

NEATH PORT TALBOT COLLEGE COLEG CASTELL NEDD PORT TALBOT

School of Maths & Science Science Practical

Organic Unknowns C-F

◆ 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 C - F 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

C, D, E and F



Corrosive



Harmful/ Irritant

C, D, E and F; Tollens reagent,
potassium dichromate,



Toxic

2,4 DNPH



Oxidising



Explosive

Silver mirror must not be allowed to dry out

◆ 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		
Silver mirror test (Tollens test)		
Fehling's test		
Iodoform		
Acidified potassium dichromate <i>Add a few drops of acidified potassium dichromate to your test solution in a test-tube</i>		

◆ Questions

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

1. Describe a method (practical details NOT required) by which you could determine the actual structure of the compounds C-E. (You are NOT allowed to use any spectroscopic technique).
2. Below is the nmr, mass spec and infrared spectrum of compound an unknown compound 'X'. You are required to deduce the structure of X.
The elemental composition is: 69.72 % carbon; 11.70 % hydrogen and 18.58 % oxygen.

You must give a full reasoned argument using the information obtained from each of the spectra.



