

Siriratchanee Sirisawat 2011: Developing Equipment for the Relation of Temperature and Flammability Limits. Master of Engineering (Fire Protection Engineering), Major Field: Fire Protection Engineering, Interdisciplinary Graduate Program. Thesis Advisor: Mr. Supat Patvichaichod, Ph.D. 84 pages.

The objective of this research was to develop a flammability limit behavior learning equipment which was designed to study the relation between fuel gas (LPG) and combustion. The equipment can be used as an experimental model for observing combustion experiment. By including a heater and a thermocouple, the equipment was improved to give a better understanding of the relation between temperature and flammability limit of LPG beyond those from a basic fire fighting text book. To reduce the error from the mixing volume, the combustion chamber size was reduced to a width of 25 centimeter, length of 40 centimeter, and height of 20 centimeter which the volume is 20,000 cubic centimeter or 20 liter. The equipment was made from stainless steel with a safety sight glass installed for observation.

The result shows that the flammability limit of LPG varies with temperature and can be compared with Burgess-Wheeler Law's Theory. This theory mentioned "LFL and UFL is relative with the chemical in Paraffin Hydrocarbon (Alkane) Group in any increasing of temperature" Results of the experiment found that there is consistent with the theory. When the temperature in equipment increases, flammable limit is expansion too. In addition, there are many flammability and backfire theory which interesting for experiment. However, this equipment can be used to develop for other researches and to improve knowledge of fire protection and suppression in Thailand.

---

Student's signature

---

Thesis Advisor's signature