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17th June 2007

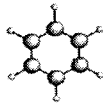
**Report: Assessment of airborne contaminants associated with hard drive shredder,
107 Kent Street Deakin ACT**

At the request of Spotless Services Limited, Robson Laboratories carried out an assessment of airborne contaminants associated with a computer hard drive shredder at 107 Kent Street Deakin ACT. The aim of the assessment was to determine if instrument operators may be potentially exposed to harmful substances including heavy metals and volatile organic compounds. Concerns have been raised about the shredding operation releasing airborne dusts and vapours, which may contain heavy metals and other toxic materials associated with computer hard drives.

Currently the hard drive shredder is contained in a soundproof room with a mechanical exhaust. Operators leave the room during the shredding process, however must manually switch the shredder on and collect the waste material.

Scope of Works

- Sample for volatile organic solvents and airborne heavy metals in the hard drive shredder room during operation.
- Samples to be analysed by an accredited testing laboratory. The results will be assessed against national exposure standards set by the Australian Safety and Compensation Council (ASCC).
- Reporting of the results to Spotless Services Limited. The report is to include recommendations for mitigating exposure to contaminants where appropriate.



Method

All tests were carried out on the 7th June 2007 between 1400 – 1530 hours.

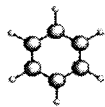
1. Volatile organic compounds

An air samples was taken in the hard drive shredder room using glass SKC 226-01 charcoal tube and SKC air pump set at 0.2 litres per minute for a total volume of 18 litres. The samples and a blank were sealed and transported to Test Safe Australia Laboratories (NATA accreditation No. 3726) where they were desorbed with carbon disulphide (CS₂) and analysed by capillary gas chromatography with mass spectrometry (ion-trap) detection. The concentration of individual analytes was then calculated to give a result in milligrams per cubic meter (mg/m³).

2. Airborne heavy metals

To determine the concentration of airborne heavy metals, sampling was undertaken with reference to Australian Standard AS 3640 – 2004 *Workplace atmospheres – Method for sampling and gravimetric determination of inhalable dust*. A static sample was taken next to the hard drive shredder using an IOM inspirable dust sampling head with 25mm PVC filter. The sample pump was calibrated at 2 litres per minute.

After sampling the filter was sent to an analytical laboratory for analysis of heavy metals according to NATA accreditation requirements. Analytes included: tin, cadmium, molybdenum, lead, arsenic, selenium, zinc, tungsten, copper, nickel, cobalt, iron, manganese, chromium, vanadium and titanium.



Results

Refer Table 1 and Table 2 below for a summary of results. Refer also to the attached Work Safe Australia Analytical Reports No. 2007-1326-A and 2007-1326-B.

Table 1: results of VOC monitoring

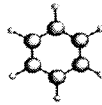
Analyte detected	Airborne Concentration (mg/m ³)	ASCC TWA exposure standard (mg/m ³)
Toluene [CAS 108-88-3]	0.02	191
Ethyl benzene [CAS 100-41-4]	0.03	123
Xylenes	0.26	350 (p-, m-, o- isomers)
Trimethyl benzenes [CAS25551-13-7]	0.07	123

Table 2: results of heavy metals in dust

Analyte detected	Airborne Concentration (mg/m ³)	ASCC TWA exposure standard (mg/m ³)
Iron	0.03	5 (as iron oxide fume)

Notes:

TWA: time-weighted (8-hour) exposure average, i.e. typical exposure concentration over a working day.



Discussion

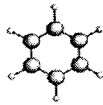
1. Volatile organic solvents

A number of VOCs were detected through sampling in the hard drive shredder room. The concentrations of each were low and well within their respective exposure concentrations. Therefore there is no evidence that exposure to volatile organic compounds at the concentrations detected would result in significant health effects for operators. In addition the exposure standards refer to typical daily exposure doses, whereas the exposure dose that operators would be subject to would be negligible due to short exposure times.

At high concentrations these substances may induce health effects such as eye and throat irritation, nausea and other acute symptoms. Given that the airborne concentrations is low, the hard drive shredder room appears to be adequately exhausted to mitigate such effects. However the health of operators should be monitored to ensure symptoms do not arise.

2. Heavy metals

According to background sampling results, there is no evidence that airborne dusts from the shredder present a significant heavy metal exposure hazard. The only species detected was iron at a concentration well within current national exposure standards. Therefore the exposure risk to operators appears to be negligible.



Recommendations

- Based on sampling, there is no evidence that hard drive shredder operators would be adversely affected by volatile organic solvents or heavy metals in the hard drive shredder room. However the health of workers should continue to be monitored to ensure they do not experience adverse symptoms such as eye irritation.
- When removing the waste, operators should either enclose the waste container or wear organic vapour half-face respirators to minimise exposure to vapours.

If you have any further questions please contact me on the above listed numbers.

Yours sincerely

Tom McDonald
Robson Laboratories Pty Ltd