ABSTRACT

Ship diesel engines are the engine that proven to be most fuel efficient and durability. However, the emissions from diesel engines also seriously threaten the environment and are considered one of the major sources of air pollution. The pollutants emitted from marine vessels are confirmed to cause the ecological environmental problems such as the ozone layer destruction, enhancement of the greenhouse effect and acid rain, etc. Marine diesel engine emissions such as particulate matter and black smoke carry carcinogen components that significantly impact the health of human beings. Investigations on reducing pollutants, in particular Partikulate Matter (PM), Sulfur Oxides (SOx) dan Nitrogen Oxides (NOx) are critical to human health, welfare and continued prosperity.

A method for reducing exhaust gas emissions from this ships are after treatment method which hope that not influence to the engine performance. Electrostatic Precipitator (ESP) is a method for reducing exhaust gas emissions that able to reduce Particulate from exhaust gas until 99%. In this study research Computable Fluid Dynamics (CFD) is a programming tools for analyzing the reducing exhaust gas emissions. In this research that analyzed shown the parameter design and efficiency of ESP that most optimum with the result that the ships exhaust gas emissions not dangerous for health nor destruction the environment.

Keyword: CFD, Exhaust Gas Emissions, ESP, PM, SOx, NOx