

Tatiya Pinpradab 2014: Design of Ventilation System for Reducing Toxic Contaminants in Battery Charging Room. Master of Engineering (Safety Engineering), Major Field: Safety Engineering, Faculty of Engineering. Thesis Advisor: Mr. Kummun Chooprasird, Ph.D. 115 pages.

In general, the industries that have been used forklift in batteries type have ventilation system to reduce the amount of toxic contaminants while charging the battery. During battery charging, which are toxic gases in the form of mist released. The design of the ventilation system in the battery charging process of the volume of this room is 896 m^3 , which has a ventilation system existing and use a Centrifugal Fans of Forward Curve Blade Fans type to ventilate. In this research focuses on the performance of the existing ventilation system and design the new ventilation system that followed by ACGIH (American Conference of Governmental Industrial Hygienist).

The study is to design from a conventional system by increasing the two Axial Fan type with parallel flow ventilation. An airflow rate, air-velocity, duct-size, static pressure and size of fan are the same in both. The results of the ventilation test at temperature 37°C , the flow rate is $2.81 \text{ m}^3/\text{s}$ and $2.82 \text{ m}^3/\text{s}$. static pressure of fan is 217 Pa and power of the Axial Fan is 1.38 kW respectively. Result of lead and sulfuric acid sampling in the work area is reduced and passed by ACGIH standard at the concentrations of lead and sulfuric acid is $0.011 \text{ mg}/\text{m}^3$ and $0.022 \text{ mg}/\text{m}^3$.

Student's signature

Thesis Advisor's signature