

.....

# Occupational Hygiene Report

## Airborne Lead



*Prepared for: Company ABC*

*Report dated: November 7, 2005*

*Prepared by: Brian Fish, CRSP*

# Air Sample Report Airborne Lead

Any use of which a third party makes of this report, or any reliance on, or decisions to be based on it, are the responsibility of such third parties.

STACS Inc., accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made, or actions based on this report.

## Contents

<b>Contents</b> .....	<b>3</b>
<b>Introduction</b> .....	<b>4</b>
Methodology .....	4
Applicable Standards / Regulations.....	4
Results & Observations - Summary.....	4
<b>Results</b> .....	<b>5</b>
Background.....	5
Results .....	6
Interpretation: .....	6
<b>Cumulative Sample Results</b> .....	<b>7</b>
<b>Recommendations</b> .....	<b>8</b>

## **Introduction**

STACS Inc. was hired by Company ABC to perform air sampling at its location in Toronto, Ontario.

Specifically, the project involved evaluating airborne levels of lead at several locations throughout the site. Specific locations are identified in the body of this report. This sampling was performed as an ongoing component of the company's Lead Control Program.

## **Methodology**

All samples were collected on October 8, 2002 during a time when the plant was running at "regular productions levels". As part of the Lead Control Program, regular air sampling is performed throughout the year during a time when "normal production" is occurring, as well as during the crossing (maintenance) process.

All samples were collected via MSA ELF constant flow sampling pumps and 37 mm, 0.8 um MCE filter cassettes. The pumps were pre-project calibrated to 2.0 lpm (+/- 5%) using a primary standard, in accordance with the accepted sampling protocol under the Ministry of Labour's Code for Measuring Airborne Lead, as per the Regulation Respecting Lead (Regulation 843).

All samples (including blanks) were sent to the Occupational & Environmental Health Laboratory at McMaster University, an accredited laboratory located in Hamilton, Ontario. A copy of McMaster's report is provided at the end of this document.

Sampling times and locations are identified in the body of this report. Results are valid for the date and times tested.

Sample locations mirrored those locations taken during prior sampling projects.

## **Applicable Standards / Regulations**

Airborne lead is regulated under the Ontario Ministry of Labour's Regulation Respecting Lead (a designated substance). The TWAE (Time Weighted Average Exposure, based on either an 8-hour or 40 hour average exposure value) for lead is 0.05 mg/m<sup>3</sup>.

## **Results & Observations - Summary**

6 of the 7 air sampling results indicate airborne lead levels that were non-detectable, and therefore well below the applicable reference standard of 0.05 mg/m<sup>3</sup> for airborne lead. 1 sample, taken at the warehouse ceiling location identified a level approximately 1/10<sup>th</sup> the current legal exposure limit. Further detail concerning the above results is provided on the following pages.

## Results

### Background

Sampling for airborne lead levels during a “normal operation” of the production lines was conducted on October 8, 2002, starting at approximately 10:15 am. Activity levels were described as “normal” for the duration of the sampling at both production lines. The lead pot was recorded at approx. 825° F; a normal operating temperature.

Static (stationary) samples were placed at a height approximating the breathing zone with the exception of the sample identified as “Warehouse 2”. This sample was positioned at a top rack level to identify the amount of lead (if any) introduced at a ceiling level by the site’s air handling equipment.

The project was discussed with Mr. A. Smith (Production Foreman), and Mr. J. Doe (Certified Labour Safety Committee Representative) before beginning the sampling. All sample locations were reviewed with Mr. Doe, however the sample locations selected were identical to the locations used during prior sampling episodes. This strategy was used to provide comparative results for specific workplace locations.

Static samples for airborne lead were located as follows:

- PM 18 Paint Area; selected to determine the presence of lead in the area during normal operation of the PM-16 and PM-18 lines.
- Warehouse 1; Southeast side of the warehouse at a vertical rack column. The sample was collected at typical breathing level.
- Warehouse 2; Southeast side of the warehouse at a horizontal rack brace. The sample was located at the top rack level, approximately 10' below the warehouse ceiling. This location was selected as a measurement of the air introduced by the ceiling fresh-air make-up units.
- Lead Pot Area; centrally located midway along the HT-7 lead pot, at breathing height in relation to the floor.
- Mezzanine 1; directly over the lead pot area, to the side of the atmosphere cover.
- Mill Coil Area; located at breathing height at the west end of the mill coil area, this sample location was selected to identify the level of lead (if any) migrating from the lead pot area to the west end of the HT-7 line due to the prevailing air current within the site. With the east shipping door open, the wind was confirmed to be blowing in an east to west direction through the site.

All static samples were run for a period of approx. 4½ hours. This period was deemed to be representative of typical working conditions within the site.

All ventilation systems and control measures were reported to be operating properly for the duration of the work. Many of the exterior doors (personnel and overhead) were intermittently opened throughout the sampling period (as is typically the case during normal operating conditions).

During the sampling period, the lead pot cover was opened for approx. 20 minutes by the Line Operator in order to investigate a mechanical problem.

## Results

Location	Sampling Duration	Concentration (mg/m <sup>3</sup> )	Exposure Limit TWAE
Static Sample: PM 18 Paint Area	274 min.	ND	0.05 mg/m <sup>3</sup>
Static Sample: Warehouse 1	273 min.	ND	0.05 mg/m <sup>3</sup>
Static Sample: Warehouse 2	272 min.	0.006	0.05 mg/m <sup>3</sup>
Static Sample: Lead Pot Area, Inside Curtain	266 min.	ND	0.05 mg/m <sup>3</sup>
Static Sample: Coilerman's Station	271 min.	ND	0.05 mg/m <sup>3</sup>
Static Sample: Mezzanine 1	262 min.	ND	0.05 mg/m <sup>3</sup>
Static Sample: West Mill Coil Area	260 min.	ND	0.05 mg/m <sup>3</sup>

*Note: ND = "Non-Detectable", below the limit of the analytical equipment used.*

*TWAE = Time Weighted Average Exposure, based either on an 8 hour or 40 hour average exposure value*

### Interpretation:

With respect to the results, above, the following information should be considered:

With the exception of the Warehouse 2 sample, all other sample locations (as indicated in the preceding table) were non-detectable, and therefore well below the TWAE of 0.05 mg/m<sup>3</sup>.

Although the Warehouse 2 sample is detectable, it is well below the current limit of 0.05 mg/m<sup>3</sup>. No further action is immediately warranted at this time.

## Cumulative Sample Results

For comparative purposes, the following chart identifies the levels of airborne lead found during this sampling period versus the prior sampling episode.

Location	Oct 8, 2002	July 8, 2002	Jan 10, 2002	Nov 30, 2001	Jul 09, 2001	Nov 22, 2000
Static Sample: PM 18 Paint Area	ND	ND	ND	ND	ND	ND
Static Sample: Warehouse 1	ND	ND	ND	ND	ND	ND
Static Sample: Warehouse 2	0.006	ND	0.007	ND	ND	ND
Static Sample: Lead Pot Area	ND	ND	ND	0.046	ND	ND
Static Sample: Coilerman's Stn.	ND	ND	ND	ND	ND	ND
Static Sample: Mezzanine 1	ND	ND	0.005	ND	ND	0.012
Static Sample: Mezzanine 2	NS	NS	0.87	0.418	0.493	0.112
Static Sample: Coilerman Conveyor	NS	NS	NS	NS	ND	NS
Static Sample: HT-7 Op. Station	NS	NS	ND	NS	NS	NS
Static Sample: Mill Coil Area, West End	ND	ND	NS	NS	NS	NS

*Note:*

"ND" = non-detectable; below the limit of detection for the analytical equipment used.

"NS" = No Sample taken during the sampling project.

## **Recommendations**

Based on the results of the October 8, 2002 sampling, no immediate action is required.

Sampling should continue on a scheduled basis to confirm acceptable lead levels, with the overall goal of continuous lowering of the levels encountered.