An active methylene compound is a compound that has the following general structural formula.

\[
\begin{align*}
\text{H} & \quad \text{E}^1 \\
\text{H} & \quad \text{E}^2
\end{align*}
\]

E1, E2 = a functional group that withdraws electrons by resonance

eg:

\[
\begin{align*}
\text{H} & \quad \text{O} \\
\text{H} & \quad \text{O}
\end{align*}
\]

The conjugate base of an active methylene compound is highly resonance stabilized.

eg:
Consequently, active methylene compounds are highly acidic and can be deprotonated, for all practical purposes, irreversibly, using common strong bases, such as the hydroxide ion or alkoxide ions.

\[
\text{compound} \quad \text{pK}_a \\
\begin{array}{c|c}
\text{H} \quad 9 \\
\text{water} \quad 16 \\
\end{array}
\]

\[
\text{equilibrium constant, } K = \frac{10^{-9}}{10^{-15}} = 10^7
\]

Notice that the equilibrium constant, \( K \), is very large.
• Gamini Gunawardena from the OChemPal site (Utah Valley University)