

ABSTRACT

Generally, furnace is a device used for heating. The furnace itself is often analogous as industrial needs that can be used for a lot of things, in this case it is used in the Incinerator. The purpose of this study is to analyse the best shape or design of most furnace devices, as well as simulate the flow of gas results from combustion which existed in all three types of furnaces. The three type of furnace includes Counter Flow Furnace, Centre Flow Furnace and Parallel Flow Furnace.

The tests conducted on the three furnace by inputting the data of temperature value, air velocity and pollutants from data testing of garbage in Bandung. Along with the technology development in today's era, simulation through Computational Fluid Dynamics (CFD) can be a very useful tool for simulation of gas flow results of waste combustion in Bandung.

Simulation process of garbage gas flow in Bandung uses FLUENT 6.3 software. 2D modelling that refers to the law of conservation of mass, and law of momentum and energy. Turbulence model realizable $k-\epsilon$ s used to test the turbulent flow in the furnace. Simulation of the gas flow can predict gas flow visualization in various types of furnaces. Making geometry and meshing in this simulation is using the software called GAMBIT 2.2.3.

Keywords: *Furnaces, CFD, Gas Flow, FLUENT.*