

G629: Synthesising Organic Chemicals – Sample Assignment A1

Unit Name: Synthesising Organic Chemicals	Unit Number: G629
Assignment Title: The Importance of Functional Groups and Isomerism in Organic Molecules	Assignment Number: G629 Sample Assignment A1
Date Set:	Due Date:
Assessment Objective(s): AO1(a)	

Assignment Brief:

The presence of functional groups within organic molecules determines the physical and chemical properties of the compound. Although organic compounds may have the same molecular formula as other compounds, it is the order in which these atoms are bonded together that may give an isomer completely different reactions and physical properties. This is a vitally important feature of drug design and action.

In this assignment you will present a report showing that you understand and can correctly identify functional groups in some chosen compounds and link to particular isomers and their industrial and commercial importance.

Task 1:

During your work for this unit you will have studied a number of aliphatic and aromatic compounds and learnt to recognise the functional groups present.

You are given the names of several organic compounds. For each compound you are required to write their displayed formulae and identify the functional group. Where you can give the displayed formula of an isomer or isomers of each compound which has, or have, a different functional group present.

For compounds (i) to (v) you should state a use for the compound listed.

Your answers should be in the form of a brief report in which they are presented in an appropriate and methodical way.

(i) Ethanol

(ii) Propanone

(iii) Ethyl ethanoate

(iv) Propene

(v) 4-aminobenzenecarboxylic acid

(vi) 4-methylbenzenecarboxylic acid.

Task 2:

It is essential, especially when organic compounds are used as medicines, that the correct isomer is used. Research the topic ISOMERISM and use an example where choosing the correct isomer is important to the compound's use. Check that you explain isomerism and discuss the difference in properties between the isomers.

[Maximum marks possible for these tasks: 3 marks]

Resources:

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