An N-nitrosamine is a compound that has the following general structural formula.

\[
\begin{array}{c}
\text{R}^1 \\
\text{N} - N \equiv O \\
\text{R}^2
\end{array}
\]

\( \text{R}^1 \) and \( \text{R}^2 \) could be hydrogen atoms, alkyl groups, aryl groups, or any combination thereof.

e.g.: 

1

\[
\begin{array}{c}
\text{CH}_3 \\
\text{N} - N \equiv O \\
\text{H}
\end{array}
\]

2

\[
\begin{array}{c}
\text{CH}_3 \\
\text{N} - N \equiv O \\
\text{CH}_3
\end{array}
\]

3

An \( N \)-nitrosamine is stable only if neither \( \text{R}^1 \) nor \( \text{R}^2 \) is a hydrogen atom. Thus, 1 is unstable, and 2 and 3 are stable. 1 exists mostly as the tautomer (4), which is called a diazotic acid.

\[
\begin{array}{c}
\text{CH}_3 \\
\text{N} - N \equiv O \\
\text{H}
\end{array} \quad \xrightarrow{\text{tautomer}} \quad \begin{array}{c}
\text{CH}_3 \\
\text{N} - N \equiv O \\
\text{CH}_3
\end{array}
\]

diazotic acid

see also nitroso group

Contributors

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