Automated Flammability Apparatus & Application

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ABSTRACT

The safest method to prevent fires and explosions of flammable vapors is to prevent the existence of flammable mixtures in the first place. When attempting to avoid flammable mixtures or when they are unavoidable in a chemical process, detailed knowledge of the flammable envelope as a function of the fuel, oxidizer, inert, temperature and pressure is necessary for safe operation.

A large amount of data is required to adequately define the flammable envelope for process application and a highly automated flammability apparatus is a necessity.

This paper describes a new flammability instrument and an approach for the determination of an operating model for the production of a commodity chemical at six production facilities worldwide within The Dow Chemical Company. A detailed overview of the apparatus is presented including gas blending system, control and data acquisition electronics, ignition system and the LabVIEW control system.