Advance data logging software for gamma-ray scanning technology

Introduction

Gamma-ray scanning is a non-destructive testing method based on gamma-ray absorption principle. It is currently used in oil refineries, gas processing plants, chemical, petrochemical and oleo-chemicals installation. The technique provides a visible representation of the true nature of the operating characteristics of a process column and identifies internal damage while the column is in operation [1,5].

Meanwhile, Vasquez et al. [2] had developed a scintillator detector system for gamma-ray scanning of industrial distillation columns. They applied CsI(TI) counter as detector instead of commercial NaI(TI) counter for gamma-ray and Co-60 sealed source as a gamma-ray emitter. The system has been used to scan a simulated model of a tray-type distillation column. A comparison results of gamma-ray scan on a simulated column using NaI(TI) and Cs(TI) counters have been made. The results showed that Cs(TI) detector presented similar profiles of column as NaI(TI) detector. However, the efficiency of Cs(TI) was 3% and is considered lower compared to that of NaI(TI) (30%). Overall, the Cs(TI) detector can be alternatively used for gamma-ray scanning technique.