Preparation of Unsymmetrical Biaryls by the Diazo Reaction and the Nitrosoacetylamine reaction is an aryl-aryl coupling reaction via a diazonium salt. It is also known as the Gomberg–Bachmann reaction.

![Diazo Reaction Diagram](http://www.gnu.org/copyleft/fdl.html)

The arene compound 1 (here benzene) is coupled with base with the diazonium salt 2 to the biaryl 3 through an intermediate aryl radical. For example, p-bromobiphenyl may be prepared from 4-bromoaniline and benzene:

\[ \text{BrC}_6\text{H}_4\text{NH}_2 + \text{C}_6\text{H}_6 \rightarrow \text{BrC}_6\text{H}_4\text{−C}_6\text{H}_5 \]

The reaction offers a wide scope for both diazonium component and arene component but yields are generally low following the original procedure (less than 40%), given the many side-reactions of diazonium salts. Several improvements have been suggested. One possibility is to employ diazonium tetrafluoroborates in arene solvent together with a phase-transfer catalyst, another is to use 1-aryl-3,3-dialkyltriazenes.

Pschorr reaction

One intramolecular variation which gives better results is the Pschorr reaction:

![Pschorr Reaction Diagram](http://www.gnu.org/copyleft/fdl.html)

The group \( Z \) can be \( \text{CH}_2, \text{CH}_2\text{CH}_2, \text{NH} \) and \( \text{CO} \) (to fluorenone) to name just a few.

See also

- Graebe–Ullmann synthesis
- Meerwein arylation
- Sandmeyer reaction
References


Contributors

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