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Oxalyl Chloride A Versatile Reagent in Organic Transformations

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Abstract

Oxalyl chloride, (COCl)2, as an inexpensive commercially available chemical is one of the most versatile applicable organic reagents in chemical transformations. It is also employed extensively in various chemical industries. It is employed in various chemical transformations such as chlorination, oxidation, reduction, dehydration, decarboxylation, and formylation reactions as well as ring cleavage of epoxides. During the past decades, numerous procedures using (COCl)2 as reagent have been developed and published. However, its importance has largely been overlooked by the absence of a comprehensive review in chemical literature dealing with its application in organic transformations and its utilization in the chemical industry. This Review aims to provide an overview for the applications of oxalyl chloride in organic synthesis, including its physical properties, synthesis, as well as its unique roles as the reagent in organic reactions, covering the literature over the past 103 years (from 1916 to date).

Keywords: Chlorination, Oxalyl chloride, Reagent, Reduction, Swern oxidation.