\[
\text{kinetic} \quad \text{thermodynamic}
\]

\[
\text{RC}
\]

\[
\text{E} \quad \text{per molecule}
\]

\[
\text{E} \quad \text{per molecule}
\]

\[
A + B \xrightarrow{\text{H}_{2}\text{N} - \text{N} - \text{H}_{2}} A' + B'
\]

\[
160^\circ \text{C} \quad 2020
\]

\[
A' + B \xrightarrow{} B' + A
\]

Only occurs if \( A' \) is the kinetic product and can't reverse.

\[
B' + A \nRightarrow A'
\]
Because P.D.O.U. = 1 + δ > 5 → alkene → trans

must have I=2, and
must have a doublet (at least) due to alkene H

must have 2x2
must have a quartet
must have methyl neighbor

doublet due to one neighbor; triplet due to the other

Given P.D.O.U. = 2 and δ > 5 (and there is J info), likely to have an alkene.

Must have a doublet due to single alkene H on neighbor

Since only a doublet occurs, this neighbor cannot have any H. \( \Rightarrow \) C=O or O
- $\delta 6.34$, $\text{d}d$, 1H, $J_1 = 8.7 \text{ Hz}$, $J_2 = 17.5 \text{ Hz}$
- $\delta 6.23$, $\text{d}d$, 1H, $J_1 = 3.3 \text{ Hz}$, $J_2 = 17.5 \text{ Hz}$
- $\delta 5.81$, $\text{m}$, 1H, $J_1 = 3.3 \text{ Hz}$, $J_2 = 8.7 \text{ Hz}$
- $\delta 2.61$, $q$, 2H
- $\delta 1.11$, $s$, 3H

Most likely $O$ or $C=O$