

December 5, 2006

To: Vic Guarino  
Ken Wood

HEP  
HEP

From: J.L. Woodring *JLW*

EQO Industrial Hygiene

Subject: Industrial Hygiene Survey Report—Adhesive Testing

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**Operation Surveyed:**

Test gluing of PVC plastic panel. Panel measured 25x48 inches (8.3 sq ft.) with 16 channel sections.

**Location Surveyed:**

Workbench, Building 366, Auger room within the high bay. Room measures 29 ft x 23 ft x 12 ft. high (679 sq. ft. 8145 cu. feet); no ventilation in the room except two wall air conditioners, which were not operating.

**Material or Hazard Measured:**

Methyl methacrylate

Product is Devcon 2H5-72-3 (almost identical to Plastic Welder II #14340 except in wax composition) ITW Devcon, Danvers, Massachusetts. Application from double tubes holding adhesive and activator using power applicator gun.

Amount used: Approximately 350 mL.

Application time: Approximately 9 minutes.

**Method of Measurement:**

Methyl methacrylate was collected on activated charcoal sorbent tubes treated with catecholamine and analyzed by gas chromatography.

Air samples were also collected using untreated activated charcoal tubes and analyzed by gas chromatography/mass spectroscopy. This was to scan for any other organics present. Only methyl methacrylate was reported.

**Sample Description and Results:**

**NOVA PROJECT ADHESIVE AIR SAMPLING SUMMARY**

BUILDING 366 AUGER ROOM

ADHESIVE USED: DEVCON 2H5-72-3 (almost identical to Plastic Welder II except in wax composition)

AMOUNT USED: Approximately 350 ml

SAMPLE NO.	DATE	NAME / BADGE NO.	LOCATION/ OPERATION	METHYL METHACRYLATE CONC. (PPM <sup>1</sup> )
36424	11/8/2006		1 ft above panel	21
36425	11/8/2006		6 ft. from panel	2.7
36426	11/8/2006	T. Nephew/48493	Adhesive application	5.6

<sup>1</sup> parts per million parts of air

**Applicable Standards:**

Methyl methacrylate - American Conference of Governmental Industrial Hygienists Threshold Limit Values for 2006 -

8 hr time weighted average concentration (Threshold Limit Value-TLV): 50 ppm ( 205 mg/ m<sup>3</sup>air)

15 minute short term exposure limit (STEL): 100 ppm (410 mg m<sup>3</sup>air)

This material is an irritant and sensitizer.

**Recommendations:**

1. Results of this survey indicate exposures to methyl methacrylate below current occupational exposure standards. However, the operation was fairly brief and small scale and should not be used to confidently predict conditions for the full size NOVA neutrino detector construction.
2. A better estimate of emission factor for this process can be obtained through chamber tests where conditions can be better controlled. IH can conduct these tests; we would like to meet to get your input on the proposed test protocol.
3. Notify EQO-Industrial Hygiene at 2-3310 or email me when additional adhesive testing is planned or construction started for the Fermi Neutrino Detector to be constructed in the building 366 high bay. We would like several days advance notice to fit this additional monitoring into our work schedule.
4. Supervisors in areas monitored must notify employees of representative sampling results in writing, either individually or by posting sampling results in an area accessible to affected personnel. The entire survey report need not be presented; however, where exposures exceed permissible exposure levels, planned corrective action must be indicated. Records of this notification must be maintained by your Division in an auditable form and may be reviewed during DOE or internal audits. If you or employees have questions regarding interpretation of results, contact Industrial Hygiene at 2-3310.

Date of Survey: 11/8/2006

cc: L. Reed HEP  
 J.L. Stalker, MD  
 IH File – Cabinet NG Building 366 File

Survey by: J.T. Davis  
 K.G. Rohrer

Analysis of methyl methacrylate: NATLSCO Laboratory  
 Analysis of charcoal tubes: EQO Analytical Laboratory

JLW/cn