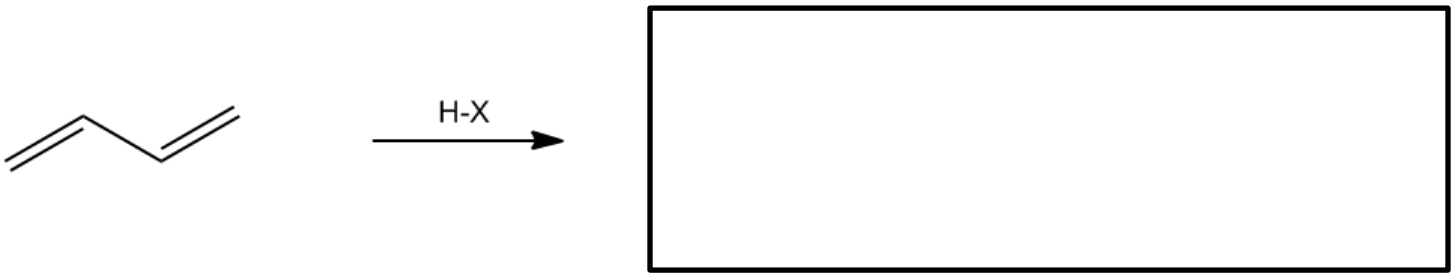
CONCEPT: CONJUGATED HYDROHALOGENATION

Recall the addition of a strong halohydric acid on a double bond. This reaction is called ***hydrohalogenation***.

- *Carbocation rearrangements* are possible

Conjugated hydrohalogenation, also known as *hydrohalogenation of dienes*, or *1,2 vs. 1,4 addition to dienes*, is the same reaction, except with a *possibility of multiple products* due to the presence of a conjugated intermediate.



This reaction undergoes *kinetic vs. thermodynamic control*.

- Temperatures above 40° C favor the _____, also called the *thermodynamic product*.
- Temperatures below 0° C favor the _____, also called the *kinetic product*.

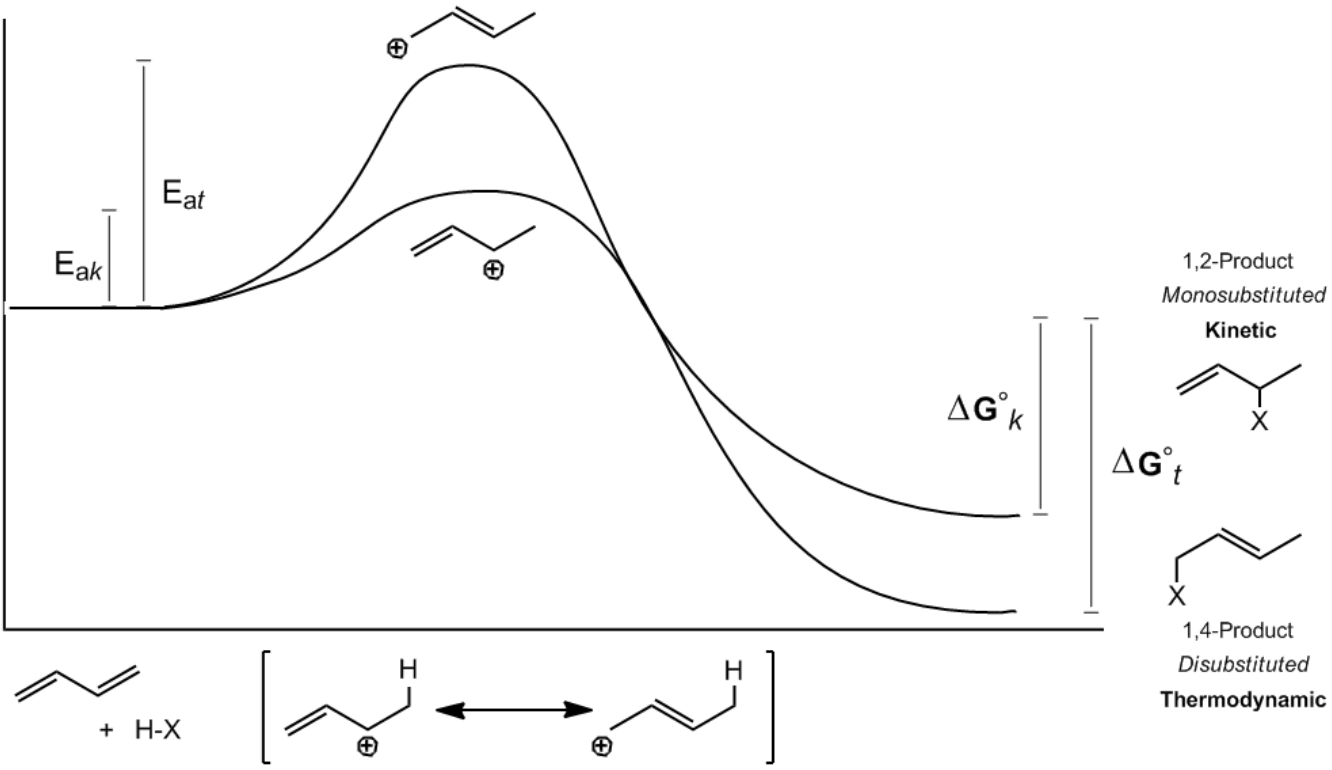
EXAMPLE: Products of *conjugated hydrohalogenation* at different temperatures.

CONCEPT: CONJUGATED HYDROHALOGENATION – KINETIC VS THERMODYNAMIC CONTROL

Conjugated hydrohalogenation is one of the reactions that undergoes *kinetic vs. thermodynamic control*.

- Hot reaction conditions favor the *thermodynamic product* _____
- Cold reaction conditions favor the *kinetic product* _____

EXAMPLE: Simplified Conjugated Hydrohalogenation Energy Diagram



Summarizing Temperature Control:

The ***kinetic pathway*** has a more stable intermediate _____ but less stable product _____

The ***thermo pathway*** has a less stable intermediate _____ but more stable product _____