

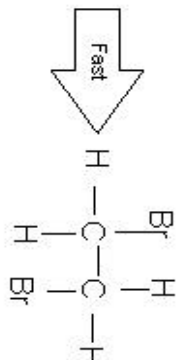
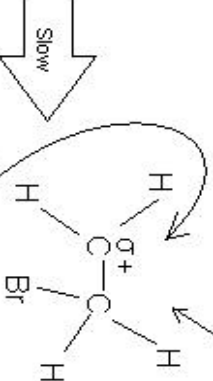
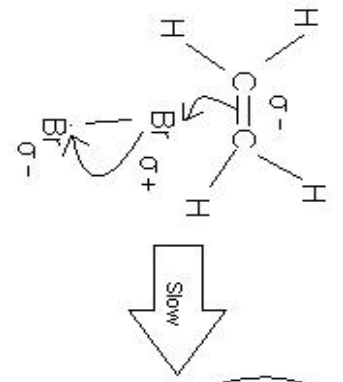
EG: Ethane-1,2-diol (Anti freeze)

Converts unsaturated edible oils into edible fats: Saturated oils have higher melting points because their molecules are more regularly shaped and thus pack together better.  
Plant oil → margarine

Test for double bonds  
Production of antifreeze in cars

Where does H attach?

Markovnikov's rule  
Rich get richer  
Electropositive effect makes the tertiary carbocations more stable



Reduction/ addition of H<sub>2</sub>  
hydrogenation, + Ni powder  
heterogeneous catalysis  
100°C - 200°C

Alkane

Oxidation  
Cold, Dilute permanganate

Diol

Red to colourless (if unsaturated)  
Bromine test  
Br<sub>2</sub> (aq)

Electrophilic addition

Via pi bond  
Induced dipole  
Rate = k[Alkene][X<sub>2</sub>]  
Order: bimolecular

Alkene  
Non-polar sp<sup>2</sup> 120°  
Sigma and pi Double bond  
Trigonal Planar  
C=C

Addition  
Polymerization  
High temperature and Pressure  
or  
catalysts like titanium (IV) Chloride

Polymer  
C-C-C-C

EG: Polyethane

Mechanism  
Halogenation

Combustion  
Excess Oxygen  
Complete  
CO<sub>2</sub> + H<sub>2</sub>O

Not enough oxygen  
Incomplete  
CO + H<sub>2</sub>O  
CO + C

Used in many different objects: bags, fibers, rubber