Hydrazine: $\text{H}_2\text{N-NH}_2$

Hydrazone: $\text{H}_2\text{N}^-\text{NH}_2$

**Wolff-Kishner Reduction**

$$\text{H}_2\text{N-NH}_2 + \text{OH}^- \rightarrow [\text{H}_2\text{N}^-\text{N}^-\text{H}]^+$$

$\Delta H > 0$

**Synthetic utility:** convert aldehydes + ketones to alkanes (reduction)

**Hydroxylamine** $\text{H}_2\text{N-OH}$

**Oxime**
Grignard reagents

\[ \text{Br}^- + \text{Mg} \rightarrow \text{MgBr} \]

*Grignard reagents will only successfully form if an ether is present to complex with magnesium. Grignard's reagents can be destroyed by:

- H₂O (or any protic compound)
- CO₂
- O₂

Grignard reagents are ideally formed in flame-dried glassware under inert atmosphere (N₂, Ar).

- The alcohol is located at the carbon that used to be part of the C=O.
- The new C-C bond must contain the carbon that was part of the C=O.

\[ \text{MgBr}^- + \text{H} \rightarrow \text{MgBr} + \text{H} \]