

Liquefying paint – answer sheet

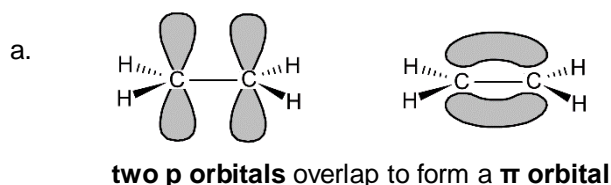
Education in Chemistry

September 2020

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.



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: $\text{Cl}_2 \rightarrow 2\text{Cl}^\bullet$

Propagation: $\text{CH}_2\text{Br}_2 + \text{Cl}^\bullet \rightarrow \bullet\text{CHBr}_2 + \text{HCl}$

$\bullet\text{CHBr}_2 + \text{Cl}_2 \rightarrow \text{CHBr}_2\text{Cl} + \text{Cl}^\bullet$

Termination: $\bullet\text{CHBr}_2 + \text{Cl}^\bullet \rightarrow \text{CHBr}_2\text{Cl}$

e. Reduction: $3\text{e}^- + 4\text{H}^+ + \text{VO}_2^+ \rightarrow \text{V}^{2+} + 2\text{H}_2\text{O}$

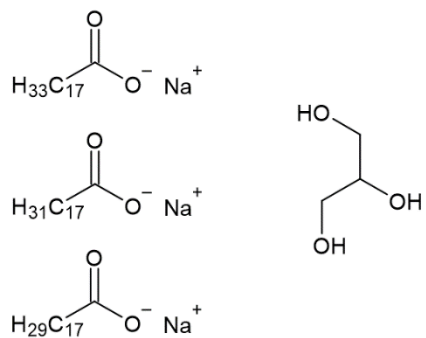
Oxidation: $\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}^-$

Redox: $8\text{H}^+ + 2\text{VO}_2^+ + 3\text{Zn} \rightarrow 2\text{V}^{2+} + 4\text{H}_2\text{O} + 3\text{Zn}^{2+}$

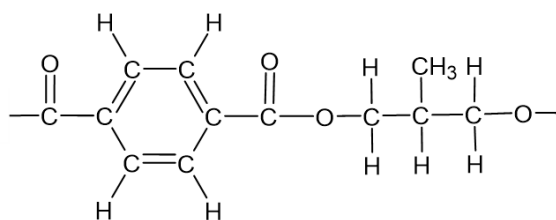
f. 3-phenyl pentanedioic acid

g. benzyl propanoate

h. Products:



i.



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.