

NEATH PORT TALBOT COLLEGE COLEG CASTELL NEDD PORT TALBOT

School of Maths & Science Science Practical

Organic unknowns G and H

◆ Aim

Deduce the functional groups present in a set of organic 'unknowns'.

◆ Introduction

You are required to deduce as much information as possible concerning the structure of the compounds G & H by performing suitable chemical tests.

◆ Safety



Control Measures

- The wearing of safety glasses, gloves and a laboratory coat at all times will be sufficient to take account of most hazards and significant risks.
- Keep stoppers on bottles as much as is possible.
- Keep flammable liquids away from flames.
- All waste is to be placed in the labelled container immediately after use.
- You are reminded of the need of good laboratory practice in order to maintain a safe working environment.

Hazards



(Highly) Flammable

G - H



Corrosive

Concentrated sulfuric acid



Harmful/ Irritant

G and H



Toxic

2,4 DNPH



Oxidising

Acidified dichromate & manganate(VII)

◆ Procedure

Carry out the following test-tube tests. Record your observations and make suitable inferences. If instructions for the test are not recorded below, please consult the sheet entitled 'Summary Sheet: Organic Chemistry Practical'.

Compound code

Test	Observation	Inference
Ignite some of the unknown on a crucible lid in the fume cupboard		
2,4-DNPH		
Acidified potassium dichromate <i>Add a few drops of acidified potassium dichromate to your test solution in a test-tube</i>		
Alkaline potassium manganate(VII). <i>Add a few drops of Alkaline potassium manganate(VII) to your test solution in a test-tube.</i>		
Iodoform test		

Conclusion about the nature of

◆ Procedure

For compound G only.

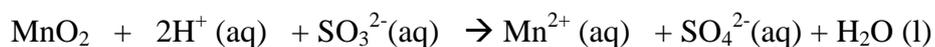
Add to 1 cm³ of G, 1 cm³ of ethanoic acid and a few drops of conc. sulfuric acid. Warm gently for a minute with a steam bath. Cool and pour into a boiling tube containing a few cm³ of water.
Note the odour.

State the name and formula of the compound produced.

◆ Questions

This work will be taken in for marking in the next practical period.

1. Give a half equation for dichromate when it acts as an oxidising agent under acid conditions. State what happens to the oxidation number of chromium when the dichromate acts as an oxidising agent.
2. Manganate (VII) can act as an oxidising agent in both acidic and alkaline solutions.
 - a) Give a half equation for manganate (VII) acting as an oxidising agent in **ACIDIC** conditions.
 - b) When it behaves as an oxidising agent under alkaline conditions it forms the product MnO₂. State the initial and final oxidation state of Mn in this case.
 - c) MnO₂ is a brown precipitate. We can remove it by reacting it with an acidified solution of sodium sulfite. The sulfite ions are converted to sulfate ions in this process.



Give the final oxidation no. of sulfur in this process.