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.

\[ \text{CH}_2=\text{C} = \text{C} \equiv \text{C} \equiv \text{CH}_3 \rightarrow \text{CH}_3=\text{C} = \text{C} \equiv \text{C} \equiv \text{CH}_3 \]

mechanism:

[Diagram showing the mechanism of dissolving-metal reduction]

see also Lindlar catalyst, radical anion, Birch reduction

Contributors

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