protective equipment

Some processes may require special control For example, it is possible to reduce exposure by lowering the temperature of the process and decreasing the air motion around the operation (Under some conditions, however, decreased air motion may promote rather than reduce exposure It should be kept well in mind, therefore, that every exposure may require special study)

Hygienic measures

Careful supervison of the personal cleanliness of workers exposed to skin irritants is essential to the prevention of dermatitis Supervision is most successful where enough convenient and efficient washing facilities are available to serve all the employees exposed

Workers should be told where, how, and when to wash, and should be advised that they will be rated on this part of their job performance They should be required to change their clothing and take a shower before leaving the plant at the end of the shift

For many exposures, frequent washing alone is a successful preventive measure, particularly where the dermatitis is caused by mechanical plugging of the pores, such as from dust In all cases, however, the use of large quantities of water on the skin following exposure to irritants is necessary

It may be advisable in some instances to use neutralizing solutions after a thorough flushing with water However, since some neutralizing solutions are themselves irritants, they should be applied only upon the advice of a doctor

The type of soap used is important, even a generally good soap may cause irritation on certain types of skins The choice of a good soap is best left to the medical department or other qualified department In particular, soap should

1 Be freely soluble in hard or soft, cold or hot water
2 Remove fats, oils, and other soil without harming the skin
3 Leave the natural fats and oils in the skin
4 Contain no harsh abrasives or irritant scrubbers
5 Be handy to use if in cake form or flow easily through soap dispensers if in granulated or powder form
6 Stay insect-free
7 Retain its properties in use

A large number of cases of industrial dermatitis are reported to be caused not by substances used in processes, but by materials used to *remove* those substances An untrained worker may wash his hands in those cleaning agents which are most available and work the fastest—often dermatitis-producing solvents To combat this practice, a sufficient number of conveniently located waterless hand cleaning stations containing properly selected cleansing agents should be installed in on-the-job washing areas and in shower rooms Where soap-dispensing units are furnished, workers should be required to use them

Sometimes it will also be necessary to use emollient cream to replace natural oils and fats removed from the skin

Measuring the Hazard

To determine exposure levels to atmospheric contaminants, as well as to measure physical energy stresses, the industrial hygienist uses either direct-reading instructions or laboratory analytical methods

The particular exposure can be evaluated by chemical analyses of air samples, and a step-by-step analysis of the operations must be made to find the areas where employees are exposed to hazardous amounts of the material The operational analysis also should determine how the material becomes airborne and is dispersed

The type and extent of controls will depend upon the evaluation made of the exposure, and the operation that disperses the contaminant The extensive controls needed for lead oxide dust, for example, would not be needed for limestone dust, since much greater quantities of limestone dust can be tolerated

The limitations and applications of the various instruments and techniques used to measure environmental stresses are discussed in this section, which is adapted from a paper presented by H F Schulte at the National Safety Congress (see "References")