

**Scope:** □□ Development and Demonstration of a Novel Technology for an Integrated After  
**Keywords:** Environmental Monitoring & Management, Marine De-pollution Technology, Tele  
**Partners:** Cyprus University of Technology (CUT)  
University of Cyprus (UCY)  
eMedi8 digital solutions Ltd  
Proplan Industrial Engineering Consultants Ltd  
SMEC Marine Engineering Company Ltd  
**Status:** In progress  
**Publications:** □  
[Project NEMO Executive Summary Decmber 2010 \(EN, PDF\)](#)

### Description:

The present research project aims to the development of an advanced novel technology for the integrated de-pollution of ship exhaust gases. In particular, the present project will focus on the combination of the Sea Water Absorption (SWA) technology with a novel H<sub>2</sub>-SCR (Selective Catalytic Reduction) technology for the removal of SO<sub>x</sub> (SO<sub>2</sub> and SO<sub>3</sub>) and particulates, and NO<sub>x</sub>, respectively, from ship exhaust streams. Moreover, the present project will develop a telecommunication system for the remote monitoring of ship emissions, which will provide an invaluable tool for local and International authorities for the real-time monitoring of ship emissions, which will allow the direct set about of cases of deviation from the European and International law.

The project consists of four separated steps to be taken:

- a) Development of a suitable methodology for the removal of SO<sub>x</sub> by using the Sea Water Absorption methodology,
- b) development of a suitable catalytic converter for the reduction of Nitrogen Oxides (NO<sub>x</sub>) with hydrogen towards N<sub>2</sub>,
- c) development of an informational system for the on board and/or remote monitoring of ship emissions (NO, NO<sub>2</sub>, CO, CO<sub>2</sub>, SO<sub>x</sub>), and
- d) the integration of all three mentioned technologies towards a pilot plant which will be installed on an active commercial ship.

Such an effort should be considered pioneering, and will be attempted for the first time worldwide. The successful implementation of the proposed project is expected to contribute significantly towards the harmonization of ship-owner companies with the new MARPOL legislation.