

FUNCTIONAL GROUPS

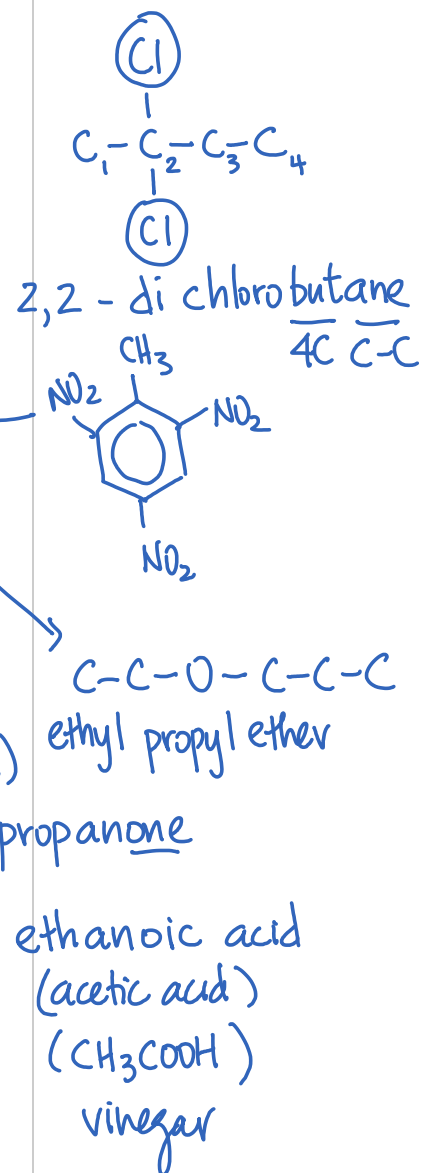
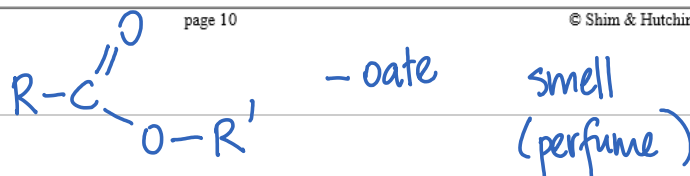


Text Reference

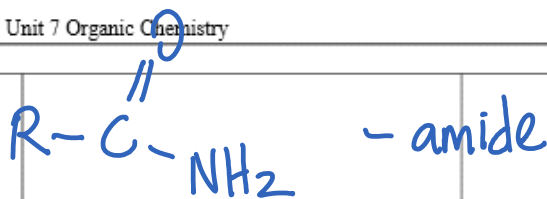
Hebden Workbook Unit X section 6

Functional groups are special groups attached to the hydrocarbon skeleton which give the molecule special chemical reactivity (as well as physical properties). Normally, C-C and C-H bonds are not reactive. However, reactive functional groups, when attached to the carbon skeleton, may make the molecule acidic, basic, "fishy smelling", explosive, soluble in water, etc.! Use your text to complete the chart below.

Name	General Representation	Examples
1. Halogens (or alkyl halides)	-F fluoro- -Cl chloro- -Br -I	bromo- iodo-
2. Amino Group	-NH ₂ amino- -amine	C ₁ -C ₂ -C ₃ -C ₄ NH ₂ 2-amino butane OR 2-butanamine
3. Nitro Group	-NO ₂ nitro-	
4. Ether	R-O-R'	
5. Alcohol	-OH -ol	C ₂ -C ₁ -OH ethanol
6. Aldehyde	R-C(=O)-H -al	H-C(=O)-H methanal (formaldehyde)
7. Ketone	R-C(=O)-R' -one	C ₁ -C ₂ -C ₃ 2-propanone
8. Carboxylic Acid	R-C(=O)-OH -oic acid	C ₂ -C ₁ -OH ethanoic acid (acetic acid) (CH ₃ COOH) vinegar
9. Ester		



10. Amide



NOTE: The first four groups change the prefixes of the hydrocarbon derivative. The last six groups change the endings of the hydrocarbon name e.g. alcohols end in -ol.



Note from the Teacher: Another Bonding Note

In all organic compounds we shall consider,

- H, and the halogens (F, Cl, Br, and I) make **one** bond.
- O makes **two** bonds.
- N makes **three** bonds (except in NO₂)
- C makes **four** bonds.



Problem Set 7.4: Functional Groups

Hebden Workbook Unit X #37

Summary Exercises #38-43 (choose a few from each)