

Skin diseases and skin cancers caused by soot, tar, bitumen, pitch, anthracene or compounds thereof, mineral and other oils, crude paraffin, carbazole or compounds thereof, by-products of the distillation of coal

Definition of causal agent

The incidence of skin cancer is increasing in the general population. This is probably due to increased exposure to the sun. Nevertheless, squamous cell carcinoma is also causally related to occupational exposure to fossil fuel derivatives containing polynuclear aromatics. In practical terms, workers are rarely exposed to only a single group of such compounds and virtually never to a single polynuclear aromatic compound. Thus the epidemiological and experimental evidence for a human carcinogenic effect varies from firm (soot, coal tar, coal tar pitch, certain kinds of mineral oils), excluding for example white mineral oils), through probable/possible (bitumen and bitumen-derived products, some single polynuclear aromatic compounds), to inadequate for the purpose of evaluation (many single polynuclear aromatic compounds). However, both anthracene and carbazole (among certain other polycyclic aromatic hydrocarbons, PAHs) are major components of the total amount of polynuclear aromatic compounds in the environment, with human exposure occurring primarily through smoking tobacco and inhaling polluted air. Paraffins are aliphatic hydrocarbons, and one of the main components of crude oil.

See also Annex I entry nr. 502.01 on *Cataracts caused by heat radiation* and Annex I entry nr. 502.02 on *Conjunctival ailments following exposure to ultraviolet radiation*.

Toxic effects

1. Local effects

Irritant effects

Some of these substances can cause irritation of the skin.

See section on *Occupationally caused irritation of the skin and mucous membranes* in Annex I entry nr. 202.

Allergic contact dermatitis

These compounds are not usually considered as skin sensitizers, but there is a possibility of phototoxicity with certain PAH-mixtures such as coal tar pitch.

See section on *Occupationally caused allergic contact dermatoses* in Annex I entry nr. 202.

□ Acne

Indistinguishable clinically from the acne of teenage years. The lesions affect the exposed areas or where the oils can saturate clothing; generally the dorsal surfaces of the hands, extensor surfaces of the arms and the anterior surfaces of the thighs.

The condition is not as persistent as chloracne and cyst formation is not a feature.

Occupational exposure to oils can aggravate idiopathic acne or cause comedones, follicular plugging and even folliculitis.

Exposure criteria:

Minimum intensity of exposure: Occupational exposure confirmed, if possible assessed, by:

- history and study of working conditions showing evidence of acute or repeated/prolonged exposure of skin to metal working fluids.

Minimum duration of exposure: A few weeks to a few months depending on the intensity of exposure.

Maximum latent period: Six months.

□ Cancer

Generally chronic dermatitis, acne, keratosis, papillomata precede malignancy with ulceration, local spread and, eventually, distant metastases.

Exposure criteria:

Minimum intensity of exposure: Occupational exposure confirmed, if possible assessed, by:

- history and study of working conditions showing evidence of repeated/prolonged skin exposure to the abovementioned complex PAH-mixtures, which has been shown to cause skin cancers in humans.

Minimum duration of exposure: Six months.

Minimum induction period: Usually 20 years, but five years in some of the cases described (workers exposed to tar and sunshine).

Attention is drawn to the multicausality of this pathology.

See section on ***Occupational cancers*** in the **Preface**.