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**Title:** Reduction of Frictional Resistance by Air Bubble Lubrication

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**Abstract:** The reduction of resistance and the increase of propulsive efficiency are major drivers for ship designers both for economic reasons and increasingly for reducing the ship's environmental footprint. Reducing the frictional resistance by air injection below the ship in combination with special coatings is an active area of research; anecdotally, performance gains are usually large. The paper gives an overview of some of the results of model scale and full scale results of ships with one type of air lubrication—air bubble lubrication—performed by MARIN. The experiments were performed under the SMOOTH project. The first series of experiments focused on an inland shipping vessel that was tested both on model scale and on full scale, with and without air lubrication. A second series of tests consisted of maneuvering and seakeeping tests with a model painted with different coatings and with and without air lubrication. No appreciable effects of air bubble lubrication were found during the resistance and propulsion tests at either model or full scale and no significant effects of air bubble lubrication on maneuvering and seakeeping model tests could be determined.

**Keywords:** Model Tests, Powering, Seakeeping, Maneuvering, Air Lubrication