

Dermal Exposure

Information Sheet

November 2010

Skin contact is a major route of occupational exposure to hazardous substances. Occupational skin diseases include dermatitis, chemical burns, contact urticaria, photodermatitis (light responsive dermatitis) and skin cancer.



Routes of Exposure

In general, occupational skin exposure is limited to the hands and lower arms, by **immersion** or contact with the substance for example. However, accidental **splashes** may expose, for example, the face and neck area. Exposure may also occur through contact with **contaminated surfaces** in the workplace.

No dermal Occupational Exposure Limit Values (OELVs) currently exist. OELVs as laid down in the Chemical Agents Code of Practice are for airborne exposure only, as these are inhalation based limits for the workplace. Skin (Sk) notes are given in the document however to indicate if a substance has the capacity to penetrate intact skin.

Health Effects

There are several potential health effects associated with skin exposure to different hazards. Some examples are provided below:

- **Dermatitis** can be either allergic contact or irritant contact dermatitis, for example, carrying out too much

wet work in a hairdressing salon can result in irritant dermatitis. Allergic contact dermatitis has been observed from dermal exposure to fragrances in skin care products in physiotherapists, geriatric nurses, masseurs, who develop sensitisation to these substances. This can also occur with isocyanates, epoxy resins, detergents or nickel for example.

- **Urticaria** is a skin disease that quickly shows up typically as redness and a swelling (wheal), following contact with irritants or allergens.
- **Burns** to skin can occur following contact with corrosive substances such as wet cement or strongly acidic or alkaline substances (some cleaning agents can be very corrosive).
- Diseases may develop in other parts of the body following absorption of substances through the skin.



Recommended Control Measures

It is the employer's responsibility to assess the risks and level of protection necessary in the workplace. Various different levels of protection may be required depending on the scenario. The following precautions could be taken:

- Prevention of exposure through elimination of the substance or substitution with a less hazardous substance.
- Follow advice given on the labels and in the Safety Data Sheet (SDS) of substance(s).
- Introduce engineering controls/closed systems /automation to reduce exposure.
- Reduce the amount of wet work carried out, e.g. hairdressers-job rotation.
- Wear appropriate personal protective equipment such as gloves and/or goggles. The material of the gloves worn is very important in order to provide appropriate protection. You should inform your glove supplier of what chemicals the gloves will be used to protect against as there are several different glove material types.

Health Advice

There are preventative measures that can be taken by the employer and the employee such as:

- Skin care programmes, e.g. washing hands regularly and use of emollient creams.
- It is important to seek medical advice if there are persistent symptoms and report these to your employer.

- Making skin checks available for symptoms of dermatitis, these can be carried out by an appropriately trained person.

Key Points

Always assume that exposure is likely to occur and protect according to the level of risk identified from risk assessment.

- ✓ Investigate the possibility of substituting harmful substances for less harmful alternatives.
- ✓ Ensure Risk Assessments are carried out and the controls / recommendations identified are implemented.
- ✓ Use safe systems of work to reduce exposure.
- ✓ Use and store personal protective equipment according to instructions to reduce exposure.
- ✓ Follow advice given on labels and in the SDS of the substance(s).

Further information:

- The Health and Safety Authority's website **www.hsa.ie** (search for chemical agents).
- Contact the Health and Safety Authority at **wcu@hsa.ie** or LoCall **1890 289 389**.

