Occupational dermatitis

Introduction
As the first body part to be in contact with any element, the skin is vulnerable to impact, penetration, cuts, radiation, and all types of dirt, bacteria, and fungi. Workers can experience occupational dermatitis sometime during their careers.

Occupational dermatitis is a general term for skin inflammation resulting from exposure to irritants. The irritation may be a slight reddening with mild itching or a rash with intense itching. Severe cases may present open or weeping sores with or without swelling of the affected area.

The following information is intended to familiarize workers with the hazards and controls for occupational dermatitis.

Predisposing factors
The following factors play a role in determining an individual’s susceptibility to skin disorders:

Lack of cleanliness - Inadequate personal hygiene is the greatest factor in occupational dermatitis.

Temperature - Dermatoses happen more frequently in warmer weather when less clothing is worn and more skin is exposed. Heavy perspiration also makes the skin more vulnerable. Colder temperatures however may cause the skin to dry and chap leading to skin irritations.

Excessive oiliness or dryness of the skin - Individuals with naturally oily skin are more susceptible to substances that dissolve readily in oil (e.g. solvents) and come in contact with the skin. Dry skin tends to crack easily, especially after frequent exposure to solvents and alkalis. Cracking of the skin makes infection more likely.

Allergies - Some individuals have an inherited sensitivity to even small amounts of some substances.

Age and experience - Inexperienced and young individuals suffer more from acute occupational dermatoses than older or more experienced individuals.

Physical and mental stress - can cause dermatitis.

Causes of occupational dermatitis
Dermatitis can occur in every workplace. It is not infectious, so it cannot be passed from one person to another. How quickly you get it depends on a number of things: the substance, its strength or potency, how long it touches the skin, and how often it touches the skin. The direct causes of occupational dermatitis can be classified as chemical, mechanical, physical, plant poisons, and biological agents.

Chemical agents - these agents are the most frequent cause of dermatitis and can act as primary skin irritants. Dermatitis will result if contact with the irritant is prolonged or the irritant is concentrated. Examples of primary skin irritants are wet cement, lime, adhesives, epoxy resins, and organic solvents.

Mechanical and physical - Mechanical causes include pressure, friction, and trauma that may wound, abrade, break, puncture, or bruise the skin. Subsequent infection of the skin can easily occur.

When friction is applied to skin that has been softened by high temperatures and heavy perspiration, heat rashes can result.

Heat, cold, water, sunlight, and non-ionizing radiation (e.g., ultraviolet and infrared) may cause occupational dermatitis.

Sunlight is the greatest source of skin-damaging radiation affecting people who work outdoors. Skin cancer may result if the worker is exposed to excessive amounts of sunlight.

Plant poisons - the most common forms of irritants are poison ivy, poison oak, and poison sumac. Contact with wood, such as silver fir and spruce and western red cedar; have been reported to cause dermatitis.
Occupational dermatitis

**Biological agents** - Bacteria, viruses, and fungi may cause dermatitis to workers if they come in contact with contaminated substances (e.g., soils, sewer systems).

**Prevention of dermatitis: ask yourself five questions**

1. **Do we have a problem?** Do you have skin problems? Do any of your workers have skin problems?

2. **Do we know what we are using?** Find out. Read the labels; look for the material safety data sheets. Shampoos, some cleaning materials and some diluted metal working fluids do not carry labels such as 'may cause skin sensitization' or 'irritating to the skin'; but if you use them a lot over a long period of time they can cause dermatitis.

3. **Can we use a safer alternative?** If you are using something that can cause dermatitis, can you use something safer?

4. **Can we do the job in a safer way?** If you can't use a safer alternative, can you do the job in a safer way? Consider using engineering controls.

5. **Have we informed our employees of the hazards of materials we use on the job?** They must be instructed in safe handling, and other preventative measures.

**Engineering controls**

Employers should consider reducing the concentration of irritants in a compound or substituting a less irritating or nonirritating compound.

When transporting or storing chemicals, the containers should be sealed and transferred by closed systems into tanks, bins, or storage sheds.

Remotely operated equipment or other tools can be used to prevent direct contact with the problem material.

**Personal cleanliness**

Personal hygiene is of primary importance in controlling dermatitis. Workers should wash thoroughly after any significant contact with problem materials. As always, workers should wash prior to eating, smoking, and drinking, and at the end of the shift.

Use a mild bar soap or non-soap cleaner. Solvents (alcohol, turpentine, mineral spirits) should never be used as cleaning agents because they may cause dermatitis or be absorbed through the skin.

After washing, be sure to dry hands on a CLEAN towel or use a hot air blower.

**Personal protective equipment**

As the last line of defense, wearing properly designed protective equipment, such as gloves, overalls, aprons, sleeves, face shields, acid hoods, or boots, may reduce the risk of direct contact. The clothing and equipment must be kept clean and in good repair. All gloves and coveralls are not the same. The type of glove or coverall material must be selected based on the identity of the hazardous substance. If the wrong type of glove is used, it may offer no protection at all. Most glove and safety clothing manufacturers will supply charts and software to aid in proper selection.

Make sure your hands and the inside of the gloves are both clean and dry before using them.

Use a water resistant SPF 15 sunscreen BEFORE you start work outdoors. The sunscreen should protect against UVA and UVB rays. PABA and PABA esters only protect against UVB light. You want to use a broad spectrum sunscreen that also screens UVA rays.

**Barrier creams**

Barrier creams should be used as a supplement to other controls (e.g., gloves, washing). Barrier creams should not be used as the sole protective measure.
Occupational dermatitis

Medical aid
Early detection and treatment of skin injuries can greatly reduce occupational dermatitis. Employees should report unexplained skin irritation that lasts more than 1-2 days.

Reference
Skin Problems in Construction – Hazard Alert Center to Protect Workers Rights 202-962-8490, 1999
Skin Care: Starting From Scratch J.L. Nash Occupational Hazards, April 2000 P. 53-55

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