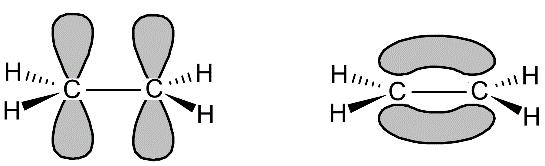
# Liquefying paint – answer sheet

***Education in Chemistry***September 2020  
[rsc.li/3h1PjJa](https://rsc.li/3h1PjJa)

**Retrieval practice and quick-fire questions to revise your chemistry knowledge**

3. Now test yourself by answering as many of these 10 quick questions as you can.



a.

**two p orbitals** overlap to form a **π orbital**

b. **Acid**: C=O 1680-1750 cm-1; O-H (acid) 2500-3000 cm-1 (broad); C-O 1000-1300 cm-1

**Ester**: C=O 1680-1750 cm-1; C-O 1000-1300 cm-1

c. Fluoromethane is the most polar due to the strong dipole in the C-F bond.

In methane the small dipoles of the individual C-H bonds cancel out, so methane is non-polar.

In dichlorodifluoromethane there is a dipole symmetrically between the two C-Cl bonds and a bigger dipole in the opposite direction directly between the two C-F bonds. Overall, this results in a small molecular dipole directly between the C-F bonds. However, it is smaller than the dipole in fluoromethane because the two C-F dipoles are vector quantities and cancel each other out in one direction.

d. Initiation: Cl2 🡪 2Cl**•**

Propagation: CH2Br2 + Cl**•** 🡪 **•**CHBr2 + HCl

**•**CHBr2 + Cl2 🡪 CHBr2Cl + Cl**•**

Termination: **•**CHBr2 + Cl**•** 🡪 CHBr2Cl

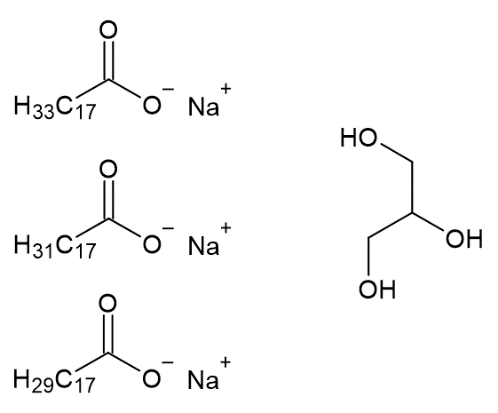
e. Reduction: 3e- + 4H+ + 🡪 V2+ + 2H2O

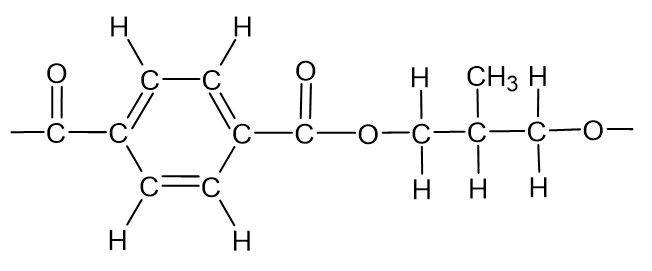
Oxidation: Zn 🡪 Zn2+ + 2e-

Redox: 8H+ + + 3Zn 🡪 2V2+ + 4H2O + 3Zn2+

f. 3-phenyl pentanedioic acid

g. benzyl propanoate

h. Products:



j. A central transition metal ion surrounding by ligands. Ligands are ions or molecules with a lone pair of electrons that form a coordinate bond with the transition metal ion or metal.