

## Vanadium or compounds thereof

### Definition of causal agent

Vanadium is a greyish white metal which resists corrosion. Its most common compounds are vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>), vanadium dioxide (VO<sub>2</sub>), vanadium trioxide (V<sub>2</sub>O<sub>3</sub>), sodium metavanadate (NaVO<sub>3</sub>), vanadium tetrachloride (VCl<sub>4</sub>).

### *Main occupational uses and sources of exposure:*

Metal manufacture; photography; manufacture of colouring substances; catalyst in the production of sulphuric acid and phthalic anhydride; in the manufacture of alloys for the production of special, highly elastic steels which are resistant to vibrations (ferro-vanadium); alloys with other metals (Cu, Co, Ti, Cr); cleaning of boilers and flues in which vanadium-containing oils have been burnt.

### Local toxic effects

#### Allergic contact dermatitis:

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

#### Asthma

See Annex I entry nr. 304.06 on *Allergic asthmas caused by the inhalation of substances consistently recognised as causing allergies and inherent to the type of work*.

#### Irritant effects

Vanadium, especially vanadium pentoxide produces irritation of the eyes and the upper and lower respiratory tract. In more serious cases it can lead to bronchitis and bronchopneumonia, reversible after exposure has ceased

Repeated or prolonged exposure may lead to chronic irritation of the upper respiratory tract (rhinitis, pharyngitis, chronic bronchitis, etc.).

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

#### *Exposure criteria:*

*Minimum intensity of exposure:*

Occupational exposure assessed, by:

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- History and analysis of the working conditions showing evidence of exposure to vanadium; vanadium exposure causes a characteristic green discolouration of the tongue.
  - and, if available:
    - biological monitoring: as vanadium pentoxide
- workplace air monitoring:  
Guide values: vanadium pentoxide 0,05 mg/m<sup>3</sup>

*Minimum duration of exposure:* A few hours to a few days depending on the intensity of exposure.

*Maximum latent period:* 48 hours.