



Practical Health and Safety Solutions

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Project Number: 1234

WOOD DUST EXPOSURE SURVEY

Dear Client:

Please find below the results of the airborne wood dust survey performed at ABC Inc. located at 1 Second Street, Winnipeg on January 1, 2020.

Background

ABC Inc. designs and manufactures cabinets. Part of this process involves cutting and sanding wood pieces. Air testing was performed to evaluate the airborne exposures of some of the workers to wood dust.

Methodology

Personal samples were collected by having the workers wear a sampling train consisting of a small air pump, a tube running up to the lapel of the worker and a button sampler with a pre-weighed filter. The sampling equipment worn by the workers was positioned in order to collect air from their breathing zones.



As the occupational exposure limit for wood dust is based on inhalable dust, the samples were collected with SKC Button samplers. These samplers allow only the inhalable fraction of airborne dust to be collected so that the results can be compared directly to the occupational exposure limit for wood dust.

The samples were collected using normal industrial hygiene sampling pumps. A flowrate of 4.0 litres per minute (LPM) was used for all samples as specified for the button samplers. The samples were subsequently sent to an AIHA-accredited laboratory to be analysed using NIOSH (National Institute of Occupational Safety and Health) Analytical Method 0600. This method reweighs the filter. The amount of wood dust collected is the difference in the post-weight and the pre-weight of each filter. The airborne concentration is calculated using the weight of the wood dust and the volume of air in which it was collected.

Allowable Exposure Limits

The airborne results were compared to the 2019 Threshold Limit Value (TLV) for wood dust of 1 mg/m³ collected as an inhalable sample. TLVs represent time-weighted average airborne concentrations to which it is believed that a worker can be exposed, 8 hours per day, 40 hours per week, without adverse effect. The 2019 TLVs have been adopted in the Safety and Health legislation as the allowable exposure guidelines in Manitoba. The 2020 wood dust TLV is also 1 mg/m³.

Results

The results from the wood dust samples are provided in the following table. A copy of the lab results has been appended.

Sampling Results of Wood Dust Exposure

Worker	Wood Dust Concentration (mg/m ³)	Controls	Wood Dust Exposure (mg/m ³)
Worker 1	0.947	LEV, White N95 Dust Mask	0.09
Worker 2	0.977	White N95 Dust Mask	0.09
Worker 3	1.53	LEV, White N95 Dust Mask	0.15
Worker 4	2.00	White N95 Dust Mask	0.20
2019 Wood Dust TLV			1 mg/m³

LEV – local exhaust ventilation

Workstations with stationary machines were equipped with local exhaust ventilation (LEV) systems. All of the workers tested wear respiratory protection in the form of white N95 dust masks. These respirators, when used as part of a comprehensive respiratory protection program (which includes fit testing, worker education, workers that are clean shaven, etc.) have an assigned protection factor of 10. That is to say that the worker's exposure when using such a respirator is 10 times less than the concentration measured outside the mask (as measured by the personal sample results). With the current controls, the worker's exposures to wood dust were comfortably under the TLV on the day of testing.

Provincial legislation requires that exposure sampling be done on a "regular basis". This is intended to better define exposures as they vary from day to day and detect changes in exposure levels over time. It makes sense that the closer an exposure is to the TLV, the more closely it should be monitored. The following table provides some recommendations for how frequently worker exposure should be retested based on their average exposure after correcting any for respiratory protection.

Exposure Rating	Frequency of Retesting
<20% of OEL	Retesting Not Required unless process changes
20 - 30% of OEL	every 5 years
30 - 40% of OEL	Every 3 years
40 - 50% of OEL	Every 2 years
> 50% of OEL	Every Year

Note 1: The exposure is worker exposure after correcting for any respiratory protection

Note 2: the use of any respiratory protection should be verified annually.

Workers exposures were less than 20% of the TLV, so retesting is not recommended unless the process changes.

Conclusion

The worker's wood dust exposures were well below the TLV on the day of testing with the current controls. The current respiratory protection and LEV systems should continue to be used and inspected regularly to ensure they are functioning correctly.

I hope this information is of assistance to you. Should you have any questions, or if we can be of any further assistance, please contact me at (204) 668-3141.

Sincerely,

Winnipeg Air Testing

Per:

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Copy of Laboratory Results

Project: [REDACTED]
 Location: [REDACTED]
 Number: [REDACTED]

Reported [REDACTED]
 PO Number: [REDACTED]

Sample ID Parameter	Cust. Sample ID Method	Location	Date Time	Pre-Wt Post-Wt	Flow Rate Concentration
349826-001		[REDACTED]	12/02/19	0.02004 g	3.98 L/min
RND	NIOSH 0600		401 min	0.02155 g	0.947 mg/m3
349826-002		[REDACTED]	12/02/19	0.01977 g	3.96 L/min
RND	NIOSH 0600		440 min	0.02147 g	0.977 mg/m3
349826-003		[REDACTED]	12/02/19	0.01892 g	3.98 L/min
RND	NIOSH 0600		439 min	0.02160 g	1.53 mg/m3
349826-004		[REDACTED]	12/02/19	0.01913 g	4.01 L/min
RND	NIOSH 0600		433 min	0.02260 g	2.00 mg/m3