U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
CENTER FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
CINCINNATI, OHIO 45226

HEALTH HAZARD EVALUATION DETERMINATION
REPORT NO. 75-180-311

THE FOXBORO COMPANY, HIGHLAND PLANT
EAST BRIDGEWATER, MASSACHUSETTS

JULY 1976

I. TOXICITY DETERMINATION

A Health Hazard Evaluation was conducted by the National Institute for Occupational Safety and Health (NIOSH) on December 3-4, 1975, January 28-29, 1976, and February 10-11, 1976 at The Foxboro Company, Highland Plant, East Bridgewater, Massachusetts. It has been determined, on the basis of environmental sampling in the workplace on January 28-29, and February 11, 1976, and a review of the confidential health questionnaires, that a health hazard from exposure to butyl cellosolve acetate, ethyl cellosolve, methyl cellosolve, hydrochloric acid, sulfuric acid, heptane, toluene, butyl acetate, ethyl alcohol, isopropyl alcohol, ethyl acetate, xylene, toluene diisocyanate (TDI), tin oxide, lead fumes, methyl chloride, 1,1,2-trichloro 1,2,2-trifluoroethane, naphtha, fibrous glass dust, and ammonia did not exist within the worksite areas. However, potentially toxic levels of hydrochloric acid, and ammonia fumes were measured in the board plating room during cleaning of the Endura-etching machine. This isolated operation is performed by one operator, once a week for a period of five minutes.

II. DISTRIBUTION AND AVAILABILITY OF DETERMINATION REPORT

Copies of this Determination Report are available upon request from NIOSH, Division of Technical Services, Information Resources and Dissemination Section, 4676 Columbia Parkway, Cincinnati, Ohio 45226. Copies have been sent to:

a) The Foxboro Company, Highland Plant,
   East Bridgewater, Massachusetts
b) U.S. Department of Labor - Region I
c) NIOSH - Region I

For the purpose of informing the approximately 30 "affected employees", the employer shall promptly "post" for a period of 30 calendar days the Determination Report in a prominent place(s) near where exposed employees work.

III. INTRODUCTION

Section 20(a)(6) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 669(a)(6), authorizes the Secretary of Health, Education, and Welfare, following a written request by an employer or authorized representative of employees, to determine whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found.

The National Institute for Occupational Safety and Health (NIOSH) received such a request from the employer regarding employee exposure to lead and tin fumes, fibrous glass dust, hydrochloric and sulfuric acid, toluene diisocyanate, and organic solvents in fabrication operations throughout the plant.

IV. HEALTH HAZARD EVALUATION

A. Plant Process - Conditions of Use

The Highland Plant of The Foxboro Company, East Bridgewater, Massachusetts is widely recognized as a world leader in the fabrication of electronic process control instrumentation. The facilities which house the plant consist of three connected buildings. Each building contains many departments, each responsible for conducting a particular phase of the process. The Highland Plant employs a total of 1100 employees - two shifts per day, five days per week. Approximately 900 employees work on the first shift (7:00 a.m. to 3:30 p.m.) and 120 employees work on the second shift (4:00 p.m. to 12:30 a.m.). Of the 1100 employees 25 to 30 employees worked in the areas where the alleged potential health hazards were present. A variety of process operations utilizing multiple potentially toxic substances were investigated.

B. Evaluation Design

An initial survey was conducted on December 3-4, 1975. This survey included obtaining background information, conducting a walk-through survey in those areas where the alleged hazards were present, and conducting confidential employee medical interviews. Of the areas observed during this initial walk-through, three areas were eliminated; they were 1) Building #4 flammable storage shed, where solvents are stored and no employees work; 2) Building #2 soldering machine which is a recently installed new piece of equipment that is enclosed and ventilated; and 3) Building #3 blue print area which is monitored for ammonia fumes with detector tubes by the company, and found to be below the TLV.

Nine areas/operations were evaluated during follow-up surveys. A follow-up survey was conducted on January 28-29, 1976. This survey included collecting breathing zone and area samples. However, due to mechanical problems in the process equipment a second follow-up survey was conducted on February 11, 1976 to complete the evaluation.

C. Environmental Evaluation Methods

Exposure to lead and tin fumes was measured by collecting personal samples on AA filters at 1.5 liters per minute with an MSA pump. Samples were analyzed for lead and tin by atomic absorption spectrophotometry.

Fibrous Glass Dust - Personal respirable and total dust samples were collected in the breathing zones of the workers. The former was collected on a tared VM-1 filter contained in a 2-piece cassette mounted in a 10 mm nylon cyclonic separator. The latter was collected on a tared VM-1 filter contained in a closed faced 3-piece cassette. Both systems were operated at 1.7 lpm. The particulate concentration was determined by weight increase.

Hydrochloric Acid was determined by collecting personal samples in an impinger containing an absorbing solution at 1.0 liter per minute and analyzing the solution by a turbidimetric method.

Sulfuric Acid was determined by collecting personal samples on AA filters at 1.5 liter per minute with a MSA pump and analyzing the filter by a tritrametric method.

Toluene Diisocyanate (TDI) was determined by collecting personal and general area samples in an impinger containing absorbing solution at 1.0 liter per minute and analyzing the solution by a colorimetric method.

Personal organic solvent samples were collected on charcoal contained in glass sampling tubes and analyzed by gas chromatography.

Ammonia gas was measured by collecting personal samples in an impinger containing absorbing solution at 1.0 liter per minute and analyzing the solution by colorimetry. Ammonia gas was also measured by direct reading instrument (Drager).

D. Criteria for Assessing Health Effects of Exposure to Workroom Air Contaminants

To assess the effects of air contaminants found in the place of employment, three primary sources of criteria were used (1) NIOSH criteria for recommended standards for occupational exposure to substances (criteria documents); (2) recommended and proposed threshold limit values (TLV's) and their supporting documentation as set forth by the American Conference of Governmental Industrial Hygienists (ACGIH) 1975; and (3) Occupational Health Standards as promulgated by the U.S. Department of Labor (29 CFR Part 1910.1000).

In the following tabulation of criteria, appropriate values are presented with reference:

Substance	Permissible Exposures (8-hour time weighted average)
[1] 2 Butoxy Ethanol (Butyl Cellosolve)	240 mg/M^3*
[2] 2 Ethoxyethanol (Ethyl Cellosolve)	370 mg/M^3
[1] Methyl Cellosolve	80 mg/M^3
[1] C-Hydrogen Chloride (Hydrochloric Acid)	7 mg/M^3
[3] Sulfuric Acid	1 mg/M^3
[1] Heptane (N-Heptane)	2,000 mg/M^3
[4] Toluene	375 mg/M^3

Substance	Permissible Exposures (8-hour time weighted average)
[1]Sec-Butyl Acetate	950 mg/M^3
[1]Ethyl Alcohol (Ethanol)	1,900 mg/M^3
[1]Isopropyl Alcohol-Skin	980 mg/M^3
[1]Ethyl Acetate	1,400 mg/M^3
[5]Xylene	435 mg/M^3
[6]C-Toluene Diisocyanate (TDI)	0.036 mg/M^3
[7]Tin Oxide	10 mg/M^3
[8]Lead, Inorganic fumes and dusts	0.15 mg/M^3
[1]Methyl Chloride	210 mg/M^3
[1]1,1,2-Trichloro 1,2,2, Trifluoroethane	7,600 mg/M^3
[1]Aromatic Naphtha	400 mg/M^3
[9]Fibrous Glass Dust (total)	10 mg/M^3
[10]Ammonia	18 mg/M^3

*Units of measured concentrations:
mg/M^3 - milligrams of substance per cubic meter of air

"C" = Ceiling concentration and should never be exceeded

[1]Reference: The 1975 ACGIH TLV and the current OSHA standards.

[2]Reference: The 1975 ACGIH TLV. The current occupational safety and Health Administration (OSHA) standard is 740 mg/M^3.

[3]Reference: The NIOSH 1975 criteria document, the 1976 ACGIH TLV and the current OSHA standard.

[4]Reference: The NIOSH 1973 criteria document and the 1975 ACGIH TLV. The current OSHA standard 750 mg/M^3.

[5]Reference: The NIOSH 1975 criteria document, and the 1975 ACGIH TLV and the current OSHA standard.

[6]Reference: The NIOSH 1973 criteria document, and the 1975 ACGIH TLV and the current OSHA standard.

[7]Reference: The 1975 ACGIH TLV. The current OSHA standard is 15 mg/M^3 (nuisance dust).

[8]Reference: The NIOSH 1972 criteria document and the 1975 ACGIH TLV. The current (OSHA) standard is 0.2 mg/M^3.

[9]Reference: The 1975 ACGIH TLV. The current (OSHA) standard is 15 mg/M^3 (nuisance dust).

[10]Reference: The NIOSH 1974 criteria document and the 1975 ACGIH TLV and the current (OSHA) standard is 35 mg/M^3.

TLV's or occupational health standards for substances are usually established at levels designed to protect workers occupationally exposed on an 8-hour per day, 40-hour per week basis over a working lifetime. Because of a wide variation in individual susceptibility, some workers may experience ill effects at or below the designated levels. Thus, an evaluation of the work place cannot be based entirely upon comparisons made against such TLV's or standard, as various TLV's and standards do not represent absolute protection of all workers. Federal standards are the legal standards and enforcement is a responsibility of the U.S. Department of Labor, OSHA.

E. Evaluation Results and Discussion

1. Environmental

It has been determined on the basis of environmental sampling in the nine work areas covering twenty substances on January 28-29, and February 11, 1976, that none of the samples analyzed were above or substantially near the criteria used in this evaluation. For a detailed description of all environmental samples, process operations and locations please refer to Tables I through X.

Operator exposure to peak concentrations of hydrochloric acid (HCL) occurs during the cleaning cycle of the Endura-etching machine used to etch copper printed circuit boards. The frequency of the operation is once a week, involving one employee for approximately twenty minutes. The cycle involves the draining of the used solution into a tank beneath the machine to be reprocessed to recover the copper. The operator pumps approximately three gallons of HCL from a teflon container into a pail and then pours it into the etching machine and then leaves the room during the automatic cleaning cycle. The peak exposure levels occurring during the pumping and dumping periods were determined by a short term impinger sample (5-minute) collected in the operator's breathing zone. The measured level of 134 mg/M^3 is in excess of the 7 mg/M^3 ceiling value established by the NIOSH 1974 criteria document and the 1975 ACGIH TLV. A ceiling limit places a definite boundary which a concentration should not be permitted to exceed.

No symptoms of acute toxicity such as eye, nose or throat irritation which are characteristic of a toxic exposure to this substance, were elicited; most likely symptoms of the nose and throat irritation were not present due to the operator wearing a half-face chemical cartridge type respirator. Though eye irritation is expected from the exposure to this lacrimator at the measured concentration, no single explanation for its reported absence is known. Based on the excessive level of the HCL measured the protective equipment presently in use should be continued. If such is consistent with the above data, proper respirator protection should be used until the levels of HCL are reduced by engineering controls below the NIOSH criteria standard of 7 mg/M^3.

Ammonia is automatically pumped into the etching machine during the refilling operation. General area samples were collected at the refilling port with a Drager pump and detector tubes. The measured concentrations ranged from 5 to 50 ppm. The Endura-etch machine is enclosed and ventilated and during normal operation, presents no health problems to the operator.

2. Medical

Fifteen employees were interviewed using a non-directed questionnaire designed to elicit symptomatology possibly related to health problems arising from their work environment. The questionnaire revealed no symptomatology.

F. Conclusions

Based on the environmental sampling in the workplace, a review of the confidential health questionnaires and the current criteria outlined in Part D of this report, it was determined that a health hazard did not exist in the areas that were sampled on January 28-29 and February 11, 1976. However, there may be a potentially toxic exposure to hydrochloric acid and ammonia fumes in the board plating room when cleaning the Endura-etching machine. This isolated operation is performed by one operator, once a week for a period of five minutes.

V. RECOMMENDATION

Investigate the possibility of automatically pumping HCL into the Endura-etch machine when cleaning it.

VI. AUTHORSHIP AND ACKNOWLEDGMENTS

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TABLE I

SILK SCREENING - BUILDING #3
APPLYING PHOTO RESIST TO ETCHED CIRCUIT BOARDS

THE FOXBORO COMPANY
EAST BRIDGEWATER, MASSACHUSETTS

February 11, 1976

Job and/or Classification	Date	Sampling Period	Sample Volume (Liters)	Type	Butyl Cellosolve Acetate (mg/m^3)**
Silk Screening	2-11-76	0707-1123	11.0	*PBZ	0.01
Silk Screening	2-11-76	0711-1128	12.7	PBZ	0.01
Silk Screening	2-11-76	1233-1504	5.4	PBZ	0.01
Silk Screening	2-11-76	1234-1505	5.2	PBZ	0.01
The 1975 ACGIH TLV and the current OSHA standard					240

*PBZ - Personal Breathing Zone

mg/m^3 - Milligrams of substance per cubic meter of air

Butyl Cellosolve - Limit of detection 0.01 mg/sample

TABLE II

DIAL ROOM - BUILDING #2
PAINTING OF ALUMINIUM DIALS USING WHITE AND BLACK LACQUER

THE FOXBORO COMPANY
EAST BRIDGEWATER, MASSACHUSETTS
January 29, 1976

Job and/or Location	Date	Sampling Period	Sample Volume (Liters)	Type	Methyl Cellosolve (mg/m^3)**	Heptane (mg/m^3)	Butyl Cellosolve (mg/m^3)	Toluene (mg/m^3)	Butyl Acetate (mg/m^3)	Ethyl Alcohol (mg/m^3)	Isopropyl Alcohol (mg/m^3)	Ethyl Acetate (mg/m^3)
Dial Room	1-29-76	0720-1038	9.6	PBZ*	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Dial Room	1-29-76	1205-1500	7.5	PBZ	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
The 1975 ACGIH TLV standard					80	2,000	240	-	950	1,900	980	1,400
NIOSH criteria document standard					-	-	-	375	-	-	-	-

*PBZ - Personal Breathing Zone

** mg/m^3 - Milligrams of substance per cubic meter of air

Methyl Cellosolve - Limit of Detection 0.01 mg/sample
Heptane - Limit of Detection 0.01 mg/sample
Butyl Cellosolve - Limit of Detection 0.01 mg/sample
Toluene - Limit of Detection 0.01 mg/sample
Butyl Acetate - Limit of Detection 0.01 mg/sample
Ethyl Alcohol - Limit of Detection 0.01 mg/sample
Isopropyl Alcohol - Limit of Detection 0.01 mg/sample
Ethyl Acetate - Limit of Detection 0.01 mg/sample

TABLE III

CONAP APPLICATION - BUILDING #2
A BRUSH AND DIP METHOD TO
PROTECT CIRCUIT BOARD ASSEMBLIES AGAINST MOISTURE AND FUNGUS

THE FOXBORO COMPANY
EAST BRIDGEWATER, MASSACHUSETTS

January 28-29, 1976

Job and/or Classification	Date	Sampling Period	Sampling Volume (Liters)	Type	Xylene (mg/m^3)	Butyl Cellosolve (mg/m^3)	Toluene Diisocyanate(TDI) (mg/m^3)
Conap Application	1-28-76	0844-1105	6.8	PBZ*	0.01	0.01	-
Conap Application	1-28-76	1219-1435	6.2	PBZ	5.0	0.01	-
Conap Application	1-28-76	0840-1105	145	PBZ	-	-	0.001
Conap Application	1-29-76	0714-1032	198	GA**	-	-	0.001
Conap Application	1-29-76	0714-1032	198	GA	-	-	0.001
Conap Application	1-29-76	1205-1500	175	GA	-	-	0.001
Conap Application	1-29-76	1205-1500	175	GA	-	-	0.001
NIOSH Criteria Document Standard					435	-	0.036
The 1975 ACGIH TLV and current OSHA standard					-	240	-

* PBZ - Personal Breathing Zone
**GA - General Area
***mg/m^3 - Milligrams of substance per cubic meter of air
Xylene - Limit of detection 0.01 mg/sample
Butyl Cellosolve - Limit of detection 0.01 mg/sample
Toluene Diisocyanate (TDI) - Limit of detection 0.001 mg/sample

TABLE IV

ROUTING ROOM - BUILDING #3
SHEAR AND ROUTING OF ETCHED CIRCUIT BOARDS

THE FOXBORO COMPANY
EAST BRIDGEWATER, MASSACHUSETTS

January 28, 1976

Job and/or Location	Date	Sampling Period	Sample Volume (Liters)	Type	Fibrous Glass Dust ** (mg/m^3)	
Shear & Routing	1-28-76	0719-1445	665	PBZ*	.06	Respirable
Shear & Routing	1-28-76	0719-1445	665	PBZ	.22	Total
Shear & Routing	1-28-76	0722-1445	660	PBZ	.02	Respirable
Shear & Routing	1-28-76	0722-1445	660	PBZ	.03	Total
Shear & Routing	1-28-76	0721-1451	728	GA***	.03	Total
1975 ACGIH TLV					10	

*Personal Breathing Zone
**mg/m^3 - Milligrams of Substance per cubic meter of air
***GA - General Area

TABLE V

BOARD PLATING ROOM - BUILDING #3
LEAD AND TIN PLATING; ETCHED CIRCUIT MANUFACTURING - BUILDING #3

THE FOXBORO COMPANY
EAST BRIDGEWATER, MASSACHUSETTS
January 28, 29 and February 11, 1976

Job and/or Location	Date	Sampling Period	Sample Volume (Liters)	Type	Butyl Cellosolve (mg/m^3)	Hydrochloric Acid (mg/m^3)	1,1,2 Trichlro 1,2,2 Trifuoroethane (mg/m^3)	Methyl Chloride (mg/m^3)	Tin (mg/m^3)	Lead (mg/m^3)	Sulfuric Acid (mg/m^3)	Ammonia (mg/m^3)
Degreasing Circuit Boards	1-28-76	1247 -1430	3.8	PBZ*	N.D.	-	-	-	-	-	-	-
Circuit Boards	1-28-76	1252 - 1455	5.4	PBZ	N.D.	-	-	-	-	-	-	-
Circuit Boards	1-28-76	1250 - 1455	125	PBZ	-	0.48	-	-	-	-	-	-
Circuit Boards	1-29-76	0810 - 1045	6.7	PBZ	-	-	313	N.D	-	-	-	-
Circuit Boards	1-29-76	1046 - 1251	4.7	PBZ	-	-	43	N.D.	-	-	-	-
Circuit Boards	1-28-76	0820 - 1456	396	GA***	-	0.15	-	-	-	-	-	-
Plater	1-28-76	0900 - 1455	524	PBZ	-	-	-	-	N.D.	N.D.	-	-
Plater	2-11-76	0719 - 1506	701	PBZ	-	-	-	-	-	-	0.02	-
Plater	2-11-76	0722 - 1508	699	PBZ	-	-	-	-	-	-	0.26	-
Plater	2-11-76	0710 - 1125	255	PBZ	-	0.001	-	-	-	-	-	-
Plater	2-11-76	0712 - 1247	335	PBZ	-	0.46	-	-	-	-	-	-
Plater	2-11-76	1235 - 1507	152	PBZ	-	0.24	-	-	-	-	-	-
Stripping Etching	2-11-76	0718 - 1128	240	PBZ	-	-	-	-	-	-	-	1.0
Stripping Etching	2-11-76	0721 - 1130	249	PBZ	-	-	-	-	-	-	-	1.0
Stripping Etching	2-11-76	1242 - 1508	146	PBZ	-	-	-	-	-	-	-	2.0
NIOSH criteria document standard					-	-	-	-	-	0.15	1.0	18
The 1975 ACGIH TLV standard					240	7	7,600	210	10	-	-	-

*PBZ - Personal Breathing Zone
**mg/m^3 - Milligrams of substance per cubic meter of air
***GA - General Area
N.D. - Not detected
Butyl Cellosolve - Limit of detection 0.01 mg/sample
Hydrochloric Acid - Limit of detection 0.001 mg/sample
1,1,2 Trichlro - 1,2,2 Trifluoroethane - Limit of detection 0.01 mg/sample
Methyl Chloride - Limit of detection 0.01 mg/sample
Tin - Limit of detection 0.013 mg/sample
Lead - Limit of detection 0.001 mg/sample
Sulfuric Acid - Limit of detection 0.02 mg/sample
Ammonia - Limit of detection 0.01 ug/ml

TABLE VI

SOLDER REFLOW
HEATING OF CIRCUIT BOARDS TO REFLOW PLATED LEAD AND TIN - BUILDING #3

THE FOXBORO COMPANY
EAST BRIDGEWATER, MASSACHUSETTS

January 28-29, 1976

Job and/or Location	Date	Sampling Period	Sample Volume (Liters)	Type	Isopropyl Alcohol (mg/m3)
Solder Reflow Operator	1-28-76	0745-1118	9.9	PBZ*	68
Solder Reflow Operator	1-28-76	1224-1445	6.6	PBZ	40
Solder Reflow Operator	1-29-76	1250-1430	3.4	PBZ	20
1975 ACGIH TLV and the current OSHA standard					980

*PBZ - Personal Breathing Zone
**mg/m^3 - Milligrams of substance per cubic meter of air
Isopropyl Alcohol - Limit of detection 0.01 mg/sample

TABLE VII

METAL WELDING AND BRAZING
ASSEMBLING DEWCELLS AND CONDUCTIVITY CELLS - BUILDING #3

THE FOXBORO COMPANY
EAST BRIDGEWATER, MASSACHUSETTS

January 28, 1976

Job and/or Location	Date	Sampling Period	Sampling Volume (Liters)	Type	Tin (mg/m^3)**	Lead (mg/m^3)	Particulate (mg/m^3)
Metal Welding & Brazing	1-28-76	0853-1508	637	PBZ*	L.D	0.04	0.63
NIOSH criteria document standard						0.15	
The 1975 ACGIH TLV					10	-	10

*PBZ - Personal Breathing Zone
**mg/m^3 - Milligrams of substance per cubic meter of air
LD - Less than detectable limits
Tin - Limit of Detection 0.013 mg/sample
Lead - Limit of detection 0.001 mg/sample

TABLE VIII

WAVE SOLDER
PROCESS TO SOLDER ETCHED CIRCUIT BOARD ASSEMBLIES, 63/37
LEAD/TIN WITH WATER SOLUABLE FLUX - BUILDING #2

THE FOXBORO COMPANY
EAST BRIDGEWATER, MASSACHUSETTS

January 28, 1976

Job and/or Location	Date	Sampling Period	Sample Volume (Liters)	Type	Tin (mg/m^3)**	Lead (mg/m^3)
Wave Solder Operator	1-28-76	0832-1500	660	PBZ*	0.03	0.08
NIOSH criteria document standard					-	0.15
The 1975 ACGIH TLV					10	-

*PBZ - Personal Breathing Zone
**mg/m^3 - Milligrams of substance per cubic meter of air

TABLE IX

POTTING ROOM
POTTING OF TRANSFORMERS AND BUSS BARS - BUILDING #3

THE FOXBORO COMPANY
EAST BRIDGEWATER, MASSACHUSETTS

January 29, 1976

Job and/or Location	Date	Sampling Period	Sample Volume (Liters)	Type	Toluene (mg/m^3)**	Naphtha (mg/m^3)	Butyl Alcohol (mg/m^3)	Ethyl Cellosolve (mg/m^3)
Potting Room	1-29-76	0737-1255	14.1	GA*	0.01	29	0.01	0.01
Potting Room	1-29-76	1300-1500	6.2	GA	0.01	350	0.01	0.01
The NIOSH criteria document standard					375	-	-	-
The 1975 ACGIH TLV					-	400	450	370

*GA - General Area
**mg/m^3 - Milligrams of substance per cubic meter of air
Toluene - Limit of detection 0.01 mg/sample
Butyl Alcohol - Limit of detection 0.01 mg/sample
Naphtha - Limit of detection 0.1 mg/sample
Ethyl Cellosolve - Limit of detection 0.01 mg/sample

TABLE X

DRY FILM APPLICATION
APPLYING PHOTO SENSITIVE FILM IN THE ETCHED CIRCUIT
BOARD PROCESS - BUILDING #3

THE FOXBORO COMPANY
EAST BRIDGEWATER, MASSACHUSETTS

January 28, 1976

Job and/or Location	Date	Sampling Period	Sample Volume (Liters)	Type	Butyl Cellosolve (mg/m^3)**
Film Application	1-28-76	0922-1457	19	PBZ*	0.01
The 1975 ACGIH TLV					240

*PBZ - Personal Breathing Zone
**mg/m^3 - Milligrams of substance per cubic meter of air
Butyl Cellosolve - Limit of detection 0.01 mg/sample