

adequate exits and safe guards for personnel. A dependable operation with completely automatic pressure, temperature, liquid level, and flow control should be provided. Continuous multi-point gas analyzers are recommended for a system of any size. Maintain an efficient fire brigade. This article has not covered personal protective equipment, first aid procedures, shipping regulations and unloading instructions for tank cars or other containers. The Manufacturing Chemists Association has published manuals which provide adequate information on these facets of operations. Unloading instructions are also available from Chemical Manufacturers, shipping regulations described in T. C. George's Tariff regulations.

- 902 The Measurement of Leakage of Respirators. J.M. White and R.J. Beal. Am. Ind. Hyg. Assn. J. 27, 239-242 (May-June, 1966).

Four types of respirators used at Chalk River Nuclear Laboratories were tested for leakage on personnel who frequently wear them during their work. The method involves wearing the respirator in an atmosphere containing submicron particles of sodium chloride then measuring, by means of a flame photometer, the sodium content of the exhaled breath. About 60 full-face and 100 oronasal filter respirators were tested. Smaller numbers of supplied-air masks and the facepieces of self-contained breathing apparatus were also checked. Results indicated that subjects wearing full-face respirators which they fitted themselves experienced leakage around the facepieces amounting to as much as 5% of the inspired air. Facepiece leakage with oronasal respirators exceeded 20% of the inspired air in some instances. Neither type of air-supplied device leaked significantly as long as the air supply was adequate. -- Authors' abst.

- 903 Determination of Air Flow Into Welding Hoods. J.S. McKarns, et al. Am. Ind. Hyg. Assn. J. 27, 305-306 (May-June, 1966).

Several methods for determining the air flow into Ruemelin welding hoods were investigated. For most situations, a static probe inserted past the ball joint into the extension will provide static pressure which can be used for the appropriate coefficient of entry to yield a good approximation of the flow rate. Coefficients of entry were obtained in these studies for a freely suspended hood, that is, the hood was not resting on a table. -- Authors' abst.

- 904 Air Flow Induced in Enclosed Inclined Chutes of Material Handling Systems. C.W. Kruse and W.O. Bianconi. Am. Ind. Hyg. Assn. J. 27, 220-227 (May-June, 1966).

Air entrained within enclosed inclined chutes conveying solid materials may contribute, unless exhausted, to the dispersion of dust in work areas. Quantities of air induced calculated from equations developed from the dynamics of free-falling particles do not compare well with field measurements. A modified form of the theoretical equation including an efficiency factor derived from the geometry of the chute system gives fairly good agreement between computed and observed rates of air flow. A nomogram solution is given to aid the engineer in determining where exhaust will be required and what volume need be exhausted to achieve dust control. -- Authors' abst.

- 905 Design Factors and Use of Ear Protection. C.G. Rice and R.R.A. Coles. Brit. J. Ind. Med. 23, 194-203 (July, 1966).

The problems of protecting the ear against hazardous noise are the subject of a general review supported where relevant by data from the authors' own researches. Ear protectors are classified into two main types—plugs and muffs—and the general principles of their function and limitations are stated. Examples of representative ear protectors are given in more detail, with particular respect to their relative merits and pure-tone attenuation characteristics. The effects of earplugs on speech communication are considered, and the relationships between pure-tone attenuation and protection against continuous noise are discussed in some detail. The results of temporary threshold shift (TTS) reduction studies of the efficiency of V. 51R and Selectone-K earplugs in protecting against reverberant and non-reverberant impulsive noises are presented. The design requirements of ear protectors and some of the problems created by them are also outlined. -- Authors' abst.

- 906 Long-Distance Pipelines—Shouldn't They Be Safer? F.C. Price. Chem. Eng. 72, 131-138 (Nov. 22, 1965).

This survey includes irregularities in the construction of a long-distance gasoline pipeline, safety regulations that prevail in natural-gas and products pipe lining industry, and lack of control over pipelines exerted by governmental agencies; what seems to be responsible for several recent failures is the corrosion condition that can develop over a long time period and is difficult to detect; the B-31 code for pressure piping instructs pipeline designers to use a factor for corrosion if corrosion materials are to be handled, but the majority of products transported are judged to be noncorrosive so that no allowance is made. -- J. Am. Soc. Safety Eng. Absts. (modified)