**Hazardous chemicals requiring health monitoring**

## The information in this guidance 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

| Hazardous chemical | Type of health monitoring |
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| Acrylonitrile | Demographic, medical and occupational historyRecords of personal exposure Physical examination |
| Arsenic (inorganic) | Demographic, medical and occupational historyRecords of personal exposurePhysical examination with emphasis on the peripheral nervous system and skinUrinary inorganic arsenic  |
| Asbestos | Demographic, medical and occupational historyRecords of personal exposure Physical examination |
| Benzene | Demographic, medical and occupational historyRecords of personal exposurePhysical examinationBaseline blood sample for haematological profile |
| Cadmium | Demographic, medical and occupational historyRecords of personal exposurePhysical examination with emphasis on the respiratory systemStandard respiratory questionnaire to be completedStandard respiratory function tests including, for example, FEV1, FVC and FEV1/FVCUrinary cadmium and β2-microglobulinHealth advice including counselling on the effect of smoking on cadmium exposure |
| Chromium (inorganic) | Demographic, medical and occupational historyPhysical examination with emphasis on the respiratory system and skinWeekly skin inspection of hands and forearms by a competent person |
| Creosote | Demographic, medical and occupational historyHealth advice including recognising photosensitivity and skin changesPhysical examination with emphasis on the neurological system and skin, noting abnormal lesions and evidence of skin sensitisationRecords of personal exposure including photosensitivity |
| Isocyanates | Demographic, medical and occupational historyCompleting a standardised respiratory questionnairePhysical examination of the respiratory system and skinStandardised respiratory function tests, FEV1, FVC and FEV1/FVC |
| Lead (inorganic) | Demographic, medical and occupational historyPhysical examinationBiological monitoring (blood lead level) |
| Mercury (inorganic) | Demographic, medical and occupational historyPhysical examination with emphasis on dermatological, gastrointestinal, neurological and renal systemsUrinary inorganic mercury |
| 4,4’-Methylene bis(2-chloroaniline) (MOCA) | Demographic, medical and occupational historyPhysical examinationUrinary total MOCADipstick analysis of urine for haematuriaUrine cytology |
| Organophosphate pesticides | Demographic, medical and occupational history including pattern of usePhysical examinationBaseline estimation of red cell and plasma cholinesterase activity levels by the Ellman or equivalent methodEstimating red cell and plasma cholinesterase activity towards the end of the working day on which organophosphate pesticides have been used  |
| Pentachlorophenol (PCP) | Demographic, medical and occupational historyRecords of personal exposurePhysical examination with emphasis on the skin, noting abnormal lesions or effects of irritancyUrinary total pentachlorophenolDipstick urinalysis for haematuria and proteinuria |
| Polycyclic aromatic hydrocarbons (PAH) | Demographic, medical and occupational historyPhysical examinationRecords of personal exposure including photosensitivityHealth advice including recognising photosensitivity and skin changes |
| Silica, crystalline | Demographic, medical and occupational historyRecords of personal exposureStandardised respiratory questionnaire to be completedStandardised respiratory function test, for example, FEV1, FVC and FEV1/FVC Chest X-Ray full PA view |
| Thallium | Demographic, medical and occupational historyPhysical examinationUrinary thallium |
| Vinyl chloride | Demographic, medical and occupational historyPhysical examinationRecords 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 to consider for health monitoring and their type of health monitoring

| Hazardous chemical | Type of health monitoring |
| --- | --- |
| 1. Antimony
 | Demographic, medical and occupational historyRecords of personal exposurePhysical examination with emphasis on the respiratory system and skinUrinary antimony level |
| Arsenic (inorganic) | Extra: Urinary inorganic arsenic by speciation (inorganic arsenic plus methylated metabolites) |
| Benzene | Extra: Urinary S-phenylmercapturic acid (s-PMA) |
| Beryllium | Demographic, medical and occupational historyRecords of personal exposurePhysical examination with emphasis on respiratory and dermatological systemsUrinary beryllium level |
| Butanone (methyl ethyl ketone, MEK) | Demographic, medical and occupational historyPhysical examination with emphasis on the central nervous system and skinUrinary MEK (2-butanone) level |
| Carbon disulfide | Demographic, medical and occupational historyPhysical examination with emphasis on the respiratory system and skinUrinary 2-thiothiazolidine-4-carboxylic acid level |
| Chromium (inorganic) | Extra:Urinary chromium |
| Cobalt | Demographic, medical and occupational historyPhysical examination with emphasis on respiratory systems and skinUrinary cobalt level |
| Creosote | Extra:Urinary 1-hydroxypyrene |
| Cyclophosphamide | Demographic, medical and occupational historyUrinary cyclophosphamide level |
| Dichloromethane | Collecting demographic, medical and occupational history Physical examination with emphasis on the central nervous system Urinary dichloromethane |
| Ethyl benzene | Demographic, medical and occupational historyRecords of personal exposurePhysical examinationBaseline blood sample for haematological profileUrinary mandelic acid level |
| Fluorides (including soluble fluorides and aluminium fluoride) | Demographic, medical and occupational historyPhysical examination with emphasis on the respiratory systemPre and post shift urinary fluoride level |
| Isocyanates | Extra:Urinary isocyanate metabolites |
| 4-methylpentan-2-one (methyl isobutyl ketone) MIBK | Demographic, medical and occupational historyPhysical examination with emphasis on the respiratory system and skinUrinary MIBK level |
| Nickel | Demographic, medical and occupational historyPhysical examination with emphasis on dermatological and respiratory systemsUrinary nickel level |
| Organophosphate pesticides | Extra:Urinary organophosphate metabolites |
| Polycyclic aromatic hydrocarbons (PAH) | Extra:Urinary 1-hydroxypyrene |
| Styrene | Demographic, medical and occupational historyRecords of personal exposurePhysical examinationBaseline blood sample for haematological profileUrinary mandelic acid |
| Tetrachloroethylene (perchloroethylene) | Demographic, medical and occupational historyPhysical examination with emphasis on the central nervous, respiratory and reproductive systems and skinTetrachloroethylene blood level before shift |
| Toluene | Demographic, medical and occupational historyRecords of personal exposurePhysical examinationBaseline blood sample for haematological profileUrinary o-cresol |
| Trichloroethylene | Demographic, medical and occupational historyPhysical examination with emphasis on the central nervous systemUrinary trichloroacetic acid or trichloroethane level |
| Vinyl chloride | Extra:Annual liver function tests (AST, ALT, GGT, ALP, and bilirubin) |
| Uranium | Demographic, medical and occupational historyPhysical examinationPost shift urinary uranium levelUrinary dipstick analysis for proteinuriaUrinary cytology |
| Xylene | Demographic, medical and occupational historyRecords of personal exposurePhysical examinationBaseline blood sample for haematological profileUrinary toluric acid |