

Expt 10: The Grignard Reaction: Synth of Benzoic Acid

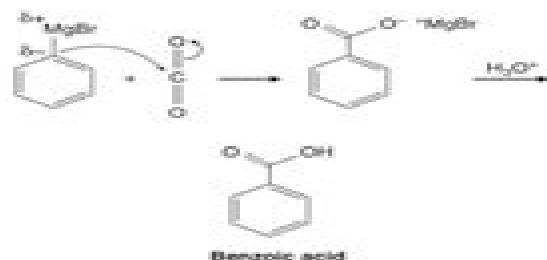
Objective: To prepare phenyl-magnesium bromide from magnesium and bromobenzene to create a Grignard reagent. After adding this reagent to carbon dioxide, we obtain benzoic acid after hydrolysis.

Introduction: Grignard reagents belong to organometallic compounds. This is a class of organic compounds that contains a carbon bonded to a metal. The Grignard reagent is formed by the reaction of an alkyl halide with magnesium metal in anhydrous ether. The reaction is shown below:

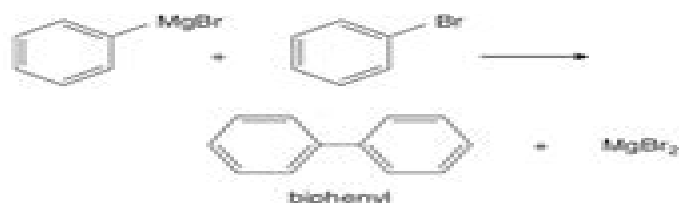


The carbon atom of a Grignard reagent is a powerful nucleophile and a strong Lewis base. The starting materials for preparing Grignard reagents have no acidic protons, and all reactants, solvents, and glassware must be dry for the reaction to start. This is because Grignard reagents react with water, carbon dioxide, and oxygen and so they should be protected from air and moisture. Hence, the apparatus should be dried by a calcium chloride drying tube during the reaction.

The synthesis of benzoic acid using Grignard reagents occurs as shown below:



Some side reaction may occur since Grignard reagents will react with water and other proton donors. Not all moisture can be eliminated. Hence, benzene will be formed as a byproduct if moisture is present. The main impurity formed in this experiment is biphenyl which is formed because of coupling reaction of unreacted bromobenzene and Grignard reagent. But, both of these by products can be removed by extraction.



Grignard Reaction Lab Report

Ensheng Dong



Grignard Reaction Lab Report:

Decoding **Grignard Reaction Lab Report**: Revealing the Captivating Potential of Verbal Expression

In an era characterized by interconnectedness and an insatiable thirst for knowledge, the captivating potential of verbal expression has emerged as a formidable force. Its ability to evoke sentiments, stimulate introspection, and incite profound transformations is genuinely awe-inspiring. Within the pages of "**Grignard Reaction Lab Report**," a mesmerizing literary creation penned by a celebrated wordsmith, readers embark on an enlightening odyssey, unraveling the intricate significance of language and its enduring effect on our lives. In this appraisal, we shall explore the book's central themes, evaluate its distinctive writing style, and gauge its pervasive influence on the hearts and minds of its readership.

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Table of Contents Grignard Reaction Lab Report

1. Understanding the eBook Grignard Reaction Lab Report
 - The Rise of Digital Reading Grignard Reaction Lab Report
 - Advantages of eBooks Over Traditional Books
2. Identifying Grignard Reaction Lab Report
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Grignard Reaction Lab Report
 - User-Friendly Interface
4. Exploring eBook Recommendations from Grignard Reaction Lab Report
 - Personalized Recommendations
 - Grignard Reaction Lab Report User Reviews and Ratings

- Grignard Reaction Lab Report and Bestseller Lists
- 5. Accessing Grignard Reaction Lab Report Free and Paid eBooks
 - Grignard Reaction Lab Report Public Domain eBooks
 - Grignard Reaction Lab Report eBook Subscription Services
 - Grignard Reaction Lab Report Budget-Friendly Options
- 6. Navigating Grignard Reaction Lab Report eBook Formats
 - ePub, PDF, MOBI, and More
 - Grignard Reaction Lab Report Compatibility with Devices
 - Grignard Reaction Lab Report Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Grignard Reaction Lab Report
 - Highlighting and Note-Taking Grignard Reaction Lab Report
 - Interactive Elements Grignard Reaction Lab Report
- 8. Staying Engaged with Grignard Reaction Lab Report
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Grignard Reaction Lab Report
- 9. Balancing eBooks and Physical Books Grignard Reaction Lab Report
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Grignard Reaction Lab Report
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Grignard Reaction Lab Report
 - Setting Reading Goals Grignard Reaction Lab Report
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Grignard Reaction Lab Report
 - Fact-Checking eBook Content of Grignard Reaction Lab Report
 - Distinguishing Credible Sources

13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

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