



Inter Office
A. W. Alexandrowicz, Manager
Sterling Axle Plant

Personnel and Organization Staff
January 19, 1981

cc R. D. Byrom J. F. Tragle
M. S. Lechner, M.D. R. A. Young
J. N. Post

Subject: Industrial Hygiene Study, Driveshaft Assembly and Spindle Heat
Treat Department - Sterling Axle Plant

As a result of a request by the Sterling Axle Plant District UAW, an industrial hygiene study was conducted at Departments 33 and 24 of the Sterling Plant. The purpose of the study was to evaluate employee exposure to asbestos during driveshaft balancing and employee exposure to sodium hydroxide contained in the caustic soda added during spindle heat treatment.

Driveshafts are balanced using a rotational machine similar to a lathe. The braking of the driveshaft rotation is provided by a brake using asbestos impregnated friction material. Particles that are coated with oil and grease are present on the brake enclosure, but there are no visible airborne particles. Ventilation for the balancing operation is provided by ceiling mounted exhaust fans.

As can be seen from Attachment I, the results of the air samples taken in the breathing zones of the Driveshaft Balancers are well within the permissible exposure limit (PEL) of 2.0 fibers per cc of air for asbestos. Additionally, the air samples results were also below the medical monitoring action level of 0.1 fiber per cc.

Caustic soda, containing mostly sodium hydroxide, is one of several compounds added during spindle heat treatment. The caustic solution is contained in basement tanks below the various furnaces. Access to the basements is restricted and, therefore, the basements are not normal work areas. Ventilation for this heat treating department consists of local and general exhaust. It should be noted that steam can be seen escaping from many of the local exhaust systems and the sheet metal for the ventilation systems is generally in only a fair state of repair. Also general housekeeping and maintenance in this department is not at a high level.

A review of Attachment II indicates the results of air samples taken in Department 24 for sodium hydroxide were within the PEL of 2.0 mg/M³ for sodium hydroxide. These air samples were general area samples placed at locations identified by UAW representatives and maintenance workers assigned to Department 24. The samples represent exposures greater than those that would normally be incurred by employees assigned to Department 24.

H. B. Lick

H. B. Lick,
Senior Industrial Hygienist
Industrial Hygiene and Toxicology Dept.
Employee Health Services

Attachments
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INDUSTRIAL HYGIENE SERVICES SECTION
INDUSTRIAL HYGIENE AND TOXICOLOGY DEPARTMENT
EMPLOYEE HEALTH SERVICES

Attachment I

STERLING AXLE PLANT

Department No. 33 - Driveshaft Assembly Plant
November 19, 1980

PERMISSIBLE OCCUPATIONAL EXPOSURE LIMITS FOR AIRBORNE CONTAMINANTS:

<u>Contaminant</u>	<u>Permissible Exposure Limit in f/cc *</u>
Asbestos	2.0

* f/cc - fibers per cubic centimeter of air

RESULTS

<u>Employee / Location</u>	<u>Airborne Asbestos Concentration in f/cc</u>
1. Driveshaft Balancer, M. R. Franklin, S.S. 365-30-4453, Employee Breathing Zone Air Sample (B.Z.), Balancer Machine No. 8 near P-38	0.008
2. Driveshaft Balancer, E. Prucnell, S.S. 386-26-1442, B.Z., Balancer Machines Nos. 9 & 11 near P-38	0.006
3. Driveshaft Balancer, A. J. Fields, S.S. 370-40-2979, B.Z., Balancer Machine No. 13 near P-39	0.006
4. Driveshaft Balancer, H. E. Cameron, S.S. 374-32-1599, B.Z., Balancer Machine No. 17 near P-40	0.006

.....NUMBERS: HBL 1094 - 1097

.....METHOD AND ANALYSIS: Bendix BDX pumps with Milipore Type AA Membrane
Filters. Fibers counted using 430X Phase Con-
tract Microscopy.

.....ANALYST: M. L. Lacroix, Senior Industrial Hygienist

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INDUSTRIAL HYGIENE SERVICES SECTION
INDUSTRIAL HYGIENE AND TOXICOLOGY DEPARTMENT
EMPLOYEE HEALTH SERVICES

STERLING AXLE PLANT

Department No. 24 - Spindle Heat Treat
November 19, 1980

PERMISSIBLE OCCUPATIONAL EXPOSURE LIMITS FOR AIRBORNE CONTAMINANTS:

<u>Contaminant</u>	<u>Permissible Exposure Limit in mg/M³ *</u>
Sodium Hydroxide	2.0

* mg/M³ = milligrams of sodium hydroxide per cubic meter of air.

RESULTS

<u>Condition/Location</u>	<u>Concentration Sodium Hydroxide in mg/M³</u>
1. General Area Air Sample, Bay D-34 at wall on top of instrument cabinet.	0.1
2. General Area Air Sample, Bay F-34 at control panel between columns E-34 and F-34.	0.05
3. General Area Air Sample, Bay E-32 at control panel for No. 5 Hardening Furnace.	0.3

... EVAL NUMBERS: HBL 1098 - 1100

... : Bendix BDx pumps with Milipore Type AA Membrane Filters.

... : ... , Industrial Hygiene Chemist

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