Cationic Exchange Reactions Involving Dilithium Phthalocyanine. Dilithium phthalocyanine (Li2Pc) consists of an aromatic macrocycle possessing a doubly negative charge and two Li+ counterions. One Li+ ion is easily displaceable while the other remains coordinated to the phthalocyanine ring. The displaceable Li+ cation can be exchanged with other cations, such as a singly charged tetra-alkyl ammonium cation, by using several variations of a general procedure. It has been demonstrated that tetraalkylammonium lithium phthalocyanines (TAA-LiPcs) can be successfully and reproducibly synthesized with yields ranging from 54.5% up to 64.3%. All TAA-LiPcs demonstrated poor solubilities from approximately <0.2 mg/mL to 5 mg/mL in the solvents tested (with the exception of tetrapropylammonium lithium phthalocyanine and tetrahexylammonium lithium phthalocyanine). All of the TAA-LiPcs synthesized were dark-purple in color, with the exception of tetraheptylammonium lithium phthalocyanine and tetractylammonium lithium phthalocyanine. These two compounds were dark-blue in color. Melting points varied greatly from >370.4°C to 157.9°C and depended greatly upon the alkyl-chain length of the exchanged cation.