CRYOGENIC SAFETY*

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ABSTRACT

In any cryogenic system, we must first consider the hazards associated with the materials, processes, and procedures of interest. These can be divided into three general areas: physiological, physical, and chemical. The first includes frostbite, respiratory ailments, and the specific effects of certain materials such as oxidizers on body tissues. The second includes the effects of phase changes, low temperatures, oxygen enrichment, and hydrogen embrittlement. The third includes the ignition of flammable mixtures, the propagation of deflagrations and detonations, and the initiation of destructive fires. A knowledge of these hazards and the applicable basic principles then permits one to design a suitable facility for the production, storage, handling and disposal of cryogenic fluids in the laboratory, plant and test site.

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*This talk was based on the author's monograph Safety with Cryogenic Fluids (Plenum Press, New York, 1967).