SAND2006-6855C

TufFoam^{TM}: From Electronics Encapsulation to Surfboard Cores

LeRoy Whinnery
Sandia National Laboratories, Livermore, CA

Abstract:

TufFoam™ is a TDI-free, water-blown, closed-cell, rigid polyurethane foam (PU) initially formulated as an electronics encapsulant to mitigate the effects of harsh mechanical environments. Because it contains no TDI, the handling hazards and chemical sensitization associated with exposure during processing of common, commercial PU foams are greatly reduced. The mechanical properties of TufFoam™ have been found to be comparable or superior to conventional TDI-based foams. Beyond its original intent, it has since found use in a variety of additional applications, including as a structural material (surfboard blanks) and as a thermal and electrical insulating material. TufFoam™ constituents are commercially available in commodity quantities and batch processing schedules have been developed for its preparation at densities ranging from 0.032 to 0.80 g/cc (2 to 50 pcf).