

# Health surveillance required for employees in the electroplating industry.

Hazardous chemicals requiring health monitoring and examples of chemicals to consider for health monitoring.

The information in this guidance is taken from regulation 436 (asbestos) and Schedule 14 of the *model WHS Regulations*.

## Hazardous chemicals requiring health monitoring

The information in this Appendix is taken from regulation 436 (asbestos) and Schedule 14 to the WHS Regulations.

## **Hazardous chemicals requiring health monitoring under the WHS Regulations and their type of health monitoring**

1. **Acrylonitrile**
  - Demographic, medical and occupational history
  - Records of personal exposure
  - Physical examination
2. **Arsenic (inorganic)**
  - Demographic, medical and occupational history
  - Records of personal exposure
  - Physical examination with emphasis on the peripheral nervous system and skin
  - Urinary inorganic arsenic
3. **Asbestos** –
  - Demographic, medical and occupational history
  - Records of personal exposure
  - Physical examination
4. **Benzene** –
  - Demographic, medical and occupational history
  - Records of personal exposure
  - Physical examination
  - Baseline blood sample for haematological profile
5. **Cadmium**
  - Demographic, medical and occupational history
  - Records of personal exposure
  - Physical examination with emphasis on the respiratory system
  - Standard respiratory questionnaire to be completed

- Standard respiratory function tests including for example, FEV1, FVC and FEV1/FVC
  - Urinary cadmium and  $\beta$ 2-microglobulin
  - Health advice, including counselling on the effect of smoking on cadmium exposure
6. **Chromium (inorganic)** –
- Demographic, medical and occupational history
  - Physical examination with emphasis on the respiratory system and skin
  - Weekly skin inspection of hands and forearms by a competent person
7. **Creosote**
- Demographic, medical and occupational history
  - Health advice, including recognition of photosensitivity and skin changes
  - Physical examination with emphasis on the neurological system and skin, noting any abnormal lesions and evidence of skin sensitisation
  - Records of personal exposure, including photosensitivity
8. **Isocyanates** –
- Demographic, medical and occupational history
  - Completion of a standardised respiratory questionnaire
  - Physical examination of the respiratory system and skin
  - Standardised respiratory function tests, FEV1, FVC and FEV1/FVC
9. **Lead (inorganic)** –
- Demographic, medical and occupational history
  - Physical examination
  - Blood lead level
10. **Mercury (inorganic)** –
- Demographic, medical and occupational history
  - Physical examination with emphasis on dermatological, gastrointestinal, neurological and renal systems
  - Urinary inorganic mercury
11. **4,4'-Methylene bis(2-chloroaniline) (MOCA)** –
- Demographic, medical and occupational history
  - Physical examination
  - Urinary total MOCA
  - Dipstick analysis of urine for haematuria
  - Urine cytology
12. **Organophosphate pesticides** –
- Demographic, medical and occupational history including pattern of use
  - Physical examination
  - Baseline estimation of red cell and plasma cholinesterase activity levels by the Ellman or equivalent method
  - Estimation of red cell and plasma cholinesterase activity towards the end of the working day on which organophosphate

pesticides have been used

13. **Pentachlorophenol (PCP) –**

- Demographic, medical and occupational history
- Records of personal exposure
- Physical examination with emphasis on the skin, noting any abnormal lesions or effects of irritancy
- Urinary total pentachlorophenol
- Dipstick urinalysis for haematuria and proteinuria

14. **Polycyclic aromatic hydrocarbons (PAH) –**

- Demographic, medical and occupational history
- Physical examination
- Records of personal exposure, including photosensitivity
- Health advice, including recognition of photosensitivity and skin changes

15. **Silica, crystalline –**

- Demographic, medical and occupational history
- Records of personal exposure
- Standardised respiratory questionnaire to be completed
- Standardised respiratory function test, for example, FEV1, FVC and FEV1/FVC
- Chest X-Ray full PA view (baseline and high risk workers only)

16. **Thallium –**

- Demographic, medical and occupational history
- Physical examination
- Urinary thallium

17. **Vinyl chloride –**

- Demographic, medical and occupational history
- Physical examination
- Records of personal exposure

### Examples of chemicals to consider for health monitoring

You may wish to consider the following examples of hazardous chemicals and their testing methods, which are not listed in Schedule 14 to the model WHS Regulations, when implementing a health monitoring program for your workers.

### Some hazardous chemicals which may require health monitoring and their type of health monitoring

1. **Antimony**

- Demographic, medical and occupational history
- Records of personal exposure
- Physical examination with emphasis on the respiratory system and skin
- Urinary antimony level

2. **Arsenic (inorganic)**

- Extra:

- Urinary inorganic arsenic by speciation (inorganic arsenic plus methylated metabolites)
- 3. **Benzene**
  - Extra:
  - Urinary S-phenylmercapturic acid (s-PMA)
- 4. **Beryllium**
  - Demographic, medical and occupational history
  - Records of personal exposure
  - Physical examination with emphasis on respiratory and dermatological systems
  - Urinary beryllium level
- 5. **Butanone (methyl ethyl ketone, MEK)**
  - Demographic, medical and occupational history
  - Physical examination with emphasis on the central nervous system and skin
  - Urinary MEK (2-butanone) level
- 6. **Carbon disulfide**
  - Demographic, medical and occupational history
  - Physical examination with emphasis on the respiratory system and skin
  - Urinary 2-thiothiazolidine-4-carboxylic acid level
- 7. **Chromium (inorganic)**
  - Extra:
  - Urinary chromium
- 8. **Cobalt**
  - Demographic, medical and occupational history
  - Physical examination with emphasis on respiratory systems and skin
  - Urinary cobalt level
- 9. **Creosote**
  - Extra:
  - Urinary 1-hydroxypyrene
- 10. **Cyclophosphamide**
  - Demographic, medical and occupational history
  - Urinary cyclophosphamide level
- 11. **Dichloromethane**
  - Collecting demographic, medical and occupational history
  - Physical examination with emphasis on the central nervous system
  - Urinary dichloromethane
- 12. **Ethyl benzene**
  - Demographic, medical and occupational history
  - Records of personal exposure
  - Physical examination
  - Baseline blood sample for haematological profile
  - Urinary mandelic acid level
- 13. **Fluorides (including soluble fluorides and aluminium fluoride)**
  - Demographic, medical and occupational history

- Physical examination with emphasis on the respiratory system
  - Pre and post shift urinary fluoride level
14. **Isocyanates**
- Extra:
  - Urinary isocyanate metabolites
15. **4-methylpentan-2-one (methyl isobutyl ketone) MIBK**
- Demographic, medical and occupational history
  - Physical examination with emphasis on the respiratory system and skin
  - Urinary MIBK level
16. **Nickel**
- Demographic, medical and occupational history
  - Physical examination with emphasis on dermatological and respiratory systems
  - Urinary nickel level
17. **Organophosphate pesticides**
- Extra:
  - Urinary organophosphate metabolites
18. **Polycyclic aromatic hydrocarbons (PAH)**
- Extra:
  - Urinary 1-hydroxypyrene
19. **Styrene**
- Demographic, medical and occupational history
  - Records of personal exposure
  - Physical examination
  - Baseline blood sample for haematological profile
  - Urinary mandelic acid
20. **Tetrachloroethylene (perchloroethylene)**
- Demographic, medical and occupational history
  - Physical examination with emphasis on the central nervous, respiratory and reproductive systems and skin
  - Tetrachloroethylene blood level before shift
21. **Toluene**
- Demographic, medical and occupational history
  - Records of personal exposure
  - Physical examination
  - Baseline blood sample for haematological profile
  - Urinary o-cresol
22. **Trichloroethylene**
- Demographic, medical and occupational history
  - Physical examination with emphasis on the central nervous system
  - Urinary trichloroacetic acid or trichloroethane level
23. **Vinyl chloride**
- Extra:
  - Annual liver function tests (AST, ALT, GGT, ALP, and bilirubin)
24. **Uranium**
- Demographic, medical and occupational history

- Physical examination
- Post shift urinary uranium level
- Urinary dipstick analysis for proteinuria
- Urinary cytology

#### 25. **Xylene**

- Demographic, medical and occupational history
- Records of personal exposure
- Physical examination
- Baseline blood sample for haematological profile
- Urinary toluric acid

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