

Synthesis Methods for 2,6-Naphthalenedicarboxylic Acid

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Abstract—Synthesis methods are considered for 2,6-naphthalenedicarboxylic acid (2,6-NDA), a valuable monomer used in the production of polyesters (polyethylene naphthalate) possessing better properties than the conventional polyethylene terephthalate polymers. Most of the 2,6-NDA synthesis processes being developed now are based on the catalytic oxidation of alkylnaphthalenes and suffer from a number of drawbacks, such as the necessity of performing the process in several steps and low selectivity. More attractive is the homogeneous catalytic oxidative carbonylation of naphthalene in palladium salt solutions in the presence of a reoxidizer. The direct introduction of a carbonyl group into the aromatic ring in combination with the conversion of naphthalenecarboxylic acid derivatives into 2,6-NDA is a way to few-step, highly selective 2,6-NDA synthesis processes. Since the homogeneous palladium catalysts are readily available and are to be used at low concentrations, these processes are of great practical interest.

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