

NEATH PORT TALBOT COLLEGE COLEG CASTELL NEDD PORT TALBOT

School of Maths & Science Science Practical

Qualitative Organic Analysis B

◆ **Aim**

To identify compound B

◆ **Introduction**

In the following investigations you will attempt to identify an unknown compound by interpreting the observations you make when carrying out a number of chemical tests and also by using the compounds melting point.

◆ **Safety**



Control Measures

- The wearing of **safety goggles, 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.
- All waste is to be placed in the labelled container immediately after use.
- You are reminded of the need of good laboratory practise in order to maintain a safe working environment.

Hazards



(Highly) Flammable Treat all organic reagents as highly flammable



Corrosive Sodium Hydroxide.



Harmful/Irritant Compound B



Toxic The vapour evolved when compound B is heated with sodalime in test 5

◆ Procedure

Test	Observation	Inference
1. Heat the solid on crucible lid (in a fumecupboard)		
2. Solubility in water. Treat ~ 0.1g of sample in a test-tube with about 2 cm ³ of water. Does it dissolve?		
3. Solubility in sodium hydroxide. Treat approx 0.1g of sample in a test tube with about 2cm ³ of dilute sodium hydroxide. Does it dissolve?		
4. Treat approx 0.1g of sample in a test-tube with about 2cm ³ of dilute sodium hydrogencarbonate.		
5. Mix well approx 0.2g of compound B with 1g of soda-lime. Place the mixture in a test tube and heat strongly. Ignite any vapours evolved. This must be carried out in the fume cupboard due to the extremely hazardous nature of the reaction products.		
6. Record the melting point of the compound. Compare with the appropriate standard table (attached) and hence identify the compound.		

Conclusions regarding the nature of B:

Data

Carboxylic acids

Acid	mp °C
Benzoic acid (<i>benzenecarboxylic acid</i>)	121
Salicylic acid	158
Acetylsalicylic acid	135
3-methoxybenzoic acid	110
2-bromobenzoic acid	150

Phenols

Phenol	mp °C
Phenol	43
4-nitrophenol	114
Resorcinol	110
2-Naphthol	123

Amines

Amine	mp °C
2-Naphthylamine	113
2,4,6-tribromophenylamine	120
benzidine	127

Questions

- 1a) Give the organic product of the reaction with sodalime.

- 1b) What is the name given to this type of reaction reaction?

2. Write balanced chemical equations for the reactions with:
 - a) sodium hydroxide

b) sodium carbonate