

New Brunswick workers are at risk of developing dermatitis due to chemical and biological agents in the workplace. This brochure outlines causes and preventive measures that workplaces can use to minimize the risk of this disease.

What is dermatitis?

Dermatitis is inflammation of the skin not caused by infection. The affected area becomes red, swollen and itchy. The skin may thicken and become rough as the dermatitis persists. Causes of dermatitis include internal and external factors. External factors are collectively called "contact dermatitis".

Eczema is an older term for itchy red rashes that initially weep but over time become crusted, thickened and scaly.

The damaged skin is less able to protect against the entry of chemicals and infectious organisms into the body. Infection may develop in areas of acute contact dermatitis.

Types of occupational dermatitis

The most common types of contact dermatitis associated with occupational exposures are:

- Irritant contact dermatitis,
- Allergic contact dermatitis, and
- Phototoxic and photoallergic dermatitis

Irritant contact dermatitis

Irritant contact dermatitis is the most common occupational skin disease. It occurs when certain chemicals or biological agents come into direct contact with the skin and cause damage to the skin's structure.



<http://dermnetz.org/dermatitis/band-dermatitis.html>

Irritant contact dermatitis usually occurs within a few hours of contact, and peaks within 24 hours.

Irritant contact dermatitis occurs most often on hands, fingers, wrists, and forearms.

Common irritants include:

- cleaning agents, such as detergents
- particulates, such as fiberglass
- food products, such as shellfish and nuts
- metals, such as nickel and chrome
- solvents such as xylene, toluene and prolonged water contact
- resins, including epoxies
- lubricants, such as machine oils and coolants
- acids and alkalis
- Any damage such as cuts and scrapes, friction from handling tools or excessive sun exposures will make the skin more susceptible to the effects of irritants.

Other factors that will aggravate the effects of irritants include:

- Poor personal hygiene or even excessive washing
- Fair or oily skin types
- Other skin diseases

The severity of irritant contact dermatitis is also affected by the amount and concentration of the irritant as well as duration and frequency of exposure.

Examples of industries where workers are at risk for irritant contact dermatitis include:

Industry	Exposures
Agriculture	Synthetic fertilizers, pesticides, gasoline, diesel fuel, disinfectants, grains, and certain other plants
Healthcare	Latex, prolonged exposure to water, cleaning and disinfecting agents
Construction	Cement, wood preservatives
Electroplating	Acids, alkalis
Fishing	Fin fish and shellfish proteins
Food preparation	Fish and animal proteins; certain fruits, vegetables, and grains
Forestry	Certain native species of wood, such as birch and poplar
Woodworking	Imported species of wood, such as teak and ebony

Allergic contact dermatitis

Allergic contact dermatitis results from a delayed allergic reaction. This disease develops in stages. Initially, there is a time when the individual is in contact with the allergen but does not show any symptoms. This period may last from days to years.

Sensitization occurs when the allergen penetrates the outer layer of the skin (even though the skin may not be damaged) and combines with certain cell proteins to form an "antigen". Over time, the body's immune system reacts to the presence of this allergen-protein complex.

After initial sensitization, there tends to be a delayed reaction of several hours or days from contact with chemicals such as nickel, certain fragrances, and

hair dyes. With continued exposure, this reaction may occur very quickly. Some people have this reaction when they put on latex gloves.

Allergic contact dermatitis usually continues, often becoming more intense, for about a week after it first appears. It gradually subsides if there is no further exposure. Continued exposure can lead to chronic allergic contact dermatitis that does not settle for months or years following removal from exposure.

A person with pre-existing allergies may be more severely affected from workplace exposures to substances that cause allergic contact dermatitis. Contact allergens are found in a wide variety of industries. A few examples are shown below.

Industry	Exposures
Agriculture	Certain animal feeds, pesticides, rubber products, allergenic plants
Auto repair	Chrome, chromates, nickel, resins
Baking, candy making	Flavours, spices, citrus oils
Carpentry	Stains, glues, various woods
Electrician	Fluxes, resins, rubber products
Embalming	Formaldehyde
Food preparation	Certain herbs, grains, nuts, seafood, eggs, fungal enzymes, certain spices
Health care	Latex
Metal working	Nickel, chromates, cutting oils
Forestry	Certain native species of wood, such as birch and poplar

Both irritant and allergic dermatitis

Some products may be associated with both irritant contact dermatitis and allergic contact dermatitis, the two major kinds of occupational dermatitis; rubber are an example. Powders inside some gloves may dry the skin and cause irritation. Chemicals added to either natural (latex) or synthetic rubber, or latex rubber itself, may cause allergic reactions.

Phototoxic and photoallergic dermatitis

Some agents cause dermatitis only when they contact the skin in the presence of Ultraviolet light.

Creosote and asphalt are two examples of phototoxins.

Examples of photoallergic materials include certain perfumes and specific topical medications.

Prevention of dermatitis

Under the *Occupational Health & Safety Act* employers are responsible to determine the risk of occupational dermatitis to employees. The first step in determining the risk is to identify chemical and biological substances that cause dermatitis in your workplace. Where a problem is identified the employer is obligated to take measures to minimize the risk.

Additional Preventive measures include:

- Substitution of less hazardous substances whenever possible
- Engineering controls
- Good housekeeping
- Immediate removal of clothing and equipment soiled with irritant or allergen
- Personal protection to avoid contact with allergens
- Good personal hygiene

Treatment

If workers suspect that they are suffering from occupational dermatitis they should report it immediately to their employer and seek medical attention.

For more information, please contact:

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OCCUPATIONAL DERMATITIS

