

ETHYL CORPORATION

INTER-OFFICE

To T. R. Robinson, M.D. ADDRESS BRP

FROM J. D. Watts ✓ ADDRESS BRT/BRP

SUBJECT Tank Car Repair Shed - Paint Vapors DATE 2/26/76

At the request of hydrocarbon maintenance, a survey of the tank car repair shed was conducted during times of paint spray applications. Stationary samples were collected at the repair track, fabrication, and tool chest areas. The environmental samplers were positioned to be as representative of employee exposures as possible without doing personnel monitoring. The request stemmed from employee complaints concerning the paint vapors and intermittent PVC dust levels.

Sampling Procedure

The samples represent the chemical contaminants found during the actual times of antiknock and/or solvent tank car painting (excluding priming). During each of the sampling periods, a drop canvas was hung from the north eave of the building. The hydrocarbon vapors were collected on activated charcoal at a sample rate of approximately 1.5 liters/minute with subsequent analysis by gas chromatography. Particulate (dust) samples were also collected on an open-faced millipore filter at 2 liters/minute and analyzed gravimetrically.

Discussion and Recommendations

The environmental sampling results (Table I and II shown in attached appendix) indicate that the contaminant levels generated from the paint application are well within the OSHA standards; however, we would like to conduct a further evaluation of the area using the Miran I infra-red analyzer. The paint vehicle (xylene) was found in very low concentrations (<1.0 ppm) and the particulate levels were also in compliance with the Federal standards for nuisance dust (<10 mg/M³).

In the appendix, Table III identifies the paint vehicle components of each of the three paint systems used at the subject area as taken from the manufacturer's material safety data sheet. Although no significant hydrocarbon vapor was found using the charcoal sampling method, the utilization of the Miran instrument could aid in the identification of a potential contaminant not

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being adsorbed on the charcoal. I would also recommend that the precautions continue to be followed as outlined in Mr. H. M. Taylor's previous report (Taylor to D'Armond, November, 1973) on the vapor hazard:

...it is recommended that no open flames, space heaters, or steam pipes be within 20 feet of the point of paint spray due to potential flammability hazards.

In summary, these preliminary findings indicate that the contaminant levels are acceptable in work areas adjacent to the paint track with respect to the OSHA regulations. If you should have any questions or comments, please contact me.

J. D. Watts

J. D. Watts
Industrial Hygienist

JDW:br

cc: H. M. Taylor

attachments

TABLE I
Environmental Sampling Results

Appendix

VC4593

Date	Sample Location	butane	chloroform	ethyl Cl	EDC	methyl Cl	methylene Cl	perchlor	propane	toluene	1,1,2 Trichloroethane	Trichlor	Unknown	Heavy Unknown	Vinyl Cl	Vinylidene Cl	Xylene
11/7/75 PC, 80°, S	Repair Track South side	0.04		0.07		0.08			0.09	0.26	<0.1	<0.1	X		0.03		0.09
	Repair Track North side	0.04				0.08			0.09	0.26	0.41	0.22	X		0.03		0.68
11/14/75 Clear, 52°, N	Repair Track North side	0.01	<0.04	0.02		0.04		0.03	0.06	0.18		0.11	X	X	<0.01		0.58
	Repair Track West side	0.01	<0.05	0.02		0.04		0.03	0.08	0.05		0.04	X	X	<0.01		0.14
	Tool Chest Area	0.02	<0.05	0.02		0.05		0.03	0.08	0.43		0.22	X	X	<0.01		1.62
12/5/75 PC, 72°, S	Paint Track Stencil Area	0.10		0.08	0.13	0.15	<0.01		0.26	0.09		0.06	X		0.12	<0.01	0.13
	Fabrication Area	0.11		0.08	0.09	0.05	<0.01		0.29	0.05		<0.01	X		0.13	<0.01	<0.02
	Tool Chest Area	0.10		0.08	0.11	0.16	0.03		0.11	0.2		<0.01	X		0.13	<0.01	0.31

APPENDIX

TABLE II

Nuisance Dust Levels

Date	Location	Sample Time	Particulate (mg/M ³)
11/7/75 PC, 80°, S	Repair track South side of tank car	136	0.57
12/5/75 PC, 72°, S	Tool Chest Area	135	3.33

APPENDIX

TABLE III
Paint Components

Identification	Chemical Component* (% of total weight)	% Wt.	TLV (ppm)
Chromox Red Primer (13-R-50)	Exempt VM+P naphtha	10	200
	Isopropyl acetate (95%)	<5	250
	Butyl cellosolve	<5	50
	Zinc chromate pigment	15	0.1 mg/M ³
	Fast aliphatic naphtha	10	200
	Isobutanol	10	100
Mobil Enamel Ethyl Gray (26-F-205)	Mineral Spirits	30	200
	Aliphatic naphtha	10	200
	Xylene	<5	100
	Dipentene	<5	100
	24% Lead tallate drier	<5	0.15 mg/M ³
Gloss Tank Car Black Hot Spray (220-J-32)	Lead oxide pigment	5	0.1 mg/M ³
	Mineral spirits	30	200
	Aliphatic naphtha	20	200
	Xylene	<5	100
	24% Lead tallate drier	<5	0.15 mg/M ³

* Methyl ethyl ketone (MEK) is added occasionally during winter months