

# HAZARDS FROM SOLAR RADIATION

## Information provided within the framework of the Austrian Occupational Safety and Health Strategy

Sunlight consists of visible light and invisible ultraviolet (UV) and infra-red radiation. Staying in the sun unprotected for too long in the warm season when the sun is high leads to damage to a person's eyes and skin as a result of UV radiation. The person's body does not have to be directly exposed to the sun in such cases. It is possible to get a sunburn even in the shade. The damaging effect of the sun is magnified by reflecting surfaces such as shiny metals, light-coloured plastics (Styrofoam), water and snow. The less cloudy it is and the higher the altitude, the greater the exposure to UV radiation.

The intensity of the UV radiation reaching the earth's surface can either be determined by referring to the UV index or estimated with the shadow rule or from the time of day and the season.

### CAUTION

**Exposure to excessive sun with the eyes and skin unprotected can lead to inflammation of the eye, a sunburn and as a later consequence even to skin cancer.**

#### Damage from UV radiation:

- Eye: inflammation of the cornea (keratitis) and conjunctivitis, cataracts
- Skin: premature ageing of the skin, UV-induced erythema (sunburn), skin cancer
- Weakening of the immune system

## HOW CAN YOU PROTECT YOURSELF?

### Wear protective clothing

Clothing is the most effective protective measure against UV radiation. Clothing should cover as much of the skin as possible. In order for a piece of clothing to adequately protect the skin over a working day, it should have an ultraviolet protection factor (UPF) rating of at least 20, which is the case with commercially available t-shirts.

Textiles dyed with a dark colour provide more protection than light-coloured textiles of comparable quality. The

more densely woven the fabric (weight per surface area), the more protection it affords. Dark-coloured clothing with a weight per surface area of at least 150 g/sqm offers adequate protection. To stay on the safe side, wear garments labelled as UV protective clothing.

The best way to protect the head and neck is to cover these parts of the body.

### Use sunscreens with UV protection

Skin areas that are not covered by clothing, such as the ears, lips and nose, can be protected from UV radiation by using suitable sunscreens.

The sun protection factor (SPF) required depends on radiation intensity (= UV index plus reflection effects) as well as the exposure time and a person's skin type. The factor indicates how many times longer a person may stay in the sun when using the product.

To allow sunscreen enough time to be absorbed by the skin, it should be applied generously 20 minutes before working in the sun. Protection is reduced by perspiration and friction.

The product should therefore be applied at least two more times after washing and drying the skin. **Caution: This does not extend the protection period!**

Sunscreen should not be stored at excessively high temperatures. Make sure not to use it after the expiry date (best before).

To make sure that you have adequate protection under practical conditions, select a sunscreen with an SPF at least double that indicated in the description.

### Wear UV protection glasses

How much UV protection glasses provide depends on the filter glass and the shape of the glasses. UV protection glasses must protect the eyes on all sides. The tinting of the glasses should protect from glare and be suited to the type of work performed. Yet the tint is no indication of the glasses' effectiveness in protecting against UV, it only indicates the amount of visible light the glasses let through.

## WHEN MUST YOU BEGIN WITH PROTECTION?

### CAUTION

**Personal UV protection is required beginning with a UV index of 5 or higher when exposed to UV radiation for more than 30 minutes.**

Such a UV index level can be reached between about 11 am and 3 pm summer time from April to September. The **shadow rule** is another, very simple method of deciding whether protective measures are necessary. **The rule of thumb is:** a risk exists when the shadow cast by your body is shorter than your body height.

### CAUTION

**Direct sunlight should be avoided beginning with a UV index of 8 or higher when exposed to UV radiation for more than 30 minutes.**

Such a UV index level can be reached between about 11:30 am and 2:30 pm summer time from mid-May to the end of July. Work should be performed in the shade during these periods.

### NOTE

**UV exposure can be reduced by as much as 50% by staying in the shade.**

The estimation methods described above apply to places below an altitude of 1000 m above sea level when skies are clear or only slightly cloudy.

UV radiation increases at higher altitudes. A 20% increase should be calculated for every 1000 m above sea level.

### CLOUDS BLOCK UV RAYS

- **by 5 to 10% under light cloud cover**
- **by 30 to 70% under heavy cloud cover**
- **by up to 90% under very heavy cloud cover**

The website [www.uv-index.at](http://www.uv-index.at) provides a way of finding out the exact UV index. The levels listed there are readings taken on site and need not be adjusted for altitude and thickness of cloud cover.

### REFLECTING SURFACES

Reflecting surfaces act to magnify the effects of UV radiation; this needs to be considered when determining actual UV exposure.

### CAUTION

- **Snow: 80%**
- **Styrofoam: up to 84%**
- **Sheet zinc with mill finish: 67%**
- **White aluminium: 45%**

## In cooperation of:



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