Thermally-driven foam decomposition and container pressurization

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Before heating

Pressurization & Failure

Pressure from organic material (particularly foam) decomposition causes container failure

Contract Data

Funding Source: Sandia ASC
Sandia POC/PI: R. E. Hogan and K. L. Erickson
Russian Institute: VNIIA
Russian POC/PI: A. S. Sviridov / V. S. Sirenko
Sandia Contract Number: 1119527
Contract Value: $30k (FY11)
Period of Performance: 04/11–09/11

Objective

• Demonstrate/evaluate advanced computational tools for analysis of this class of problems.

Benefit to Sandia

• VNIIA work complements SNL activities to develop computational tools and QMU methodology for system-integrated safety analyses requiring approximations to complex phenomena.

• Work will evaluate alternative approaches to modeling complex phenomena in systems analyses.

Russian Institute Contribution

• VNIIA colleagues have substantial experience in thermal decomposition phenomena and mutual interests in container pressurization and failure.

Achievements/Highlights

•FY04-10: Previous contract (264333) enabled collaborative work that determined mechanisms and kinetics for decomposition of pertinent polyurethane and epoxy foams. Results provide basis for current work.

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