OH}$
- Secondary [alcohols](#): CH_3CHROH , where R is an alkyl or aryl group.

The melting point of the compound is 119°C , is insoluble in water but soluble in ethanol.

(From: <http://www.mywiseowl.com/articles/iodoform>).

The Preparation and Purification of Triiodomethane

You are required to complete a work plan and prepare and purify a sample of triiodomethane:

- Find a suitable method of preparing a pure sample of triiodomethane in the laboratory and complete a work plan on how you are going to carry out the preparation
- Identify hazards and carry out a risk assessment for your chosen method
- Safely carry out the preparation and purify your product using appropriate techniques
- Include your method
- Record any observations and results in a suitable way
- Calculate the percentage yield of the purified triiodomethane
- Comment on the quality and yield of your product
- Evaluate your results and suggest alternative techniques which may improve the quality/quantity of the product.

Maximum marks possible for this task: 13

(2 practicals need to be completed for AO3 – the total mark allocation = 26. Each practical can either be marked /13 or /26 (and then divided by 2)).

Resources:

Class notes on practical organic chemistry and relevant paper and electronic-based material.