PLAINTIFF'S
EXHIBIT
BRK-176

The Industrial Commission
Of Ohio
Division Of Safety & Hygiene
246 N. High St., Col., O. 43215

April 27, 1983

Mr. Bruce Black
Industrial Hygiene Engineer
Packard Electric Division, GMC
408 Dana Ave., N.E.
Warren, Ohio 44486

Dear Mr. Black:

Enclosed is a report on the visit made to your company on March 16, 1983.

It was a pleasure to meet with you, and the courtesy extended was greatly appreciated.

If, in the future, this Division can be of further assistance to your company on industrial hygiene problems relating to health and safety, please feel free to contact us. The Youngstown District Office telephone number is (216)-797-0015.

Very truly yours,

Donald B. Meeker

Donald B. Meeker
Industrial Hygienist

DBM/pd

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INDUSTRIAL HYGIENE SURVEY

Packard Electric Division, GMC
408 Dana Avenue, N.E.
Warren, Ohio 44486

March 16, 1983

Prepared by:

Donald B. Meeker

Donald B. Meeker
Industrial Hygienist

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RE: Packard Electric Division, GMC
408 Dana Ave., N.E.
Warren, Ohio 44486

Risk No. SI2647-28

1. On March 16, 1983, at the request of management, a visit was made to the North River Road Plant of the above company to conduct industrial hygiene monitoring of soldering operations. Accompanying and assisting the writer during this visit was Mr. R. Zapko, also an Industrial Hygienist with the Division of Safety and Hygiene. Contacted at the plant was Mr. Bruce Black, Industrial Hygiene Engineer for the Packard Electric Company, which manufactures electrical wiring components for new General Motors Automobiles.

2. Of particular interest to the company were the concentrations of hydrogen chloride near automated soldering operations in Department 1422. The OSHA Material Safety Data Sheet for the solder flux being used at these operations (Telkem 440 Flux) lists hydrogen chloride as a possible decomposition product.

   On the morning of March 16, 1983, area monitoring for the airborne concentrations of hydrogen chloride was carried out near three automatic cutter machines in Department 1422. The sampling equipment was placed as near to the actual soldering as physically possible. Personal sampling pumps equipped with midget impingers, with deionized water as the collection medium, were utilized to obtain the air samples. It should be noted that two one-hour air samples were obtained at each of the three sampling locations, and that sampling took place only while the soldering equipment was in operation. The sampling pumps were turned off during the employee's break, from 9:30 till approximately 9:50. Following, as reported by the lab, are the concentrations of hydrogen chloride which were monitored.

MACHINE NUMBER	CONCENTRATIONS MONITORED (ppm)	ACGIH TLV (ppm)
No. 274 - 1st Sample	0.08	(C) 5
No. 274 - 2nd Sample	0.11	(C) 5
No. 273 - 1st Sample	0.04	(C) 5
No. 273 - 2nd Sample	0.16	(C) 5
No. 261 - 1st Sample	0.06	(C) 5
No. 261 - 2nd Sample	0.19	(C) 5

ppm = Parts per million parts of air
TLV = Threshold Limit Value
(C) = Ceiling Limit - not to be exceeded
ACGIH = American Conference of Governmental Industrial Hygienists

3. Reviewing the preceding results of monitoring it may be observed that the concentrations of hydrogen chloride monitored near the soldering operations are well below the Ceiling Limit, which has

been suggested by the ACGIH. This Ceiling Limit for exposure to hydrogen chloride (5 ppm), also has been adopted as a permissible exposure limit by OSHA.

In the ACGIH documentation of TLVs, it is stated that hydrogen chloride concentrations in excess of 5 ppm are immediately irritating when inhaled. Workers exposed to higher concentrations suffered from gastritis, with many cases of chronic bronchitis also being observed. The Ceiling Limit TLV of 5 ppm is interpreted to be sufficiently low to prevent toxic injury, but on the borderline of severe irritation. The concentrations monitored during these tests, averaging approximately 2% of the suggested Ceiling Limit, should not produce any irritation or be considered a health hazard.

4. In addition to air monitoring for hydrogen chloride, bulk samples of TALC were submitted to our lab for the determination of any asbestos content and the quartz (free silica) content. The TALC in question is used as a lubricant to aid in the stringing of wires through a foam sheath. The lab has reported that the TALC does not contain asbestos and that the quartz content is less than 1.0%.

   In the past, in the evaluation of an employee's exposure to TALC, the monitoring method required obtaining samples on which microscopic particle counts could be carried out. Both OSHA and the ACGIH have previously set exposure limits to nonasbestiform TALC at 20 mppcf (Millions of Particles Per Cubic Foot of Air). In their notice of intended changes for 1982, the ACGIH has reduced exposure limits for nonfibrosis TALC to 15 mmpcf and, for the first time, has included a gravimetric exposure limit of 2 mg/M^3 (Milligrams por Cubic Meter of Air) of respirable dust. It is suggested that personal monitoring for employees exposures to the TALC dust be performed, possibly using the gravimetric method which is considerably less complicated than the particle count method.

5. Threshold Limit Values (TLVs) refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect. However, TLVs should only be used as guides in the control of air contaminants, and due to individual susceptibility, should not b regarded as fine lines between safe and dangerous levels.

Respectfully submitted,

Donald B. Meeker

Donald B. Meeker
Industrial Hygienist

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