PLAINTIFF'S
EXHIBIT
UC-464

"CHRYSOTILE ASBESTOS WILL NOT AFFECT YOUR HEALTH"

#3

03098

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"CHRYSOTILE ASBESTOS WILL NOT AFFECT YOUR HEALTH - UNLESS BREATHED IN EXCESS QUANTITIES FOR MANY YEARS"

#4

03099

ASBESTOSIS

BRONCHOGENIC CARCINOMA (LUNG CANCER)

#5

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ASBESTOS OPERATIONS HAVING MOST POTENTIAL FOR HIGH EXPOSURES

ASBESTOS MINES

ASBESTOS MILLS

ASBESTOS CEMENT PLANTS

ASBESTOS TEXTILE OPERATIONS

VINYL-ASBESTOS TILE PLANTS

SPRAY FIREPROOFING & INSULATING

#6

03101

FUNCTIONS OF ASBESTOS IN PLASTICS

REINFORCEMENT

HEAT RESISTANCE

FLOW CONTROL

FILLER

#7

03192

Plastics	Products
Vinyl	Floor Tile
Polypropylene	Brake Linings
Polyester	Clutch Facings
Nylon	Electrical Components
Melamine	Auto Parts
Epoxy	Furniture
Phenolic	Sealants
	Coatings
	Adhesives

#8

03193

ASBESTOS - HYDRATED METAL SILICATE

SERPENTINE

CHRYSOTILE

AMPHIBOLE

CROCIDOLITE

AMOSITE

ANTHOPHYLLITE

TREMOLITE

ACTINOLITE

#9

C3194

TYPE	SOURCE(S)	USE(S)
CHRYSOTILE	U.S., CANADA, SO. AFRICA, ETC.	CEMENT PRODUCTS, TILE, PAPER, FRICTION MATERIALS, TEXTILES, PLASTICS, INSULATION
CROCIDOLITE	SO. AFRICA	REINFORCING CEMENT & PLASTIC PIPE, INSULATION
AMOSITE	SO. AFRICA	INSULATING & PACKING MATERIALS
ANTHOPHYLLITE	FINLAND	FILLER IN PLASTICS

#10

03105

USE OF ASBESTOS IN UNITED STATES

Use	% Of Total
Cement Products	25
Floor Tile	18
Paper	14
Friction & Pack	14
Insulation & Spray Prod.	4
Reinforced Plastics	3
Textiles	3
Miscellaneous	19

TOTAL CONSUMPTION, TONS

	1971	1972 (EST)
Chrysotile	760,000	810,000
Crocidolite	7,000	4,500
Amosite	15,000	8,000

#10A

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CROCIDOLITE

AMOSITE

#11

08197

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CHRYSOTILE

#12

03198

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THE WILLIAMS - STEIGER OCCUPATIONAL SAFETY & HEALTH ACT OF 1970.

EFFECTIVE: APRIL 28, 1971

PURPOSE: "TO ASSURE SO FAR AS POSSIBLE EVERY WORKING MAN AND WOMAN IN THE NATION SAFE AND HEALTHFUL WORKING CONDITIONS AND TO PRESERVE OUR HUMAN RESOURCES."

#13

03109

DEPT. OF LABOR -

OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA)

DEPT. OF HEALTH, EDUCATION & WELFARE -

NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY & HEALTH (NIOSH)

#14

03110

TARGET INDUSTRIES

LONGSHORING

MEAT AND MEAT PRODUCTS

LUMBER AND WOOD PRODUCTS

ROOFING AND SHEET METAL

MOBILE HOMES AND OTHER TRANSPORTATION EQUIPMENT

#15

03111

TARGET HEALTH HAZARDS

ASBESTOS

COTTON DUST

SILICA

LEAD

CARBON MONOXIDE

#16

03112

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ACGIH STANDARD - 12 FIBERS/ML

OSHA EMERGENCY STANDARD — 5 FIBERS/ML

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Substance	Can Produce	No. Employees At Risk	Industries
Asbestos	Asbestosis, Cancer	200,000	Insulation, Ship building, construction, etc.
Cotton Dust	Byssinosis	800,000	Cotton Processing- all types
Silica	Silicosis	1,100,000	Abrasives, mineral processing, sand-blasting, etc.
Lead	Severe nervous system Disabilities	1,600,000	Ammunition, paint, battery, auto, etc.
Carbon Monoxide	Brain damage, death	Uncountable Thousands	Metal processing, users of gasoline-powered equipment

#18

03114

FEDERAL REGISTER, VOLUME 37, NO. 110 WEDNESDAY JUNE 7, 1972
1910.93A STANDARD FOR EXPOSURE TO ASBESTOS DUST

8-HOUR TIME WEIGHTED AVERAGE (TWA) - 5 FIBERS, LONGER THAN 5 MICROMETERS, PER CUBIC CENTIMETER OF AIR - LOWERED TO 2 FIBERS PER CUBIC CENTIMETER IN 1976

PEAK CONCENTRATION MAXIMUM - 10 FIBERS PER CUBIC CENTIMETER

#19

03115

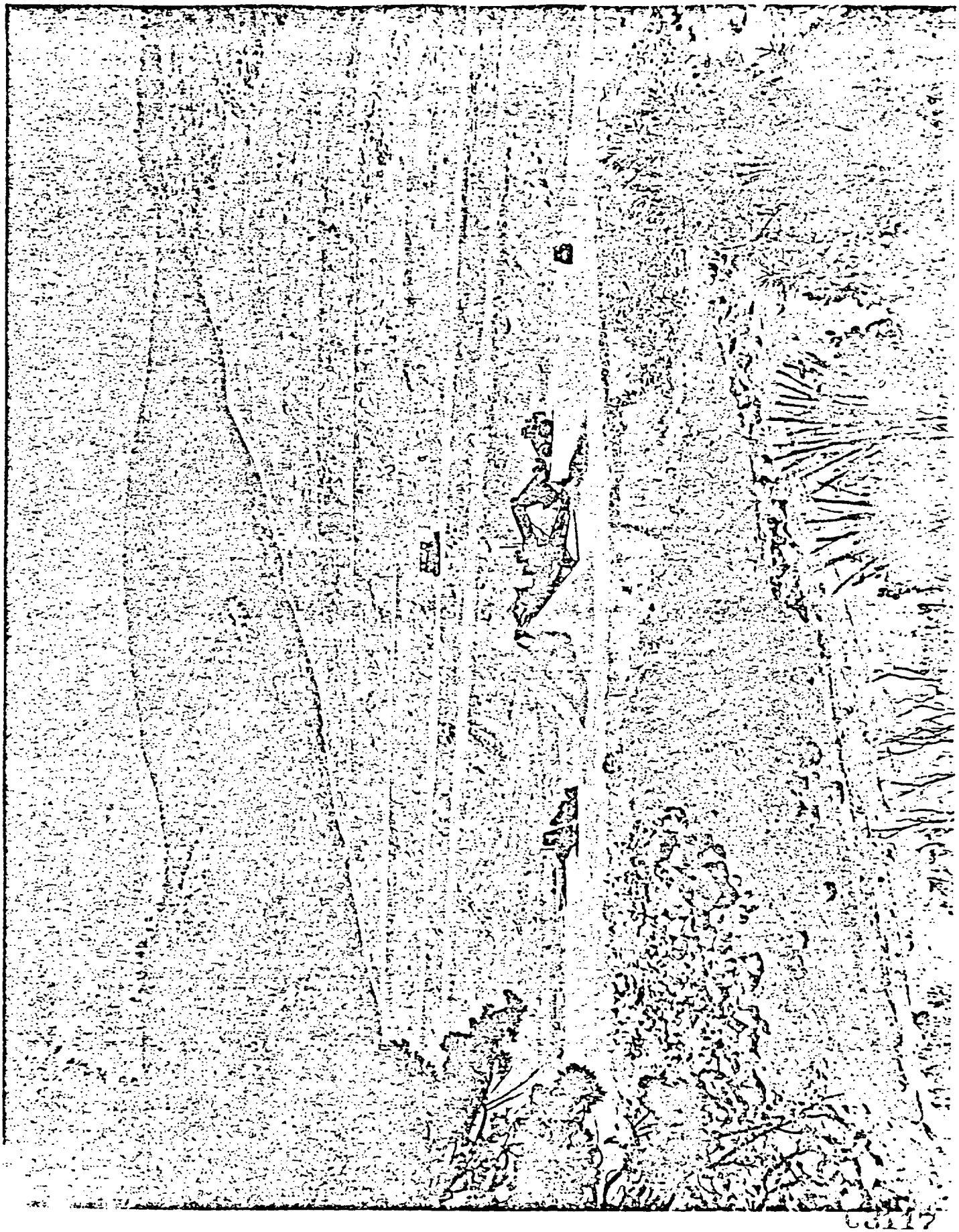
REQUIRED BY OSHA

MONITORING - "EVERY PLACE OF EMPLOYMENT WHERE ASBESTOS FIBERS ARE RELEASED"

MEDICAL EXAMS - ALL EMPLOYEES IN ANY "OCCUPATION EXPOSED TO AIRBORNE CONCENTRATIONS OF ASBESTOS FIBERS"

#20

03116



NOT REQUIRED UNLESS EXPOSURE LIMITS EXCEEDED

- RESPIRATORS
- SPECIAL TOOLS
- SPECIAL CLOTHING
- CHANGE ROOMS
- SIGNS
- SPECIAL WASTE DISPOSAL
- CAUTION LABELS

#22

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TYPICAL MATERIALS REQUIRING LABELS*

RAW ASBESTOS FIBER

DRY JOINT CEMENT & SPRAY PRODUCTS

UNSATURATED ROOFING FELT

SOME TEXTILE PRODUCTS

"UNBOUND" DRY PRODUCTS

* IF REASONABLE HANDLING MAKES DUST

#23

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TYPICAL MATERIALS NOT REQUIRING LABELS

REINFORCED PLASTICS

ROOFING COMPOUNDS

FLOOR TILE

REINFORCED RUBBER

READY-MIX JOINT CEMENTS

COATINGS & ADHESIVES

AUTO UNDERCOATING

PAINTS

SEALANTS

MINERAL BOARD (CEILING TILES)

LUBRICANTS, GREASES

03120 #24

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TYPICAL DUST COUNTS

PLANT/OPERATION	CEILING CONCENTRATIONS FIBERS/CC > 5 MICROMETERS
FLOOR TILE	1-3
CEILING TILE	1
GYPSUM COMPOUNDS	2-9
POLYESTER PRODUCTION	1-3
GRINDING POLYESTER	0-3
PHENOLIC PRODUCTION	2-5
HANDLING PHENOLIC	3-14
GRINDING PHENOLIC	2-4

#25

03121

ADVANTAGES OF CHRYSOTILE FIBER

POSITIVE SURFACE CHARGE

FLEXIBILITY

TENSILE STRENGTH

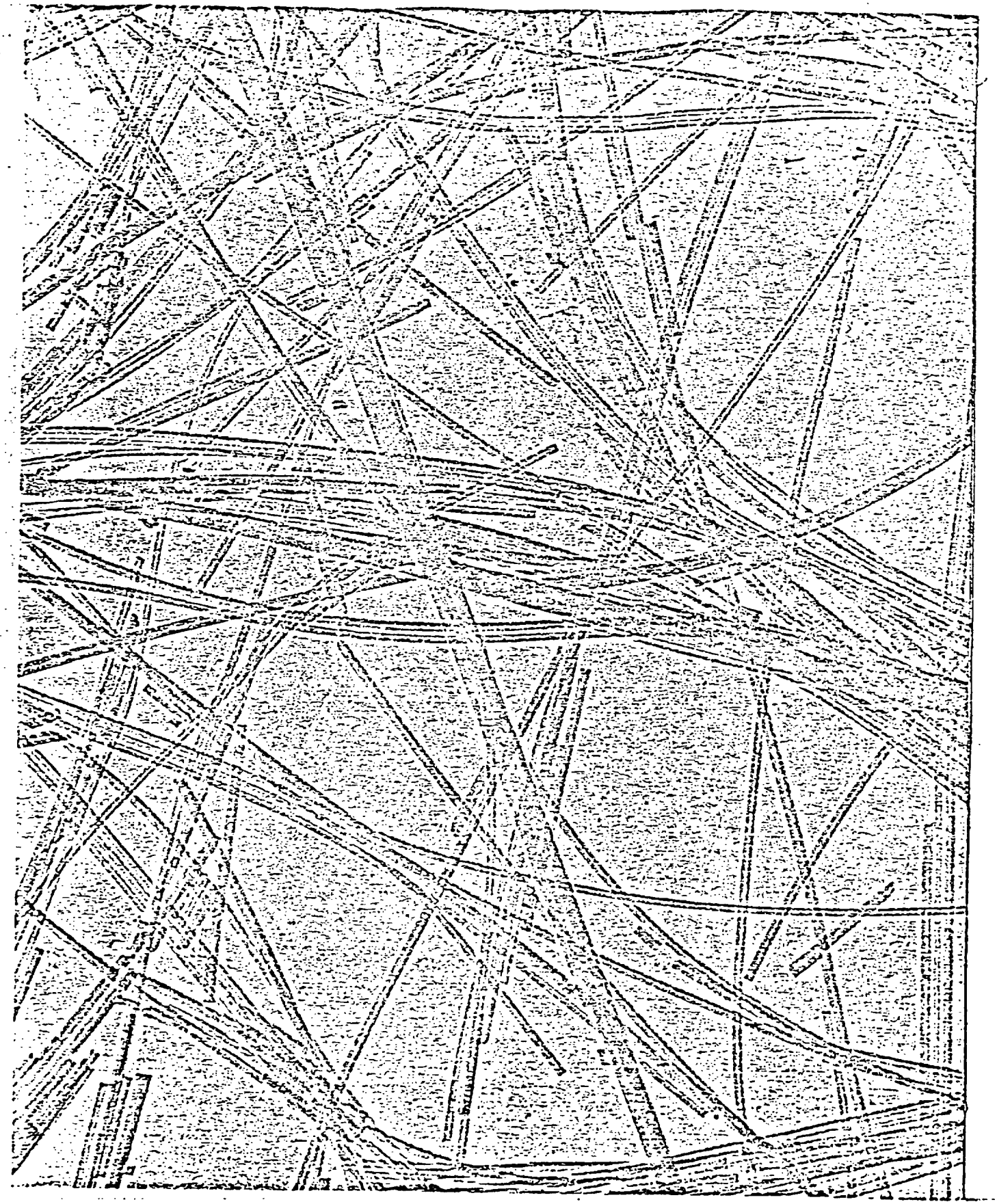
LOW REFRACTIVE INDEX

SOFTNESS

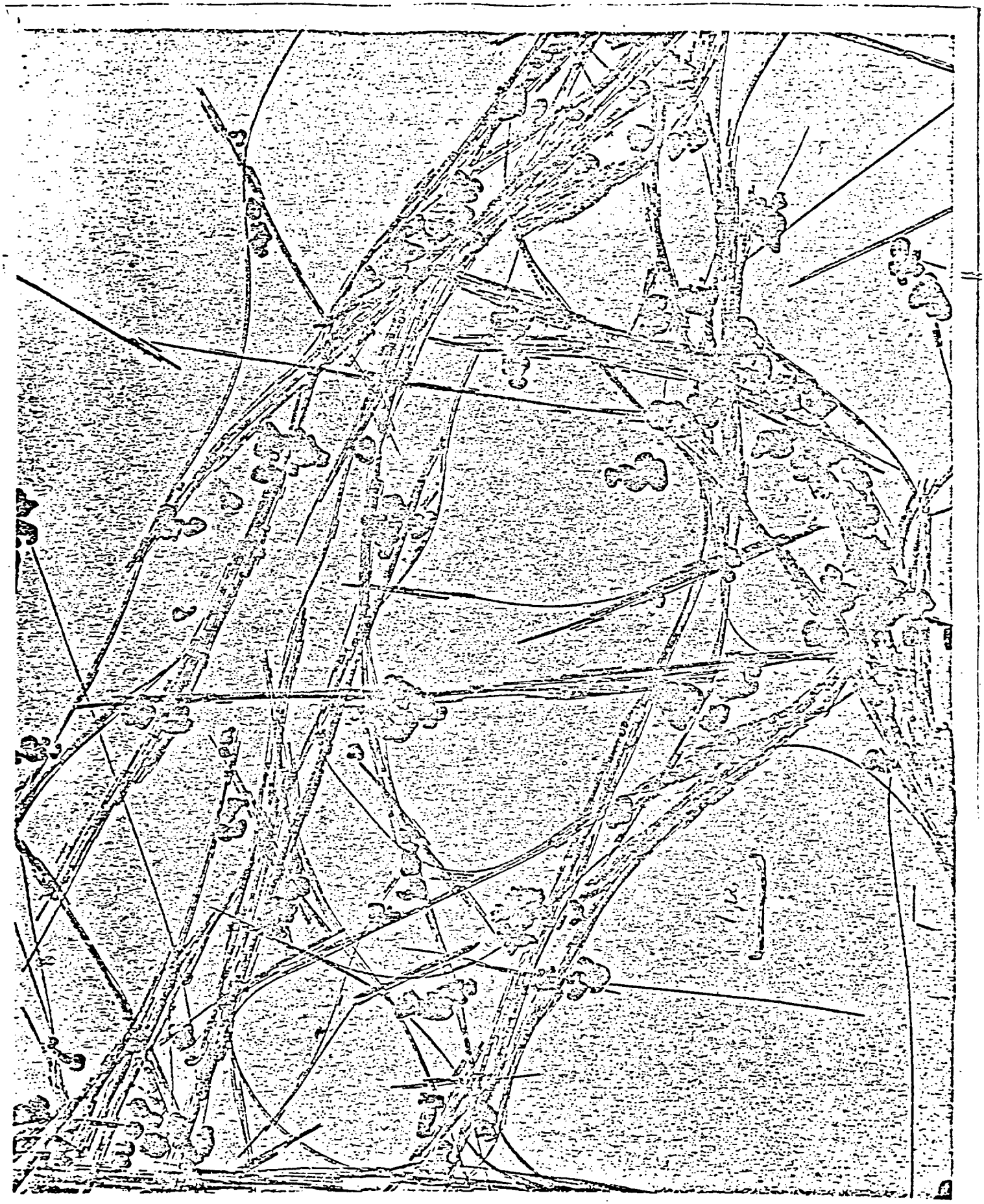
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CHRYSOTILE ASBESTOS -

- HAS BEEN USED SAFELY FOR YEARS

- IS BEING USED SAFELY TODAY

- WILL CONTINUE TO BE USED SAFELY AND EFFECTIVELY

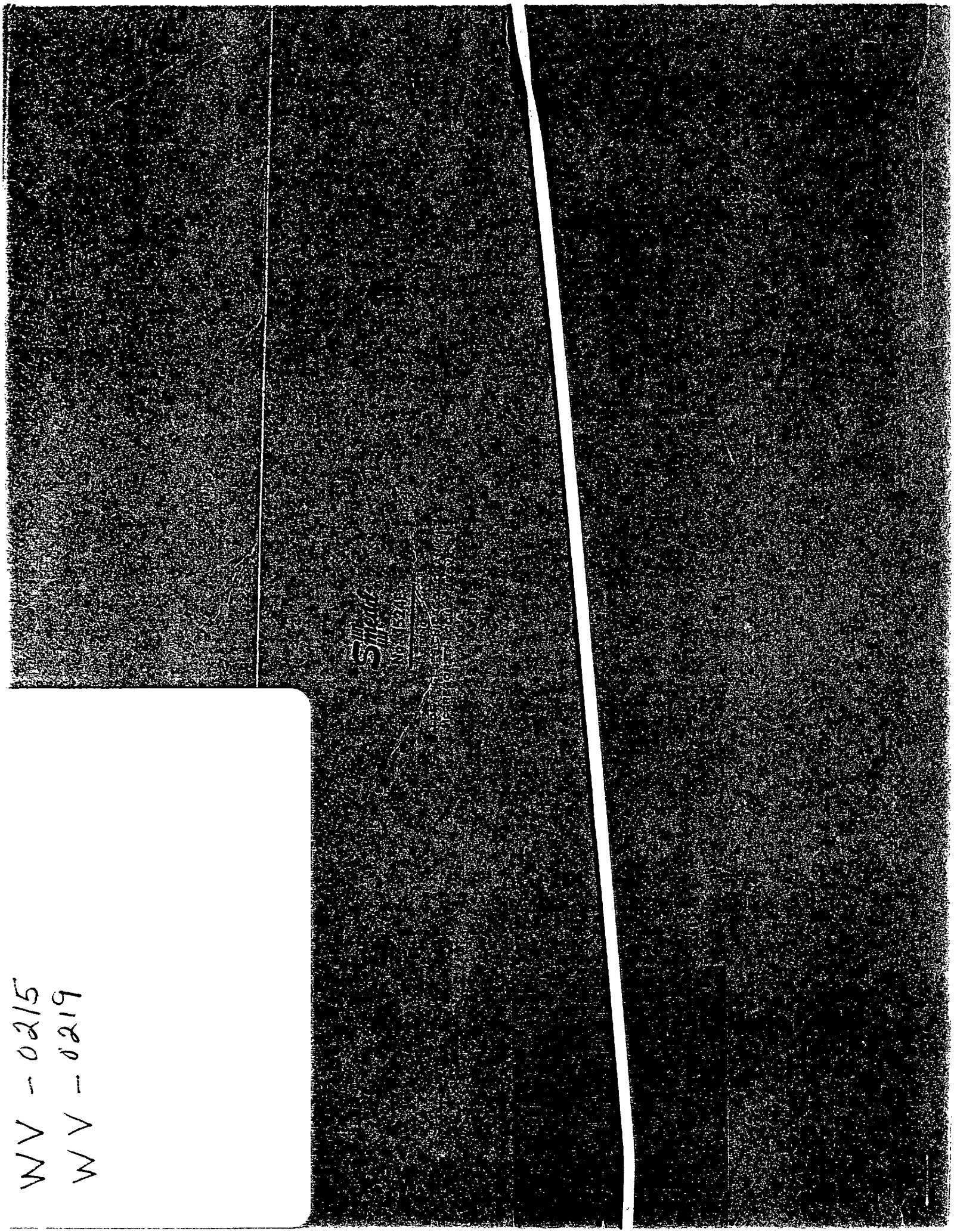
#29

CHEMICAL & PHYSICAL PROPERTIES OF ASBESTOS TYPES

	Chrysotile	Crocidolite	Amosite
Formula	$Mg_3Si_2O_5(OH)_4$	$Na_2Fe_5Si_8O_{22}(OH)_2$	$(FeMg)_6Si_8O_{22}(OH)_2$
Composition			
SiO_2	37-44	49-53	49-53
MgO	39-44	0-3	1-7
FeO	0-6	13-20	34-44
Fe_2O_3	0.1-5	17-20	---
Al_2O_3	0.2-1.5	---	2-9
H_2O	12-15	2.5-4.5	2-5
Ca	0-5	---	---
NaO_2	---	4-8.5	---
$CaO+Na_2O$	---	---	0.5-2.5
Color	Gray	Blue	Gray/Brown
Hardness	2.5-4	4	5.5-6
Specific Gravity	2.4-2.6	3.2-3.3	3.1-3.3
Tensile, Mpsi	80-100	100-300	16-90
Surface Charge	Positive	Negative	Negative

031226

Union Carbide trial exhibit UC-464: Undated Slide Presentation on Chrysotile Asbestos, Health Effects, OSHA Rul...
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