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ABSTRACTS

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The Effect of Combined Ethylene Oxide and Electron Beam Irradiation Sterilization Processes on the Spores of Bacillus Subtilis and Bacillus Pumilus: A Study of Sequential Processing

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As an attempt to reduce the deleterious effects sometimes associated with ethylene oxide and electron beam irradiation sterilization processes on materials, product design and the economics of operation, we report here an extension of our work in the area of the combined use of sublethal sterilizing systems. In this report, we have evaluated the potential additive or synergistic response when ethylene oxide and irradiation are combined at sublethal levels. The preliminary findings indicate that an assured response of at least an additive nature exists between the two systems portending a potential benefit for sequential processing. In addition, the results indicated that there is no significant difference between radiation doses delivered from either gamma or electron beam sources. The equivalence of the lethality of irradiation generated from high voltage electron beam to that obtained from ^{60}Co is supported by our observation that the calculated D_{10} value for *B. pumilus* was the same for either process (0.15 mRads).