

AMENDED OSHA ASBESTOS STANDARD
(40 CFR 1910.1001)

PERMISSIBLE EXPOSURE LIMIT/ACTION LEVEL

- 0 PEL REDUCED FROM 2.0 TO 0.2 F/CC, 8 HR. T.W.A.
- 0 EFFECTIVE DATE: JULY 21, 1986
- 0 COMPLIANCE THROUGH ENGINEERING/WORK PRACTICE CONTROLS
 - EXCEPTION: GRINDING OPERATIONS - FRICTION PRODUCTS
- 0 ACTION LEVEL OF 0.1 F/CC, TRIGGERS:
 - TRAINING
 - MEDICAL SURVEILLANCE
 - PERIODIC EXPOSURE MONITORING

EXPOSURE MONITORING

- 0 INITIAL MONITORING (WHERE REQUIRED) BY OCTOBER 20, 1986
- 0 SEMI-ANNUAL MONITORING WHERE OVER ACTION LEVEL
- 0 WRITTEN RESULTS NOTIFICATIONS TO EMPLOYEES WITHIN 15 DAYS
- 0 MONITORING METHOD REQUIREMENTS
 - 25MM CASSETTE/50MM COWL EXTENSION
 - BREATHING ZONE
 - LAB QUALITY CONTROL PROGRAM

ESTIMATED ASBESTOS RELATED CANCER MORTALITY PER 100,000
BY NUMBER OF YEARS EXPOSED AND EXPOSURE LEVEL ¹

ASBESTOS FIBER CONCENTRATION (F/ML)	CANCER MORTALITY/100,000 EXPOSED			TOTAL
	LUNG	MESOTHE- LIOMA	GASTRO- INTESTINAL ²	
	1 YEAR EXPOSURE			
0.1	7.2	6.9	0.7	14.8
0.2	14.4	13.8	1.4	29.6
0.5	36.1	34.6	3.6	74.3
2.0	144	138	14.4	296.4
4.0	288	275	28.8	591.8
5.0	360	344	36.0	740.0
10.0	715	684	71.5	1470.5
	20 YEARS EXPOSURE			
0.1	139	73	13.9	225.9
0.2	278	146	27.8	451.8
0.5	692	362	69.2	1123.2
2.0	2713	1408	271.3	4392.3
4.0	5278	2706	527.8	8511.8
5.0	6509	3317	650.9	10476.9
10.0	12177	6024	1217.7	13996.7
	45 YEARS EXPOSURE			
0.1	231	82	23.1	336.1
0.2	460	164	46.0	670.0
0.5	1143	407	114.3	1664.3
2.0	4416	1554	441.6	6411.6
4.0	8441	2924	844.1	12209.1
5.0	10318	3547	1031.8	14896.8
10.0	18515	6141	1851.5	26507.5

¹ ASSUMES EXPOSURE BEGINS AT AGE 25. RISKS ARE CALCULATED USING U.S. MALE LUNG CANCER BACKGROUND RATES FOR 1977.

² ESTIMATED AS 10% OF LUNG CANCER RISK THAN CALCULATED USING DOSE-RESPONSE INFORMATION.

REGULATED AREAS/CHANGE ROOMS & SHOWERS

- O WHERE EXPOSURES EXCEED PEL, REGULATED AREAS MUST BE ESTABLISHED
BY NOVEMBER 17, 1986.

- CLEAR DEMARCATION
- LIMITED ACCESS
- RESPIRATORS AND PROTECTIVE EQUIPMENT REQUIRED
- PROHIBITION OF EATING, SMOKING, DRINKING, TOBACCO USE
- HAZARD WARNING SIGNS

- O WHERE EXPOSURES EXCEED PEL, CHANGE ROOMS AND SHOWERS REQUIRED

- DOUBLE CHANGE ROOMS SEPARATED BY SHOWERS
- CONSTRUCTION PLANS BY JANUARY 16, 1987
- CONSTRUCTION/OCCUPANCY BY JULY 20, 1987 OR ONE YEAR FOLLOWING
IMPLEMENTATION OF ALL FEASIBLE ENGINEERING CONTROL METHODS

HAZARD WARNING SIGNS - REGULATED AREAS

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

HAZARD WARNING LABELS - RAW MATERIALS, SCRAP, WASTES

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

METHODS OF COMPLIANCE/COMPLIANCE PROGRAM

- 0 A WRITTEN COMPLIANCE PROGRAM MUST BE DEVELOPED BY JULY 20, 1987 FOR ALL REGULATED AREAS
 - EMPLOYEE ROTATION SPECIFICALLY PROHIBITED
 - DOCUMENT AVAILABLE TO OSHA/EMPLOYEES

- 0 FEASIBLE ENGINEERING AND WORK PRACTICE CONTROLS IMPLEMENTED BY JULY 20, 1988
 - WHERE FEASIBLE CONTROLS DON'T REDUCE EXPOSURES BELOW THE PEL, CONTROLS MUST STILL BE IMPLEMENTED TO REDUCE TO 0.5F/CC AND SUPPLEMENTED WITH RESPIRATORY PROTECTION

RESPIRATORS/PROTECTIVE CLOTHING

0 NIOSH/MSHA APPROVED RESPIRATORS PROVIDED AS FOLLOWS:

1-10X PEL	HALF-MASK WITH HIGH EFFICIENCY FILTER
10-50X PEL	FULL FACEPIECE WITH HIGH EFFICIENCY FILTER
50-100X PEL	POWERED AIR PURIFYING WITH HIGH EFFICIENCY FILTER
100X PEL	SUPPLIED AIR, CONTINUOUS FLOW

0 QUANTITATIVE OR QUALITATIVE FIT TESTING REQUIRED SEMI-ANNUALLY

0 PHYSICIAN APPROVAL FOR ALL RESPIRATOR USERS

0 PROTECTIVE CLOTHING REQUIRED WHEN PEL EXCEEDED

- COVERALLS
- GLOVES
- HEAD/FOOT COVERS
- FACE SHIELD/GOGGLES AS APPROPRIATE

EMPLOYEE INFORMATION/TRAINING

O REQUIRED BY OCTOBER 20, 1986 WHEREVER ACTION LEVEL EXCEEDED

- INITIAL ASSIGNMENT AND ANNUALLY THEREAFTER

O TRAINING MUST INCLUDE:

- ASBESTOS HEALTH EFFECTS
- RELATIONSHIP BETWEEN LUNG CANCER, ASBESTOS, SMOKING
- OPERATIONS WHICH MAY CAUSE EXPOSURE
- ENGINEERING/WORK PRACTICE CONTROLS BY JOB DESCRIPTION
- PROCEDURES FOR REDUCING EXPOSURE
- PURPOSE, USE, LIMITATION OF RESPIRATORS/PROTECTIVE EQUIPMENT
- OVERVIEW OF STANDARD INCLUDING APPENDICES

HOUSEKEEPING

O ALL SURFACES FREE OF DUST ACCUMULATIONS

O PREFERENCE FOR HEPA VACUUMING/WET METHODS

MEDICAL SURVEILLANCE

O MEDICAL SURVEILLANCE PROGRAM REQUIRED BY NOVEMBER 17, 1986 WHERE EXPOSURES EXCEED ACTION LEVEL

O PRE-PLACEMENT, ANNUAL AND TERMINATION EXAMS:

- MEDICAL AND WORK HISTORY
- COMPLETE PHYSICAL
- RESPIRATORY DISEASE QUESTIONNAIRE
- PULMONARY FUNCTION TEST
- CHEST X-RAY (SEE BELOW)

O CHEST X-RAYS NOT REQUIRED ANNUALLY, BUT ACCORDING TO FOLLOWING SCHEDULE:

YEARS SINCE FIRST EXPOSURE	<u>AGE OF EMPLOYEE</u>		
	<u>15 TO 35</u>	<u>35+ TO 45</u>	<u>45+</u>
0 TO 10 YEARS	EVERY 5 YEARS	EVERY 5 YEARS	EVERY 5 YEARS
10+ YEARS	EVERY 5 YEARS	EVERY 2 YEARS	EVERY 1 YEAR

MEDICAL SURVEILLANCE (CON'T)

- O TERMINATION MEDICALS WITHIN 30 DAYS
- O EMPLOYER MUST PROVIDE PHYSICIAN WITH
 - EMPLOYEE DUTIES
 - EXPOSURES OR PROBABLE EXPOSURE
 - PROTECTIVE EQUIPMENT USED
 - PRIOR MEDICAL DATA
- O PHYSICIAN WRITTEN OPINION REQUIRED

RECORDKEEPING/RETENTION

- O 30 YEAR MINIMUM RETENTION: EXPOSURE MEASUREMENTS
 - DATE, NAME, SS#
 - OPERATION
 - RESULTS, DURATION
 - RESPIRATOR/PROTECTIVE EQUIPMENT WORN
- O DURATION OF EMPLOYMENT PLUS ONE (1) YEAR: TRAINING RECORDS
 - TRAINING DATE/MATERIALS
- O DURATION OF EMPLOYMENT PLUS THIRTY (30) YEARS: MEDICAL RECORDS
 - DATE, NAME, SS#
 - PHYSICIAN'S WRITTEN OPINION
 - EMPLOYEE MEDICAL COMPLAINTS
 - INFORMATION PROVIDED TO PHYSICIANS