the significance and application of industrial hygiene standards is adapted from a paper presented by D D Irish at the 1966 National Safety Congress (see "References")

Information required first

Environmental investigations are a means of determining a five-dimensional pattern The three dimensions of space determine simply *where* it is By adding a fourth dimension of time, we determine *"when* it is *where"* The fifth dimension is man's movement within space-time which recognizes that man's exposure depends on *"where* he is *when"* While the integration and expression of all this is not a simple matter, it is the best definition of the probability of exposure in a given set of circumstances This concentration, space, time, man movement pattern is not a constant but a high variable circumstance If we safety professionals are concerned with a work environment, we can make investigations of the work circumstance, but this represents less than a third of man's environmental exposure What of his off-the-job habits and indulgencies? It is difficult for us to measure these off-the-job exposures We cannot ignore them however, in our overall consideration of the interaction of man and his environment We can get some clues from biochemical monitoring of the man and from what he himself can tell us

Information on the quantitative and qualitative aspects of the interaction of man with the environment can be found in scientific publications, product brochures, labels, and *Hygienic Guides* put out by the American Industrial Hygiene Association, "Chemical Safety Data-Sheets" published by the Manufacturing Chemists' Association, and "Industrial Safety Data Sheets" published by the National Safety Council

If you do not find the information you need, ask your supplier If he cannot give you the information get a supplier who can Use caution in applying the information from one supplier to the product of another supplier If your supplier simply says, 'We don't have any trouble handling it," ask him how he handles it so he doesn't have any trouble You can handle any substance safely if you know how to handle it properly and train your personnel to do so Any person who is responsible for the maintenance of a healthful environment should be thoroughly acquainted with the substances or energies which may be encountered in the industrial environments for which he is responsible

In the area of occupational health, standards of environmental quality are a useful means of expressing and communicating the summation of experimental information and experience

Many years ago, the American Standards Institute set up Committee Z37 to establish standards of quality for work areas where toxic dusts and gases were of concern These early standards were expressed as "Maximal Allowable Concentrations" and later as "Maximal Acceptable Concentrations," or just MAC More recently, the American Conference of Governmental Industrial Hygienists (ACGIH) established what they called "Threshold Limit Values" or TLV The TLV not having a "c" listing is a time-weighted average for an eight-hour work day A time-weighted average is an attempt to summate the potential exposure in a variable work environment The ACGIH has outlined the calculation and use of the time-weighted average in their publications on the TLV Comparable information can be found in many books on industrial hygiene

The Z37 Committee of the American Standards Institute has developed a number of innovations in concept

In the past, a standard was conceived as a single limit, threshold, or boundary between what is healthful and what is not healthful But there is no such single boundary The pattern of exposure in space and time may be variable Therefore, multiple boundaries are needed As the boundaries are not sharp lines between what is healthful and what is not healthful, we need an explanation of the basis and significance of each of these boundaries which must act as guide lines in maintaining a healthful work environment The first innovation the Z37 Committee established was the recognition of several boundaries for each substance which they termed 'acceptable concentrations" or just AC

But what are the different acceptable concentrations most useful in environmental control?

Let us look at them