

Leather gloves offer good protection against trauma and irritant or sensitizing solids and dusts. Leather gloves should be made of soft pliable, washable leather such as chamois. The seams should be finished and smooth. Coarse seams rub and irritate the skin, causing dermatitis not only by mechanical friction, but by rubbing into the denuded skin the irritant chemical particles that have fallen from the glove at the wrist opening. Gloves for the protection of the hands from irritant chemicals should reach well up the forearms and should be worn under impervious sleeves fastening at the wrists so as to prevent the entrance of irritant chemicals into the gloves. Aprons should reach well up to the neck and down below the knees. Aprons are of special value in protecting the body from cutting oil. The fact is again emphasized that protective clothing, to be really protective, must be cleaned daily and kept in good repair.

D. CLEANLINESS

Cleanliness is by far the most important single measure for the prevention of industrial dermatoses. By cleanliness, we mean not only cleanliness of the person but cleanliness of the room, the machines, and the clothes. Floors, walls, and ceilings of rooms in which there are industrial irritants should be wet-cleaned daily. Machines and tools on which industrial irritants are deposited also should be cleaned daily. Adequate washing facilities should be provided for workers handling industrial skin irritants. Workers whose clothes become soiled with industrial skin irritants should be compelled to take supervised shower baths after work before leaving the factory. It may be necessary to have a double set of locker rooms to be sure that workers do not put on dirty clothes before going home. Care must be exercised so that the soaps and other cleansers used by workers to remove dyes, oils, etc., will not themselves cause dermatitis. Workers who become soiled with oils, greases, and dyes are likely, if left to themselves, to use the most available and most rapid-acting solvent to clean the skin. They do not stop to consider the irritant action of the cleanser. Many cases of dermatitis among workers have been caused by the cleansers used to clean up before going home. Safety engineers should see that workers use only such cleansers as will not act as skin irritants.

In certain occupations where irritants must necessarily come in contact with the worker's skin, such as in shops where irritant resins are used for laminating or where irritant or sensitizing solutions such as bichromates contact the skin, it is advisable to install strategically placed wash basins 100 feet apart. When no worker need walk more than 50 feet in order to remove irritant chemicals from the skin. Such washstands should be equipped with hot and cold running water, a suitable dispenser for industrial soap or sulfonated oil, and paper towels. Such installations will discourage the use of solvents and strong industrial metal-cleaning solutions to remove soil from the skin. An antiseptic with a low sensitizing index, such as G-11, incorporated into the soap or other cleanser is of value in the prevention of occupational pus infections of the skin, such as cutting-oil boils and

*L. Schwartz, *Med. Clinica N. America*, 26, 1195 (1942).

the types of industrial pyoderma. Recently, it has been found possible to incorporate a nonirritating form of iodine into industrial cleansers giving them good antiseptic properties. The addition of a certain amount of lanolin, cholesterol, or lecithin to soap tends to lessen the defatting action on the skin.

Waterless hand cleaners are now on the market. Many of them are creams, consisting essentially of a soap and a petroleum solvent, and carbon tetrachloride also may be contained in some of them. Compositions such as the above will also cause dermatitis if used frequently during the workday. Some of the waterless hand cleansers do not contain solvents; instead they contain as active ingredients the synthetic wetting agents and sulfonated oils. Such compositions are less likely to cause dermatitis. The waterless hand cleansers are ultimately washed off with soap and water at the end of the day or before lunch. Waterless hand cleansers should be used temporarily to remove soil pending the installation of adequate washing facilities and should not be a substitute for them.

An industrial cleanser for the normal skin should have the following qualities: it should be freely soluble in hard, soft, cold, or hot water; it should remove foreign soils and oils without harming the skin; it should not contain harsh abrasives or permanent scrubbers; it should be handy to use in cake form, or should flow easily through soap dispensers if in granulated powder or liquid form; it should not deteriorate or become insect-infested.

In those occupations in which excessive scrubbing with such a soap is necessary in order to remove dyes or tenacious oil, it may be better to add to such a cleanser a small amount of alkali, such as trisodium phosphate. Whenever such alkali-reinforced cleansers are used, it is best to supply the worker with an emollient cream to be rubbed into the skin after washing to replace the fat removed by the strong cleanser.

Workers who have dermatitis, or sensitive or dry defatted skins, should not use the ordinary industrial cleanser previously described. It is better for them to use one of the soapless cleansers, the pH of which is 7 or less. Such a cleanser may consist of a neutral sulfonated castor oil containing from 1 to 2 per cent of the synthetic wetting agents. The cationic wetting agents also have marked germicidal powers and are said to leave persistent germicidal films on the skin. They have the disadvantage of being incompatible with soap.

E. PROTECTIVE OINTMENTS

While protective ointments are low on the list of preventive measures, they are often the only available means of protection. In most occupations the face cannot be covered by protective clothing. Often the work must be performed with bare hands, gloves being unsuited for the operation. Workers, as a rule, dislike to wear protective clothing but seem to have a particular liking for the use of protective ointments. When a protective ointment is used, the worker invariably washes it off with soap and water immediately after work, and so removes not only the ointment but whatever irritants there are on the skin. This washing after