When a Group-1A metal dissolves in liquid ammonia, metal atoms lose electrons, which are solvated by ammonia.

\[
\text{Na} + \text{NH}_3 (l) \rightarrow \text{Na}^+ + e^- (\text{NH}_3)
\]

Reduction of organic compounds using the solution of electrons in ammonia is known as dissolving-metal reduction.

\[\text{CH}_3\text{C}≡\text{C}-\text{CH}_3 + \text{Na} \rightarrow \text{CH}_3\text{C}≡\text{C}-\text{CH}_3 + \text{NaH}_3 (l)\]

major organic product

mechanism:

see also Lindlar catalyst, radical anion, Birch reduction

Contributors

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