ABSTRACT

The comfort and safety factor of the work environment is something that must be considered by every company. Activities carried out in an uncomfortable work environment will interfere with the mental workload of the job. The purpose of the study was to identify the thermal comfort and mental workload of workers, analyze the effect of thermal comfort on the mental workload of workers and recommend and advice to companies related to thermal comfort and mental workload of workers with a case study of the vacuum cooler work area and seal tank of the PT Petrokimia Gresik phosphoric acid factory. The method used to calculate thermal comfort is the adaptive method. While to measure the mental workload of workers using Rating Scale Mental Effort. The results in the vacuum cooler work area have a temperature range between 35 ℃ - 39 ℃, workers feel uncomfortable and quite disturbed. The seal tank work area has a temperature range between 30℃-34℃, workers feel neutral and quite supportive conditions. The mental workload in the Vacuum cooler area is 103, which means that workers make a very large effort. The mental workload of workers in the seal tank area is at 88, which means that workers make considerable effort. Thermal comfort affects the mental workload of workers with a percentage influence of 45.4% and the rest is a variable that is not studied. Thermal comfort has a negative influence on mental workload which means, the higher the thermal comfort it will reduce the mental workload of workers.

***Keywords**:Thermal Comfort, Workload, Adaptive Method, and RSME.*