SKIN CARE IN THE WORKPLACE:
PREVENTING CONTACT DERMATITIS

Contact dermatitis can be a serious problem in many workplaces where heavy dirts/greases and frequent handwashing are common.

In fact, the U.S. Bureau of Labor Statistics notes that “occupational skin diseases—mostly in the form of allergic and irritant (contact) dermatitis—are the second most common type of occupational disease. In 1994, there were approximately 66,000 reported cases of occupational skin diseases, accounting for about 13 percent of all occupational diseases.”

The National Institute of Occupational Safety and Health (NIOSH) cites similar statistics, specifically that, “allergic and irritant dermatitis (contact dermatitis) is overwhelmingly the most important cause of occupational skin diseases, which account for 15 to 20 percent of all reported occupational diseases. Estimated total annual costs (including workdays and loss of productivity associated with occupational skin diseases) may reach $1 billion annually. Workers’ compensation claims rates for occupational skin diseases range from 12 to 108 per 100,000 workers per year.”

What Causes Contact Dermatitis?

Contact dermatitis is an inflammation that occurs when an irritating substance comes into contact with the skin. In industrial/manufacturing settings, many every-day chemicals and substances can cause such irritation:

- acids
- alkalis
- oils
- greases
- solvents
- detergents
- petroleum products
In work situations, contact dermatitis usually affects the hands, although other parts of the body may be affected as well. The symptoms are usually easy to recognize, with areas of irritated skin becoming red, swollen, tender, hot, painful or itchy. In addition, there may be some scaling as the skin heals. Skin affected for several weeks by dermatitis tends to thicken and change to a deeper color. As well as causing pain or discomfort, dermatitis in severe cases can result in long periods away from work.

According to Dr. James Leyden, Professor of Dermatology at the University of Pennsylvania School of Medicine, the human skin is designed to resist external forces, however, sometimes that resistance breaks down.

“We have a very thin layer of skin on the outer surface,” he explains. “It’s a membrane of tightly packed cells that limits migration of materials into deeper, more vulnerable portions of the skin like the epidermis and the dermis.”

Dr. Leyden says that the outer layer membrane and its protective oils become compromised when they are exposed to harsh detergents and chemicals. Once the skin is damaged, the underlying skin tissue is more vulnerable to bacteria and secondary infection, thus compounding the affects of the dermatitis.

“Harsh cleansers are a particular problem because many workers are required to wash their hands frequently,” he says. “This is especially the case when workers are in regular contact with hard-to-remove greases and dirts. Wearing protective gloves isn’t an option for many workers because gloves can affect the manual dexterity they need to do their job. So, the usual alternative for clean hands is to use a strong detergent and/or to wash their hands frequently.”
How to Prevent Contact Dermatitis

There are several common-sense practices employers and workers can follow to help prevent contact dermatitis:

- Keep the work area clean, and avoid splashes and spills.
- Provide material safety data sheets (MSDS) for harmful substances.
- If possible, replace irritating substances with less hazardous substances.
- When contact does occur, wash hazardous substances from the skin as soon as possible.
- Include information about contact dermatitis in company safety training.
- Institute a skin wellness program including proper handwashing techniques and use of moisturizers.

Dr. Leyden also suggests employers scrutinize the detergents or soaps provided to clean workers’ hands. One important thing to look for, he says, are cleansers that contain no harsh petroleum distillate solvents that can dry and irritate the skin.

“There’s been a revolution in recent years in terms of understanding detergent and soap systems and how they interact with the skin,” he says. “We see it most often in consumer markets, where mildness claims abound. Now, some progressive manufacturers are applying this knowledge to the industrial setting.”

The challenge in industry, Dr. Leyden says, is to combine the powerful cleaning effectiveness industrial workers need with a skin cleanser that’s mild to the skin. A good example of this type of skin cleanser is Kimberly-Clark’s new SANI-TUFF® Extra Duty Cleanser with Scrubbers—the first industrial skin cleanser product ever to use non-phospholip liposome micro-encapsulation technology. The micro-encapsulation technology provides a high level of cleaning efficacy with low levels of irritation—all while hydrating the skin. The technology encapsulates the cleaning solvent within the skin conditioner for delivery to the skin. The skin conditioner capsule then helps to protect the skin, leaving behind moisturized hands.

“Micro-encapsulation technology helps remove the dirt, not the moisture,” explains Dr. Elias Shaer - Senior Research Fellow for Kimberly-Clark’s Away From Home Sector. “The technology helps the cleanser function like two
products in one—a cleanser and a conditioner, which is important for workers who clean their hands frequently. Better hydrated skin can lead to healthier skin, helping to improve overall worker productivity and reduce absenteeism.”

Gary Grove, Ph.D., and director of the Skin Study Center in Broomall, Pa., notes that most traditional soaps and detergents clean the skin well, but they remove the skin’s protective oils, thus drying the skin. The problem, he says, is that most soaps and detergents don’t discriminate between the dirt on the skin surface and the essential oils that protect the skin.

To study the effects of cleansers on the skin, Dr. Grove implemented a series of blind studies designed to look at both the cleaning effectiveness of various cleansers and skin damage caused by those cleansers. In one test, Dr. Grove washed the skin surface with different cleansers, then measured the skin surface hydration state with a electrical conductance meter to check for dryness. In another test, Dr. Grove applied standard, “industrial-strength” dirt (oil-base ink and roofing tar) to skin, and measured the amount of dirt both pre- and post-cleansing—again with various cleansers—with a chromameter to test for cleansing effectiveness.

“The micro-encapsulated cleanser from Kimberly-Clark provided very effective removal of dirt, while preserving the skin’s integrity,” says Dr. Grove. “Not only did the cleanser not reduce the skin’s surface hydration, it actually enhanced it. Compared to other cleansers in the industrial category, this type of cleanser is milder, making it more beneficial, especially for people with sensitive skin.”

Dr. Leyden concludes, “It’s clear that the mildness of a cleanser can be an effective weapon against the threat of contact dermatitis in the workplace.”