

THEORY

1. The reaction of an alkene with a halogen is an example of an electrophilic addition reaction. The pi electrons of the double bond attack the halogen molecule, forming a cyclic intermediate called a halonium ion. This intermediate is then attacked by a halide ion to form the final halogenated product.

Step	Reaction	Intermediate
1	$\text{C}_2\text{H}_4 + \text{Br}_2 \rightarrow \text{C}_2\text{H}_4\text{Br}^+\text{Br}^-$	Bromonium ion
2	$\text{C}_2\text{H}_4\text{Br}^+\text{Br}^- + \text{Br}^- \rightarrow \text{C}_2\text{H}_4\text{Br}_2$	1,2-Dibromoethane

EXPERIMENT

