



## Simple, Gentle and Chemoselective Method of Synthesizing Diazo Compounds

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**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a simpler method of synthesizing diazo compounds.**

### Overview

Diazo compounds, which have the general formula  $R_2C=N_2$ , are versatile intermediates in organic synthesis. They participate in a variety of thermal, photochemical and metal-catalyzed reactions. Most carbenes, which are highly useful and reactive organic molecules, are accessed from diazo compounds. Diazo compounds also have been found in nature.

However, current methods of synthesizing diazo compounds are technically difficult and involve explosive reagents. Improved methods for generating this useful intermediate are needed.

### The Invention

UW-Madison researchers have discovered a simpler way to make diazo compounds. They found that the Staudinger reagent removes a nitrogen from an azido group. Specifically, the diazo compounds can be prepared by reacting a tertiary phosphine carrying a reactive carbonyl group, which is of the type used in Staudinger ligation, with an azide.

### Applications

- Synthesis of diazo compounds, particularly those compounds that are sensitive to acids, bases or oxidative conditions
- Processes for preparing water-soluble phosphine reagents for applications in chemical biology

### Key Benefits

- Much simpler, gentler and more chemoselective than current methods of synthesizing diazo compounds
- Yields are excellent.
- Complete consumption of the azide is achieved within a few hours.
- Side products are relatively polar, making it easier to provide highly pure diazo compound.

### Additional Information

#### Related Intellectual Property

- [View Continuation Patent in PDF format.](#)

#### Publications

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Myers E.L. and Raines R.L. *J. Am. Chem. Soc.* 127, 48, 2359-63.

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## Tech Fields

- [Materials & Chemicals : Synthesis](#)

For current licensing status, please contact Jennifer Gottwald at [jennifer@warf.org](mailto:jennifer@warf.org) or 608-960-9854

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