

Recent in Synthetic Organic Uses of Diazo Compounds Chemistry

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Abstract

Due to their wide range of chemical characteristics, diazo compounds have long been one of the principal areas of study in organic chemistry. The research on diazo compounds has gotten more and more active during the last 20 years. Diazo compounds have also been studied in areas other than synthetic organic chemistry, such as polymer science and chemical biology. This perspective will quickly review these developments from the previous two decades.

Keywords: *Diazo compounds; Heavy metals; Industrial sewage; Poly aromatic hydrocarbon; River Nile alkenes*

Introduction

In tetrahedron, we published a review article with the title "recent studies on the reactions of α -diazocarbonyl compounds". To our delight, this review piece becomes one of tetrahedron's most frequently referenced papers, demonstrating that the study of diazo compounds has remained a hot topic in recent years [1].

Indeed, numerous reviews that were published during this time period show that the chemistry of diazo compounds has seen tremendous advances in the last 20 years. The number of publications on the issue of "diazo compound" has increased dramatically since 2010, according to a review of the literature in Web of Science, with an average of 350 publications each year [2].

In this essay from a perspective, I'd want to explore potential future improvements as well as some selected current advancements in the area, along with a brief introduction to the topic's historical history [3].

Description

Diazo compound research has a long history. Curtius initially revealed how to make ethyl diazo acetate from natural glycine in 1883, while von Pechmann first reported finding diazomethane in 1894 [4]. Since that time, diazo compound research has remained an essential component of organic chemistry. These compounds are subject to a number of well-known name reactions, such as the Wolff rearrangement, Buchner reaction, Roskamp reaction, Doyle-Kirmse reaction, Arndt-Eistert homologation, and Seyferth-Gilbert homologation are some examples of reactions.

Diazo compounds have also been employed in the pharmaceutical business to create therapeutic molecules. The use of Rh(II)-catalyzed intramolecular NAH insertion in the manufacture of β -lactam antibiotics like thienamycin is one famous example. Diazo group has a distinct structure and is very reactive chemically.

In particular, compounds with a diazo group can be employed as precursors for metal carbenes in processes that are catalyzed by

transition metals. According to scheme 2, the central metal can coordinate with the diazo compound's carbon atom that has a negative partial charge, and N₂ can then be liberated with the help of the central metal's d electron to produce a metal carbene. While there are many different types of diazo compounds [5].

Conclusion

The related aldehydes or ketones can be directly condensed with p-toluenesulfonylhydrazide to produce stable p-toluenesulfonylhydrazones. As a result, p-toluenesulfonylhydrazones are increasingly used in carbene chemistry as precursors to reactive diazo compounds.

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