Use of ARC in Screening for Explosive Properties

Glenn T. Bodman* , Sima Chervin,
Eastman Kodak Company
1100 Ridgeway Avenue
Rochester, NY 14652-6270
Ph: 585-722-7035
glenn.bodman@kodak.com
sima.chervin@kodak.com

ABSTRACT

The use of a modified version of the accelerating rate calorimeter (ARC) as a screening method for the explosive properties of chemicals has been investigated. Definitive tests for classifying energetic chemicals for transportation are provided by UN Recommendations (1). Recently, decomposition energy screening criteria were added to the recommendations, however, maximum rate of pressure rise in a closed vessel may provide a less conservative, more accurate screen. Pressure rate data for organic chemicals are compared to the UN test results. Preliminary screens are suggested to minimize the need for the larger scale, more expensive, and time-consuming UN-recommended testing. Results from this method are compared to those from published mini-autoclave data (2). Further work is planned to expand the range of chemical classes tested and to specify acceptable, conservative screening criteria.