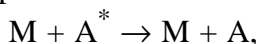


**collision efficiency,  $B_c$** 

The collision efficiency, or de-energization efficiency, is defined by:

$$k_{-1} = B_c k_{-1}^{\text{sc}}$$

where  $k_{-1}$  is the *rate constant* for a particular substance M when it brings about the de-energization process



and  $k_{-1}^{\text{sc}}$  is the corresponding rate constant for a reference molecule  $\text{M}_r$  that de-energizes  $\text{A}^*$  on every collision; that is, the reference molecule  $\text{M}_r$  undergoes *strong collisions*, and by definition has a collision efficiency  $B_c$  of unity. The species  $\text{A}^*$  is usually in a vibrationally-excited state, and A has energy less than that required for reaction to occur.

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