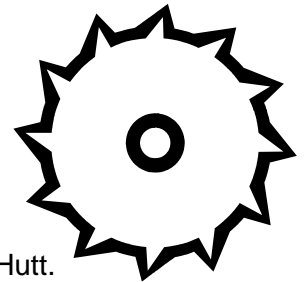


# Cobalt Toxicity

*Please beware.....*

## All Sawdoctors



Due to the recent investigation of a worker who was diagnosed with raised levels of cobalt in his system, I looked for the following article which had been given to me by staff at the Environment Laboratory Service in Lower Hutt.

In the 1980 – 90's overseas researches investigating worker exposure to tungsten carbide dusts reported their findings in scientific journals.

Concern centred on cobalt, a metal used as a binding agent (-5%) in tungsten carbide saw tips. These concerns prompted a conference in Italy in 1992 entitled "European Congress on Cobalt and Hard Metal Disease."

That conference heard that the adverse health affects from cobalt dusts include contact dermatitis, irritation of the breathing passage, asthma, characteristic lesions and scarring of the lung (called hard metal disease) sometimes resulting in death. The 1991 review by the International Agency for Research on Cancer (IARC) concluded that there was inadequate evidence of cancer risks to humans from cobalt compounds.

Reported studies have showed that the grinding of hard metal blades leads to exposure to cobalt. Wet grinding processes, in particular, have been found to be the principal source of cobalt. This is because the coolants used to dissolve cobalt binder are recirculated, often for weeks or even months unchanged. The spray produced by these coolants during tip grinding creates aerosols rich in cobalt that are breathed in by the operators. Stellite blades, although containing much more cobalt than tungsten carbide blades, are a harder alloy and ground fines do not dissolve as readily in coolant solutions. Dry grinding produces lesser amounts of cobalt for absorption providing adequate local exhaust ventilation is used.

Oxy-acetylene brazing should not produce much exposure to cobalt as it operates at a temperature below the evaporation temperature of cobalt but if the solder used contains cadmium then inhalation of cadmium fume is possible. The use of gas shielded arc welding (MAG) with stellite blades however will produce much more cobalt fume.

Investigations undertaken at our laboratory have shown that the saw doctors and knife grinders in NZ workplaces are exposed to and absorb elevated levels of hazardous metals.

The Health and Safety Employment Act 1992 requires employers to identify and then minimise hazards that cannot be eliminated. All practicable steps are to be taken to ensure a hazard does not harm employees and others. Biological monitoring of workers using urine cobalt and cadmium analysis is an effective means of assessing worker exposure from work processes, personal habits and accumulated workplace dust. Biological monitoring results can be used to show that a safe work environment exists.

Environmental Laboratory Services provides a full range of biological monitoring analyses for occupational exposures; Multi-metal analysis is a special feature for our laboratory's capability.

We recommend 12 monthly checks for all workers and monthly checks for workers with levels close to or exceeding the proposed BEI of 15ug/L.

We can provide urine containers, advice on sampling protocols and interpretation of analytical results. The cost of analysis is very competitive and can be discounted depending on sample numbers.

For details on how you can use our services to monitor your staff for exposure to metals, please contact either Sharon van Soest or Sue Meiklen on phone 04 570 8814 – Environmental Laboratory Services, Gracefield Road, Lower Hutt.