



Palladium Acetate

Unleashing Catalytic Potential

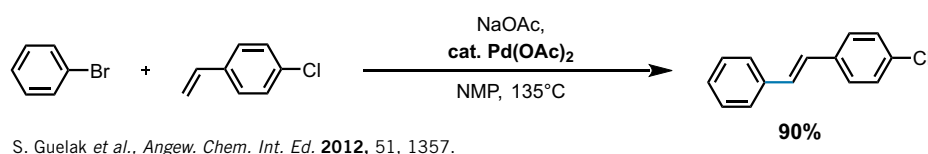
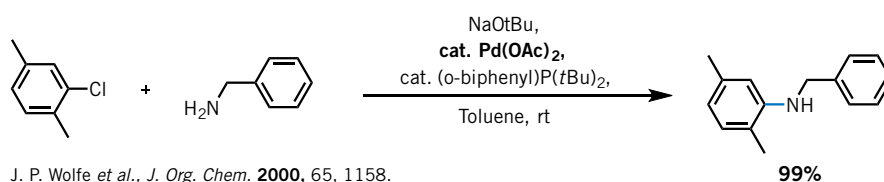
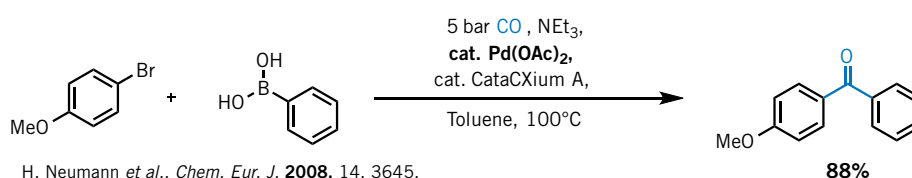
HERAEUS – YOUR EXPERT FOR PALLADIUM ACETATE

INTRODUCTION

Catalyzed reactions, such as coupling reactions, aminations or carbonylations, play an important part in the syntheses of sophisticated active ingredients for pharmaceutical, agro- and fine-chemistry. Many of these reactions are run with the help of homogenous palladium catalysts. Palladium acetate, $\text{Pd}_3(\text{OAc})_6$,

is one of the most common Pd sources in this type of catalysis. It is a well defined, brown compound with good solubility in typical organic solvents. It serves as a reliable source of soluble palladium, which can then interact with additional ligands in the reaction mixture.

COMMON COUPLING REACTIONS WITH PALLADIUM ACETATE



As a prime example, Palladium acetate finds extensive application in Suzuki-Miyaura cross-coupling reactions, which allow for the formation of carbon-carbon bonds between aryl or vinyl boronic acids and aryl or vinyl halides. The reaction conditions involve the use of a base, such as sodium or potassium carbonate, along with a phosphine ligand, commonly triphenylphosphine (PPh_3). Suitable solvents for Suzuki-Miyaura cross-couplings include toluene or dioxane.

Further, it is highly effective in Heck reactions, a significant carbon-carbon bond-forming reaction. When used as a catalyst, typically in a palladium acetate/ PPh_3 (triphenylphosphine) system, it enables the coupling of aryl or vinyl halides with various olefins.

The reaction conditions typically involve using a base, such as a carbonate or hydroxide, and an appropriate solvent such as N,N-dimethylformamide (DMF) or tetrahydrofuran (THF).

In Sonogashira couplings, another carbon-carbon bond-forming reaction, Palladium acetate serves as an effective catalyst for the coupling of terminal alkynes with aryl or vinyl halides. It is often used in combination with a copper(I) salt as a co-catalyst, such as copper(I) iodide (CuI), facilitating the formation of the desired products. The reaction conditions typically involve the use of a base, such as potassium carbonate, and solvents such as dichloromethane (DCM) or toluene.

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REACTIONS

- CC-Coupling Reactions
- CN-Coupling Reactions
- CH Activations
- Carbonylations

APPLICATIONS

- ✓ Agro chemicals
- ✓ Fine chemicals
- ✓ Pharmaceuticals



SPECIFICATIONS

Molecular formula: $\text{Pd}_3(\text{OAc})_6$

Molecular Weight: 672

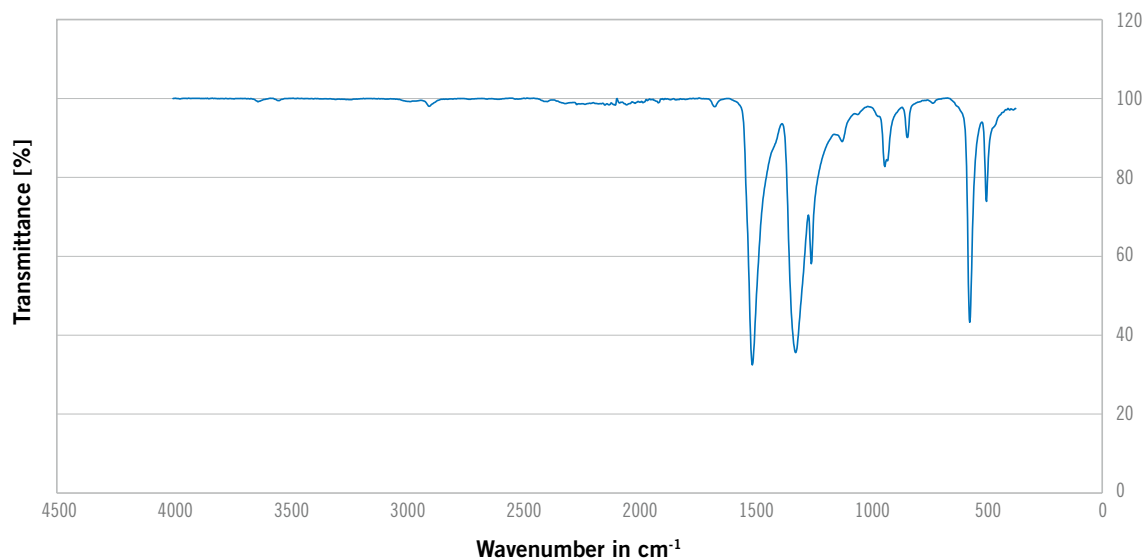
CAS Number: 3375-31-3

Metal content: 46–48 %

Solubility: Acetone, methanol, acetonitrile, dichloromethane, chloroform

Description: Palladium acetate trimer

EXEMPLARY FT-IR SPECTRUM



Palladium acetate stands as a powerful catalyst, offering excellent solubility in common organic solvents, high reactivity, selectivity, and versatility. Its solubility allows for the preparation of homogeneous catalyst solutions, ensuring optimum performance and ease of handling in various organic reactions.

UNLOCK THE CATALYTIC POTENTIAL WITH PALLADIUM ACETATE!

ABOUT HERAEUS PRECIOUS METALS

Heraeus Precious Metals is one of the world's leading players in the precious metals industry.

As part of the Heraeus Group, the company covers the value chain from trading to precious metals products to refining and recycling. It has extensive expertise in all platinum group metals as well as gold and silver.

With about 2,500 employees at 11 sites worldwide, Heraeus Precious Metals offers a broad portfolio of products that are essential for many industries such as the automotive, chemicals, semiconductor, aerospace, pharmaceutical and hydrogen industry.

Heraeus Precious Metals

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