

FILE NAME: Asbestos in Plastics (AIP)

DATE: 2010 Sept

DOC#: AIP001

DOCUMENT DESCRIPTION: Unpublished Consultant Report on Airborne Exposures from Sawing Asbestos Containing Resin Pipe

MAS report on airborne
exposures from
sawing ast. cont. resin
pipe

- | | |
|------------------|--------------|
| 1. hand-sawing | 1.6-5.4 f/cc |
| 2. elec. saw (1) | 71-106 f/cc |
| (2) | 53-149 f/cc |

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Cutting of an Asbestos-Containing Resin Based Pipe: A Work Practice Study

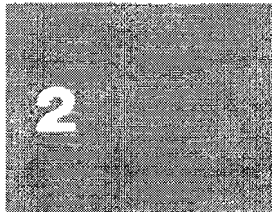
Materials Analytical Services, LLC

September 2010

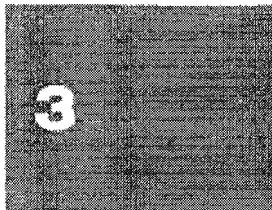
**Cutting of an Asbestos-Containing
Resin Based Pipe:
A Work Practice Study**



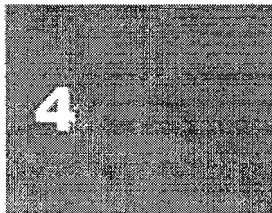
Protocol



**Summary of Air Sampling Data and
PCM Images**



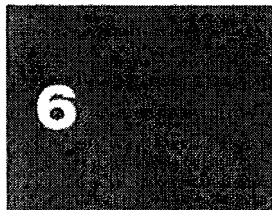
**Bulk Analysis
M-42122**



**Study 1 NIOSH 7400 & 7402 Data
M51855**



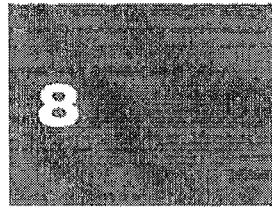
**Study 2 NIOSH 7400 & 7402 Data
M51857**



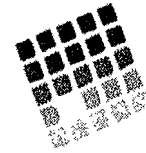
**Study 3 NIOSH 7400 & 7402 Data
M51863**



Photographs



SECTION 1



Cutting of an Asbestos-Containing Resin Based Pipe: A Work Practice Study

Protocol

September 27, 2010

Overview:

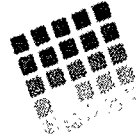
On February 19, 2007 Materials Analytical Services (MAS) received a molded resin based flange with a small piece of pipe from Motley Rice Law Firm. According to the documentation the flange/pipe sample had been sent to them by the law firm of Riggs Abney & Turpen. MAS was requested to conduct a work practice study with this pipe by the Lanier Law Firm.

The study was designed to measure any airborne asbestos fiber levels during the cutting of the pipe section using various cutting tools. This work practice was divided into three studies. Study 1 will consist of cutting a small section of the pipe with a fine tooth hand saw. Study 2 will cut another small section of the pipe with an electric powered hand saw with a fine tooth blade. Study 3 will consist of cutting a small section of the pipe using an electric powered hand saw equipped with a masonry blade.

Cutting of the Asbestos-Containing Resin Based Pipe

I. ECL Set-Up

- A. Study is to be performed in the MAS exposure characterization lab (ECL) constructed using negative airflow asbestos abatement technology. The size of the ECL is approximately 15' x 20' x 8'. The ECL will be decontaminated before the study.
- B. Air exchange inside the ECL during the work phases will be approximately 200 cubic feet per minute as measured at 10' (in middle of 12" ID duct) from the air exhaust of the HEPA filter negative air machine (Force Air 2000 EC).
- C. High intensity lighting setup will be in general accordance with the methods described in D.T. Chambers, "Asbestos", John Wiley & Sons, 6, 193, 1983 and the Environmental Protection Agency SOP, EPA-Libby-02, Revision #1, March 2001 (Tyndall lighting section only), and the MDHS # 82, "The Dust



Lamp", March 1997. The high intensity lighting source will consist of three high intensity light (1000 watts ellipsoidal pyrex lens, 219K candle power, 8 degree beam angle) located on each side of the worktable at a height of approximately 5.5 feet from the floor and approximately 7 feet from the work activity.

Study 1: Hand Sawing

II. Background, Area & Personal Air Samples

- A. Before the hand sawing work practice study takes place, background air samples will be run in the ECL.
- B. Adjust and calibrate high volume area pumps to approximately 10.0 liters per minute.
- C. Set up four area air samples inside the ECL. Use 25 mm air cassettes containing 0.8 micron pore size mixed cellulose ester (MCE) filters with a 5.0 micron backing pad.
- D. Locate the background air samples in each quadrant of the ECL at a height of 5.5 feet from the floor and a distance of approximately six feet from the work activity.
- E. During this study the four area samples located in each quadrant will be calibrated and run at a rate of approximately 10.0 liters/minute. These area air samples will be set up as described in section II of this protocol.
- F. The investigator will be fitted with four personal air pumps and air cassettes (two on each shoulder) located in his breathing zone and calibrated at a flow rate of approximately 2.0 to 3.5 liters/minute.

Hand Sawing Work Practice

- G. For this work practice the investigator will use a 13" PVC/ABS plastic pipe saw (Buck Bros.) to cut a ¼" to ½" section off the pipe taken at the end of the pipe. The air sampling information will be recorded on the IH air sampling chain of custody sheets for the study.
- H. The investigator will wear appropriate protective clothing, work apparel and air supplied respiratory protection equipment.

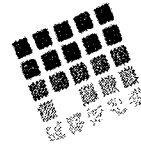


- I. The work practice will be performed under both ambient and high intensity lighting.
- J. The entire procedure will be videotaped with two separate cameras (Sony Handycam, model numbers HDR-HC3 and DCR-HC). During filming the high intensity lighting will be turned off and overhead lights turned on several times during the study.
- K. Fabric work clothes samples will be collected off of the investigator after each phase of the study has been completed.
- L. The field blanks will be opened inside the ECL for 30 seconds after each phase of the study has been completed.

Study 2: Electric Sawing 7¼ Inch Plywood Blade

III. Background, Area & Personal Air Samples

- A. Before the hand sawing work practice study takes place, background air samples will be run in the ECL. Since this study will be run after the hand sawing study, the ECL's ventilation will be elevated prior to the collection of the background samples for Study 2. The ventilation rate will be increased to 2000 cubic feet per minute for approximately 30 minutes.
- B. For the background samples adjust and calibrate high volume area pumps to approximately 10.0 liters per minute and the background air samples will be run for approximately one hour.
- C. Set up four area air samples inside the ECL. Use 25 mm air cassettes containing 0.8 micron pore size mixed cellulose ester (MCE) filters with a 5.0 micron backing pad.
- D. Locate the background air samples in each quadrant of the ECL at a height of 5.5 feet from the floor and a distance of approximately six feet from the work activity.
- E. During this study the four area samples located in each quadrant will be calibrated and run at a rate of approximately 2.0 liters/minute. These area air samples will be set up as described above.



- F. The investigator will be fitted with four personal air pumps and air cassettes (two on each shoulder) located in his breathing zone and calibrated at a flow rate of approximately 0.5 liters/minute.

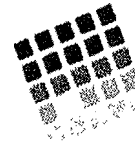
Study 2: Electric Saw Work Practice

- G. For Study 2 the investigator will use a Skil 2.4 hp 7¼ inch circular saw with a 7¼ inch plywood metal blade (Avanti) to cut a ¼" to ½" section off the pipe taken at the end of the pipe. The air sampling information will be recorded on the IH air sampling chain of custody sheets for the study.
- H. The investigator will wear appropriate protective clothing, work apparel and air supplied respiratory protection equipment.
- I. The work practice will be performed under both ambient and high intensity lighting.
- J. The entire procedure will be videotaped with two separate cameras (Sony Handycam, model numbers HDR-HC3 and DCR-HC). During filming the high intensity lighting will be turned off and overhead lights turned on several times during the study.
- K. Fabric work clothes samples will be collected off of the investigator after each phase of the study has been completed.
- L. The field blanks will be opened inside the ECL for 30 seconds after each phase of the study has been completed.

Study 3: Electric Sawing-Work Practice

IV. Background, Area & Personal Air Samples

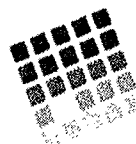
- A. Before the second electric sawing work practice study takes place, background air samples will be run in the ECL. Since this study will be run after the Study 2 electric sawing study, the ECL's ventilation will be elevated prior to the collection of the background samples for Study 3. The ventilation rate will be increased to 2000 cubic feet per minute for approximately 30 minutes.



- B. For the background samples adjust and calibrate high volume area pumps to approximately 10.0 liters per minute and the background air samples will be run for approximately one hour.
- C. Set up four area air samples inside the ECL. Use 25 mm air cassettes containing 0.8 micron pore size mixed cellulose ester (MCE) filters with a 5.0 micron backing pad.
- D. Locate the background air samples in each quadrant of the ECL at a height of 5.5 feet from the floor and a distance of approximately six feet from the work activity.
- E. During this study the four area samples located in each quadrant will be calibrated and run at a rate of approximately 2.0 liters/minute. These area air samples will be set up as described above.
- F. The investigator will be fitted with four personal air pumps and air cassettes (two on each shoulder) located in his breathing zone and calibrated at a flow rate of approximately 0.5 liters/minute.

Study 3: Electric Saw Work Practice

- G. For this work practice the investigator will use a Skil 2.4 hp 7¼ inch circular saw with a 7⅞ inch DeWalt masonry blade to cut a ¼" to ½" section off the pipe taken at the end of the pipe. The air sampling information will be recorded on the IH air sampling chain of custody sheets for the study.
- H. The investigator will wear appropriate protective clothing, work apparel and air supplied respiratory protection equipment.
- I. The work practice will be performed under both ambient and high intensity lighting.
- J. The entire procedure will be videotaped with two separate cameras (Sony Handycam, model numbers HDR-HC3 and DCR-HC). During filming the high intensity lighting will be turned off and overhead lights turned on several times during the study.
- K. Fabric work clothes samples will be collected off of the investigator after each phase of the study has been completed.

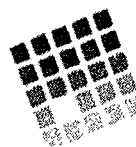


- L. The field blanks will be opened inside the ECL for 30 seconds after each phase of the study has been completed.

V. Laboratory Analysis

- A. All air sample cassettes will be analyzed by the NIOSH 7400 PCM method using A counting rules and all personal air samples and 50% of the area samples will be analyzed by the NIOSH 7402 TEM method.
- B. Fabric samples from the work clothing will be analyzed by the recommended EPA method.

SECTION 2



Asbestos-Containing Resin Based Pipe

Study 1: Hand Sawing M51855

Background Air Samples

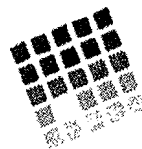
<u>Sample No.</u>	<u>Sample Description</u>	<u>PCM Fibers/cc</u>	<u>NIOSH 7402</u>	<u>PCME Fibers/cc</u>
A-01-A	IWA	<0.001	0%	
A-01-B	IWA	<0.001	0%	
A-01-C	IWA	<0.001		
A-01-D	IWA	<0.001		

Personal Air Samples

<u>Sample No.</u>	<u>Sample Description</u>	<u>PCM Fibers/cc</u>	<u>NIOSH 7402</u>	<u>PCME Fibers/cc</u>
P-1-A	Personal PLR	5.36	97%	5.20
P-1-B	Personal PLL	1.66	92%	1.53
P-1-C	Personal PLR	4.87		
P-1-D	Personal PLL	2.48		

Area Air Samples

<u>Sample No.</u>	<u>Sample Description</u>	<u>PCM Fibers/cc</u>	<u>NIOSH 7402</u>	<u>PCME Fibers/cc</u>
A-1-A	IWA	1.7		
A-1-B	IWA	1.4		
A-1-C	IWA	1.2		
A-1-D	IWA	1.3		



Asbestos-Containing Resin Based Pipe

Study 2: Electric Saw, Fine Toothed Blade M51857

Background Air Samples

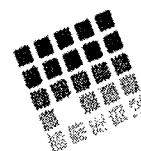
<u>Sample No.</u>	<u>Sample Description</u>	<u>PCM Fibers/cc</u>	<u>NIOSH 7402</u>	<u>PCME Fibers/cc</u>
A-02-A	IWA	<0.006		
A-02-B	IWA	<0.006		
A-02-C	IWA	0.006		
A-02-D	IWA	<0.006		

Personal Air Samples

<u>Sample No.</u>	<u>Sample Description</u>	<u>PCM Fibers/cc</u>	<u>NIOSH 7402</u>	<u>PCME Fibers/cc</u>
P-2-A	Personal PLR	71.2	100%	71.2
P-2-B	Personal PLL	106.1		
P-2-C	Personal PLR	101.3		
P-2-D	Personal PLL	89.4		

Area Air Samples

<u>Sample No.</u>	<u>Sample Description</u>	<u>PCM Fibers/cc</u>	<u>NIOSH 7402</u>	<u>PCME Fibers/cc</u>
A-2-A	IWA	50.5		
A-2-B	IWA	46.2		
A-2-C	IWA	49.2		
A-2-D	IWA	71.0		



Asbestos-Containing Resin Based Pipe

Study 3: Electric Saw, Masonry Blade M51863

Background Air Samples

<u>Sample No.</u>	<u>Sample Description</u>	<u>PCM Fibers/cc</u>	<u>NIOSH 7402</u>	<u>PCME Fibers/cc</u>
A-03-A	IWA	0.011		
A-03-B	IWA	<0.027		
A-03-C	IWA	0.014		
A-03-D	IWA	0.008		

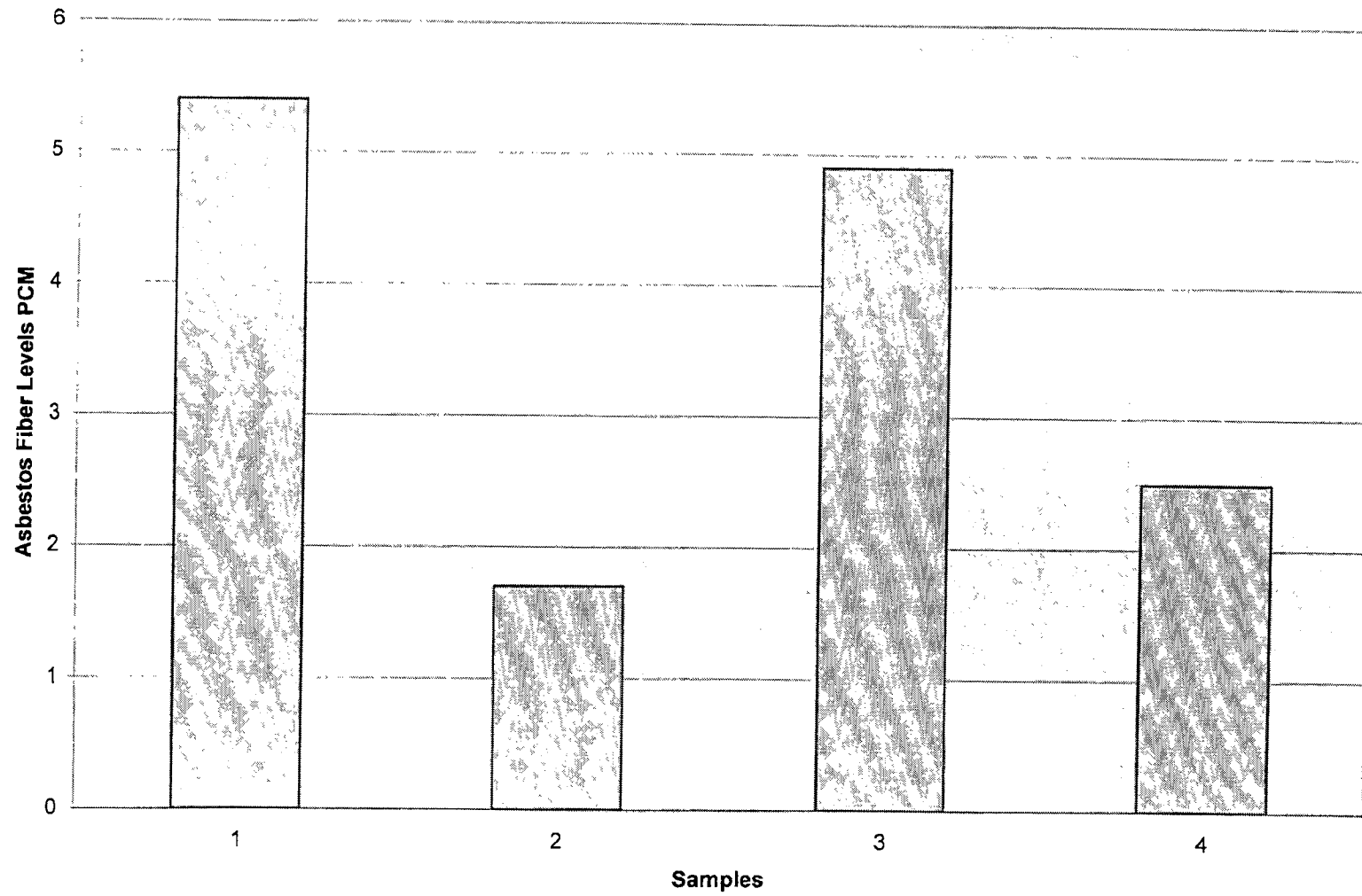
Personal Air Samples

<u>Sample No.</u>	<u>Sample Description</u>	<u>PCM Fibers/cc</u>	<u>NIOSH 7402</u>	<u>PCME Fibers/cc</u>
P-3-A	Personal PLR	88.8	100%	88.8
P-3-B	Personal PLL	137.9		
P-3-C	Personal PLR	148.7		
P-3-D	Personal PLL	52.6		

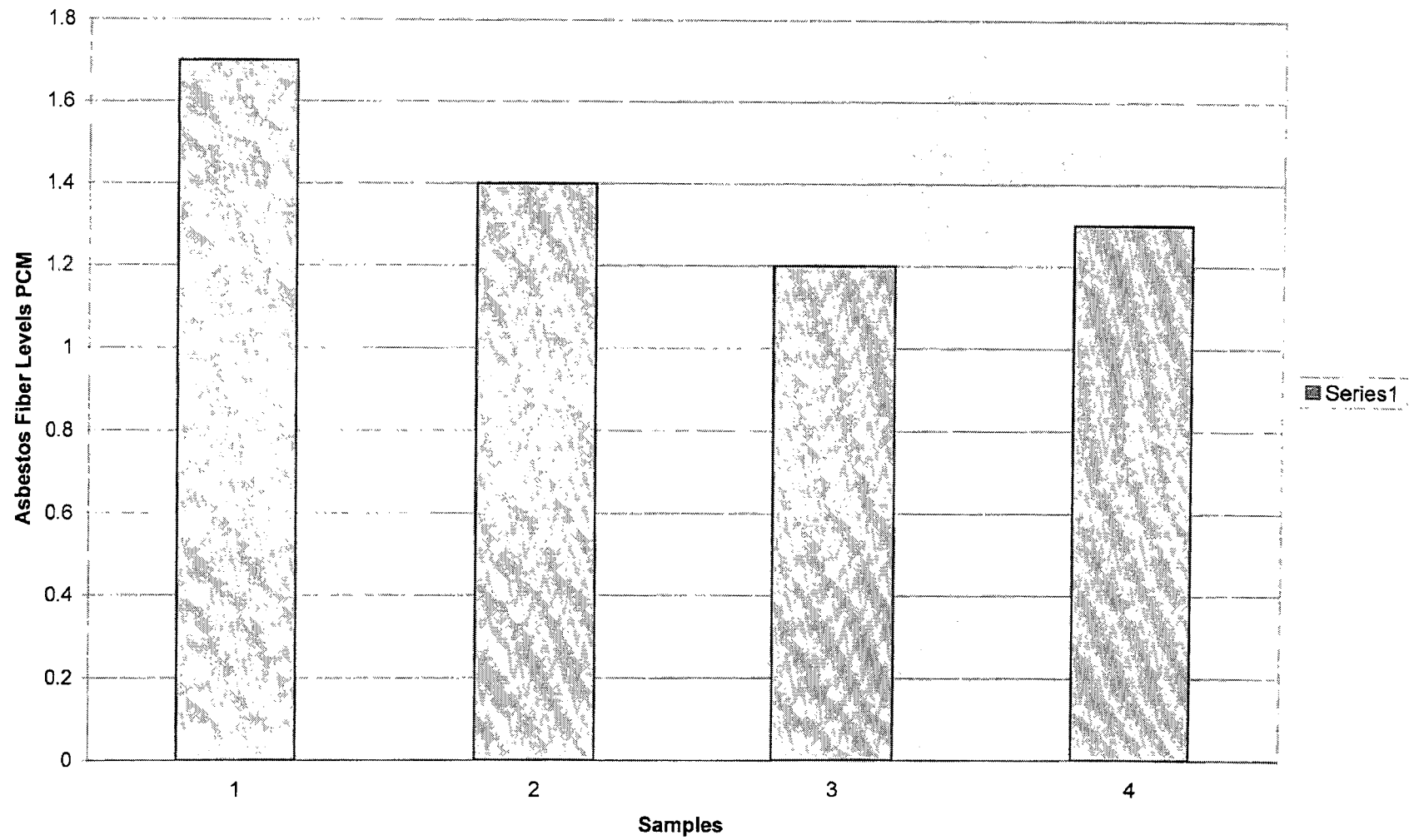
Area Air Samples

<u>Sample No.</u>	<u>Sample Description</u>	<u>PCM Fibers/cc</u>	<u>NIOSH 7402</u>	<u>PCME Fibers/cc</u>
A-3-A	IWA	82.5		
A-3-B	IWA	61.5		
A-3-C	IWA	90.3		
A-3-D	IWA	82.0		

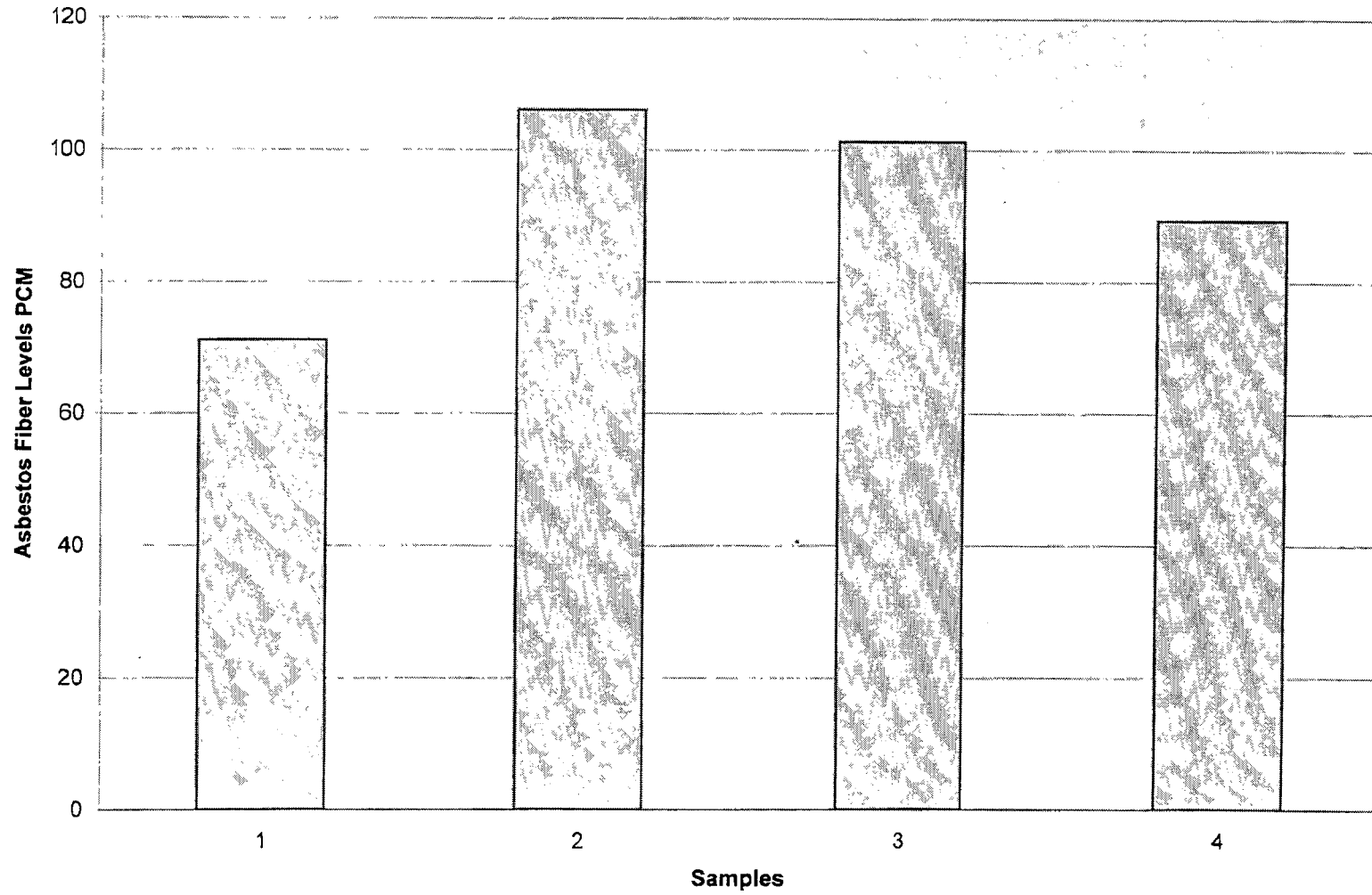
Hand Sawing Personal Samples Study I



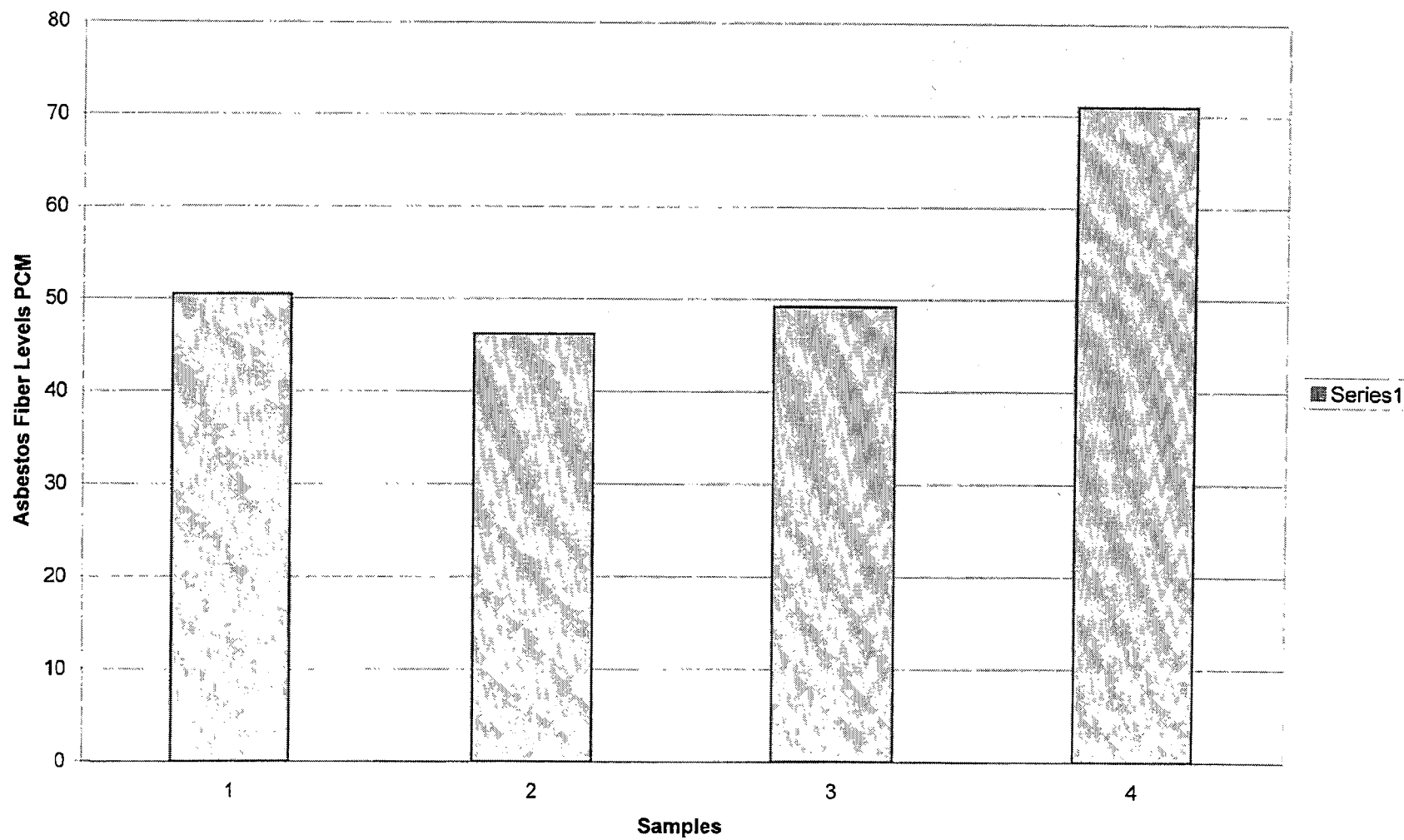
Area Samples Hand Sawing Study I



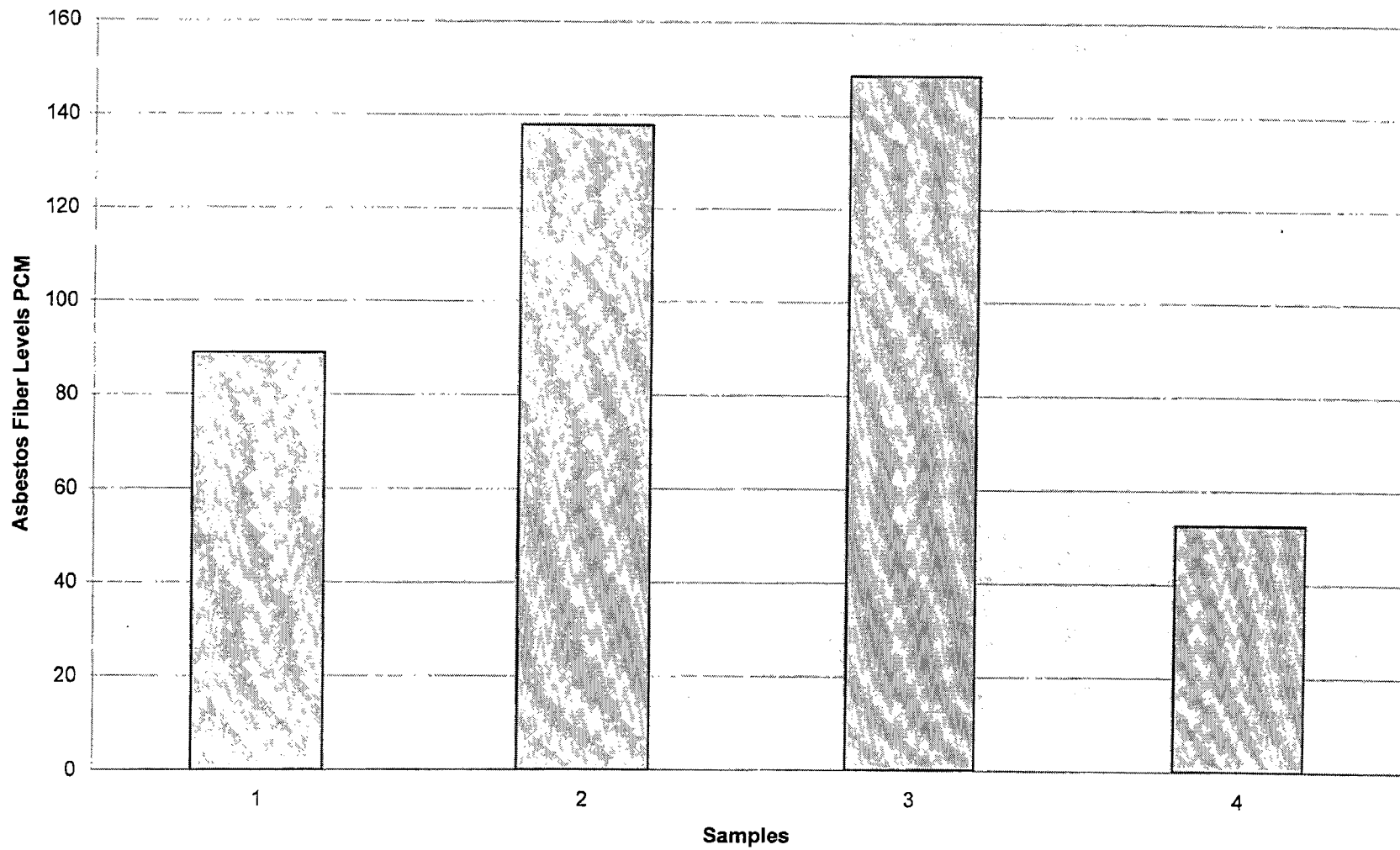
Power Sawing With Fine Saw Blade Personal Samples Study II



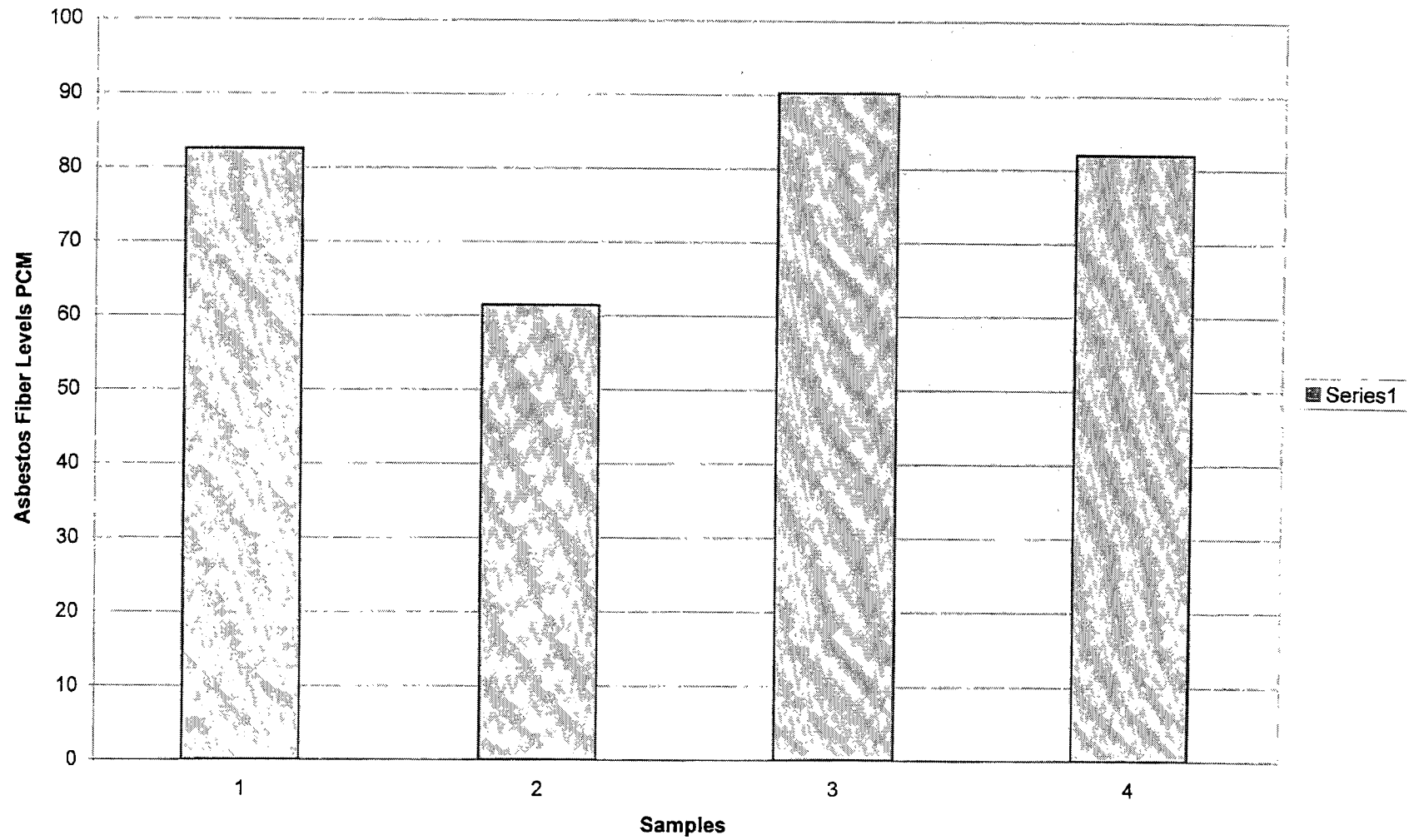
Power Sawing With Fine Tooth Saw Blade Area Samples Study II

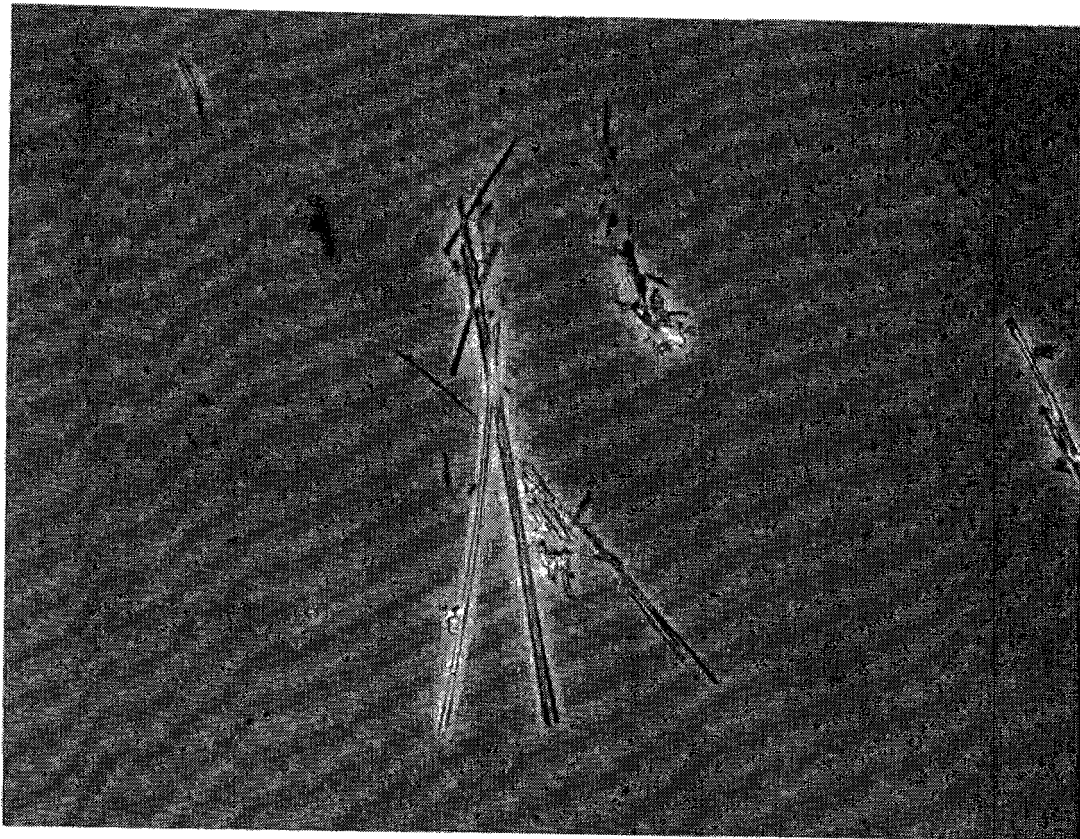


Power Sawing Masonry Blade Personal Samples Study III

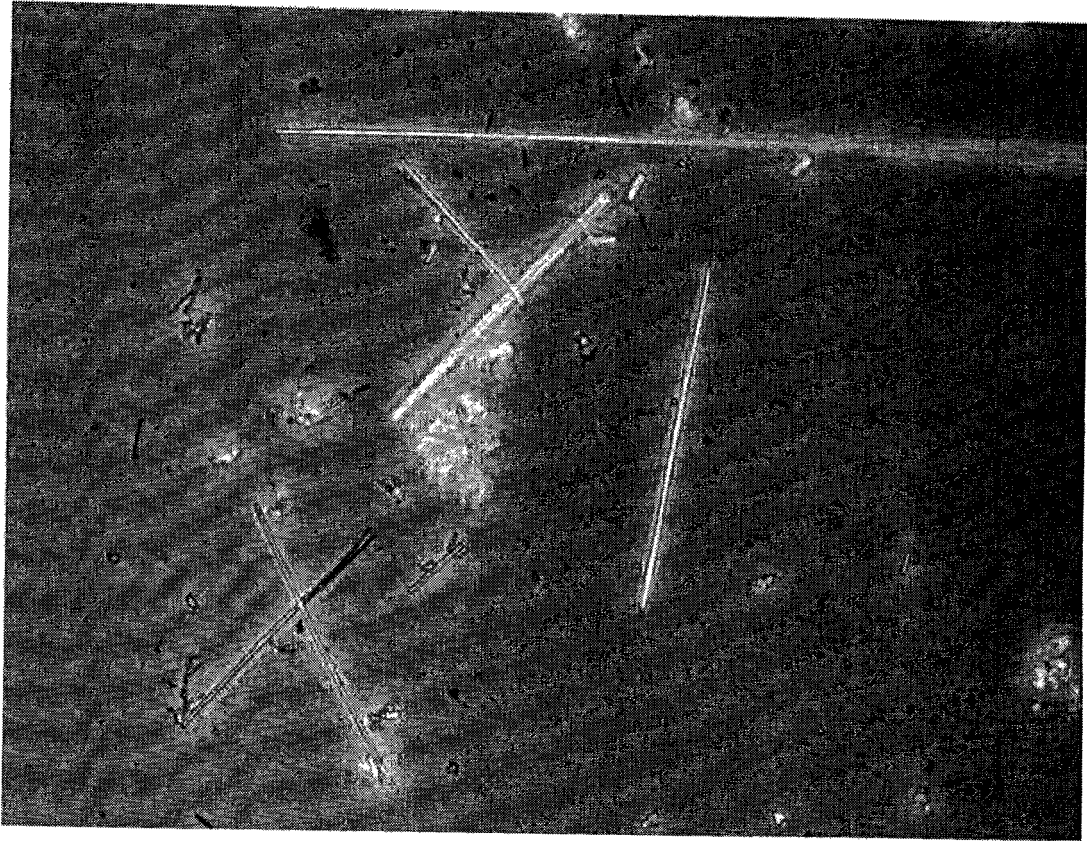


Electric Sawing With A Masonry Blade Area Samples

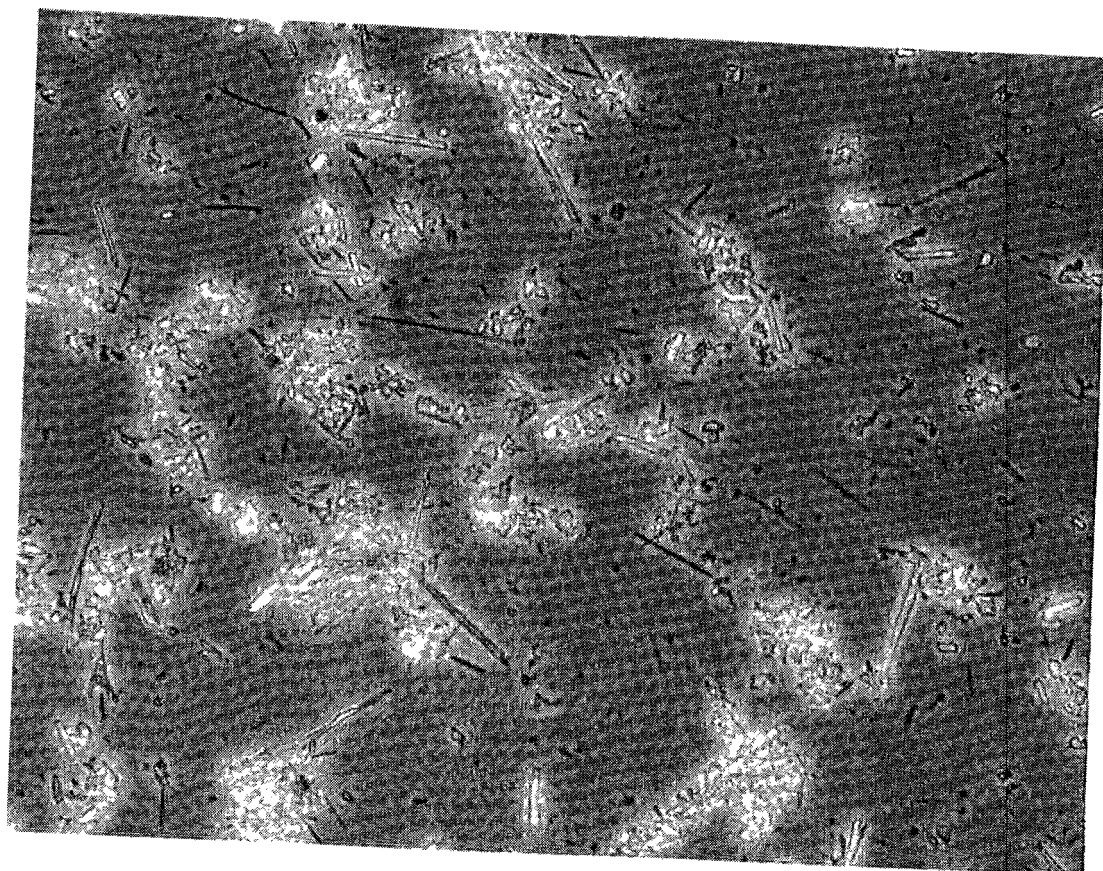




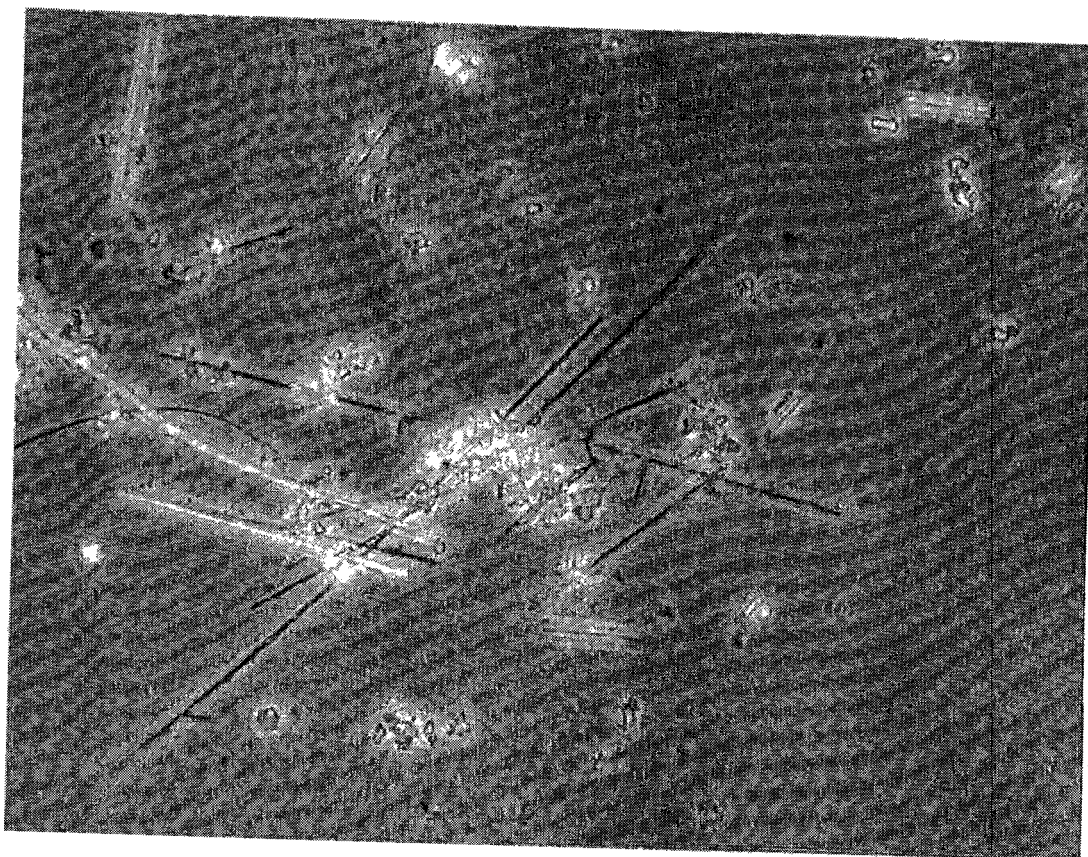
M51855-012 A-1-D



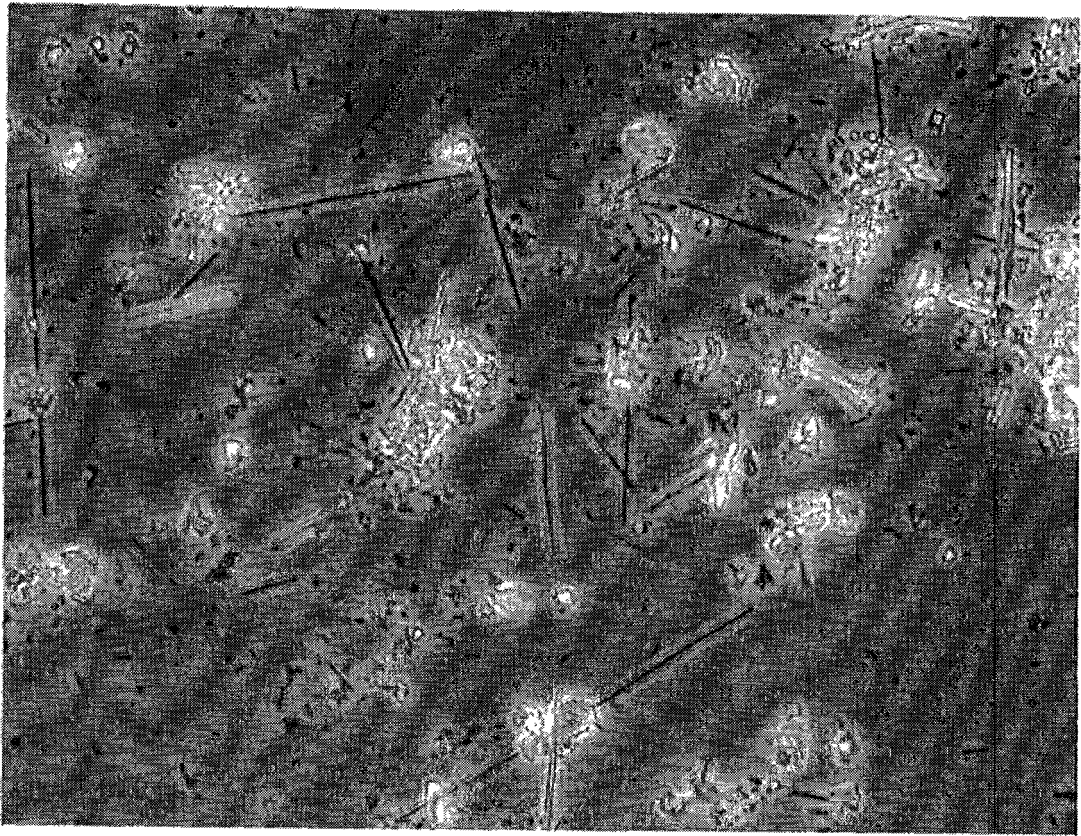
M51857-006 P-2-B



M51857-012 A-2-D



M51863-005 P-3-A



M51863-010 A-3-B

SECTION 3

MAS, LLC.
CHAIN-OF-CUSTODY

CLIENT: Motley Rice LLC
CONTACT: Wm. Michael Gruenloh
PHONE: (843) 216-9563
CLIENT JOB NAME: Lathum-Ameron-Asbestos
CLIENT JOB#:
CLIENT DOC(S): Letter of transmittal
FAX NUMBER: (843) 216-9430

MAS JOB: M42122
DATE RECEIVED: 2/19/2007
SUBMITTED BY: Wm. Michael Gruenloh
TRANSPORT: FedEx
RECEIVED BY: Nancy Sears
CONDITION: samples not sealed

MAS #	CLIENT ID	VOLUME	TYPE	MATERIAL	MAS #	CLIENT ID	VOLUME	TYPE	MATERIAL
001				asbestos mat					
LOCATION _____									
002				rope-like yarn					
LOCATION _____									
003				resin base flange					
LOCATION _____									
004				resin base flange					
LOCATION _____									

SAMPLE RECEIVED BY: Nancy Sears DATE: 2/19/07
COMMENT: _____

MAS, LLC.
3945 Lakefield Court
Suwanee, Georgia 30024
(770) 866-3200

m42122



MotleyRice

Wm. Michael Gruenloh
Licensed in SC
Direct Dial 843.216.9563
Direct Fax 843.216.9430
MGruenloh@motleyrice.com

February 16, 2007

William Longo, Ph.D.
Materials Analytical Services
3945 Lakefield Court
Suwanee, GA 30024

Re: Wilda Jean Lathum, Widow of Jerry H. Lathum, Deceased

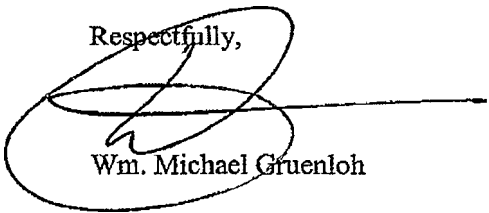
Dear Dr. Longo:

Enclosed please find a sample of the asbestos mat that was manufactured at Ameron's Ardmore Oklahoma facility where Jerry Lathum worked. Also enclosed are: (a) One roll of small rope-like yarn purportedly used as a gap filler prior to gluing flanges together. We suspect this may be crocidolite. (b) Two fiberglass-composite flanges. We suspect these may contain Union Carbide Calidria Resin Grade asbestos. As we discussed we would like you to analyze these samples and provide us with your opinion on the content and exposure given the attached testimony regarding the manufacture and use of the materials by Mr. Lathum.

Testimony has been given stating that Ameron used raw blue asbestos fiber and ore at their facility in Ardmore, OK in the manufacture of the aforementioned asbestos mat. Inside the facility, Ameron employed the use of a hammer mill to crush the raw asbestos ore and fiber. This hammer mill was not closed off from the rest of the facility. Witnesses have stated that there was a cloud of dust surrounding the hammer mill and that asbestos dust would hang from the rafters like Spanish moss. Jerry Lathum worked for Ameron from 1963 until 1971 performing various duties. At the time of his departure from Ameron, Lathum worked in Quality Control and performed his duties throughout the plant. I have also included a diagram of the facility. The dimensions are approximate. There are no enclosed partitions between areas.

This case is scheduled to go to trial on September 10, 2007. Expert reports are due April 16, 2007 and I expect defense will want to take your deposition sometime before May 16, 2007 (deadline for expert discovery). Please call me if you wish to discuss this case.

Respectfully,



Wm. Michael Gruenloh

WMG/sci
cc: Dick Gann

www.motleyrice.com	MT. PLEASANT	BARNWELL	PROVIDENCE	HARTFORD	ATLANTA
Motley Rice LLC Attorneys at Law	28 BRIDGESIDE BLVD. P.O. BOX 1792 MT. PLEASANT, SC 29465 843-216-9000 843-216-9450 FAX	1750 JACKSON ST. P.O. BOX 365 BARNWELL, SC 29812 803-224-8800 803-259-7048 FAX	321 SOUTH MAIN ST. P.O. BOX 6067 PROVIDENCE, RI 02940 401-457-7700 401-457-7708 FAX	ONE CORPORATE CENTER 20 CHURCH ST., 17TH FLOOR HARTFORD, CT 06103 860-882-1681 860-882-1682 FAX	600 WEST PEACHTREE ST. SUITE 800 ATLANTA, GEORGIA 30308 404-201-6900 404-201-6959 FAX

re: Sears 2/16/07

**MAS, LLC
PLM ANALYSIS**

Proj#-Spl# M42122 - 001 **Analyst** W.B. Egeland **Date** 5/1/2007
ClientName Motley Rice LLC **ClientSpl** asbestos mat
Location _____
Type_Mat _____
Gross Blueish compressed fibrous mat. Orange granular silt and woody debris observed.
Visual _____

OPTICAL DATA FOR ASBESTOS IDENTIFICATION

Morphology	<u>Straight</u>		
Pleochroism	<u>blue/gray</u>		
Refract Index	<u>1.690/1.682</u>		
Sign^	<u>negative</u>		
Extinction	<u>parallel</u>		
Birefringence	<u>low</u>		
Melt	<u>no</u>		
Fiber Name	<u>Crocidolite</u>		

ASBESTOS MINERALS

EST. VOL. %

Chrysotile.....
 Amosite.....
 Crocidolite.....
 Tremolite/Actinolite.....
 Anthophyllite.....

100

OTHER FIBROUS COMPONENTS

NON FIBROUS COMPONENTS

Binder Description _____

Comments Orange granular silt and woody debris observed.

The method detection limit is 1% unless otherwise stated.

MAS, LLC
PLM ANALYSIS

Proj#-Spl# M42122 - 002 Analyst W.B. Egeland Date 5/1/2007
 ClientName Motley Rice LLC ClientSpl rope-like yarn
 Location _____
 Type_Mat _____
 Gross Light blue yarn of blue fibers/bundles
 Visual _____

OPTICAL DATA FOR ASBESTOS IDENTIFICATION

Morphology	<u>Straight</u>		
Pleochroism	<u>blue/gray</u>		
Refract Index	<u>1.690/1.682</u>		
Sign^	<u>negative</u>		
Extinction	<u>parallel</u>		
Birefringence	<u>low</u>		
Melt	<u>no</u>		
Fiber Name	<u>Crocidolite</u>		

ASBESTOS MINERALS

EST. VOL. %

Chrysotile.....
 Amosite.....
 Crocidolite.....
 Tremolite/Actinolite.....
 Anthophyllite.....

100

OTHER FIBROUS COMPONENTS

NON FIBROUS COMPONENTS

Binder Description _____

 Comments _____

The method detection limit is 1% unless otherwise stated.

MAS, LLC
PLM ANALYSIS

Proj#-Spl# M42122 - 003 Analyst W.B. Egeland Date 5/1/2007
 ClientName Motley Rice LLC ClientSpl resin base flange
 Location _____
 Type_Mat _____

Gross Broken 1/2 blueish "T" flange of compressed blue and white fibers/bundles with scattered black flakes,
 Visual dark damaged area observed.

OPTICAL DATA FOR ASBESTOS IDENTIFICATION

Morphology	<u>Straight</u>	<u>straight</u>	
Pleochroism	<u>blue/gray</u>	<u>none</u>	
Refract Index	<u>1.690/1.682</u>	<u>1.620/1.605</u>	
Sign^	<u>negative</u>	<u>positive</u>	
Extinction	<u>parallel</u>	<u>parallel</u>	
Birefringence	<u>low</u>	<u>moderate</u>	
Melt	<u>no</u>	<u>no</u>	
Fiber Name	<u>Crocidolite</u>	<u>Anthophyllite</u>	

ASBESTOS MINERALS

EST. VOL. %

Chrysotile.....
 Amosite.....
 Crocidolite.....
 Tremolite/Actinolite.....
 Anthophyllite.....

40

20

OTHER FIBROUS COMPONENTS

NON FIBROUS COMPONENTS

 Mica

 Binder

3

37

Binder Description Amorphous material and non-fibrous accessory minerals

Comments _____

The method detection limit is 1% unless otherwise stated.

**MAS, LLC
PLM ANALYSIS**

Proj#-Spl# M42122 - 004 Analyst W.B. Egeland Date 5/1/2007
 ClientName Motley Rice LLC ClientSpl resin base flange
 Location _____
 Type_Mat _____
 Gross Blueish "T" flange of compressed blue and white fibers/bundles with scattered black flakes, dark
 Visual damaged area observed.

OPTICAL DATA FOR ASBESTOS IDENTIFICATION

Morphology	<u>Straight</u>	<u>straight</u>	
Pleochroism	<u>blue/gray</u>	<u>none</u>	
Refract Index	<u>1.690/1.682</u>	<u>1.620/1.605</u>	
Sign^	<u>negative</u>	<u>positive</u>	
Extinction	<u>parallel</u>	<u>parallel</u>	
Birefringence	<u>low</u>	<u>moderate</u>	
Melt	<u>no</u>	<u>no</u>	
Fiber Name	<u>Crocidolite</u>	<u>Anthophyllite</u>	

ASBESTOS MINERALS

EST. VOL. %

Chrysotile.....
 Amosite.....
 Crocidolite.....
 Tremolite/Actinolite.....
 Anthophyllite.....

40

20

OTHER FIBROUS COMPONENTS

NON FIBROUS COMPONENTS

 Mica

 Binder

3

37

Binder Description Amorphous material and non-fibrous accessory minerals

Comments _____

The method detection limit is 1% unless otherwise stated.

ANALYSIS BY
CHATFIELD METHOD

Project #: M42122 Sample #: 004 Analyst: WB Egeland
Vial #: _____ Date: 9/27/2010

MUFFLE FURNACE ASHING RESULTS

Vial weight (A)		13.6595
Vial weight plus sample weight (B)		13.8686
Original sample weight (B-A)	(W1)	0.2091
Weight of vial and sample after ashing (C)		13.7887
Sample weight after ashing (C-A)	(W2)	0.1292

Acid Dissolution Results (After Muffle Furnace Ashing)

Polycarbonate filter weight (D)		0.0160
Filter plus dry sample weight (E)		0.1412g
Sample weight after acid dissolution (E-D)	(W3)	0.1252g
Percent weight of organic material $((W1-W2)/(W1))*100$		38.2%
Percent weight of dolomite/calcite $((W2-W3)/(W1))*100$		1.9%
Estimated upper and lower percent asbestos by TEM scan	Upper	85%
	Lower	65%
Percent weight of asbestos $(W3/W1)*Lower$ to $(W3/W1)*Upper$		38.9 to 50.9%

SECTION 4

MAS, LLC.
PROJECT COC

MAS ID: <u>M51855</u>	Client Job No: _____
Client Name: <u>Materials Analytical Services Atlanta</u>	Client PO: _____
Project Name: <u>ECL AC Resin Pipe Cutting Hand Saw Stu</u>	Date In: <u>9/28/2010</u>
Logged By: <u>ddmount</u>	Client Code: <u>MASCORP</u>

TRANSPORT INFORMATION:

Submitted By: <u>Michael Mount, CIH</u>	Documents: <u>COC</u>
Delivery By: <u>Hand Delivery</u>	_____
Received By: <u>Nancy Sears</u>	Comments for COC: _____
Condition: <u>good</u>	_____

CONTACT INFORMATION:

Contact: <u>Bill Longo</u>	Work Phone: <u>(770) 866-3200</u>	Ext: _____	
Title: <u>First Name: Last Name: Suffix</u>	Other Phone: _____	Ext: _____	
<u>Mr. William Longo</u>	Fax: <u>(770) 866-3259</u>		

SAMPLE INFORMATION:

#	Client ID	Volume	#	Client ID	Volume
000	lab blank	0			
001	A-01-A	1704.3			
002	A-01-B	1696.7			
003	A-01-C	1715.7			
004	A-01-D	1719.5			
005	P-1-A	20.1			
006	P-1-B	21			
007	P-1-C	33			
008	P-1-D	32.3			
009	A-1-A	90.7			
010	A-1-B	89.5			
011	A-1-C	89.3			
012	A-1-D	90			
013	A-1-E	1160			
014	FB-1-1	0			
015	FB-1-2	0			

SIGNATURES

RECEIVED BY:

Nancy Sears

INDUSTRIAL HYGIENE AIR SAMPLING CHAIN OF CUSTODY



3945 Lakefield Court
Suwanee, GA 30024
Phone: 770-866-3200
Fax: 770-866-3259

COMPANY NAME MAS LLC, Sept 14

ADDRESS: _____

PHONE: _____

FAX: _____

PROJECT NUMBER: _____

PROJECT NAME: AC Reso Pipe Cutting, Hand SawWORK AREA DESCRIPTION: ECL Study 1PROJECT REPRESENTATIVE: Mike MountSAMPLING DATE: 9/27/10

Page 1 of 1 225 CFM
74°F
62% RH

TURNAROUND TIMES: _____ 1 DAY _____ 3 DAYS _____ STANDARD 5-7 DAYS

m51855

DATE	SAMPLE NUMBER	SAMPLE LOCATION	SAMPLE MEDIA	ANALYSIS DESIRED	START TIME	STOP TIME	TOTAL TIME MINUTES	PRE FLOW RATE LPM	POST FLOW RATE LPM	AVG. FLOW RATE LPM	Total Volume Liters
9/27	A-01-A	Background, NE	0.8um MCE	7400, 7402	6:35	9:45	190	8.9	9.04	8.97	1704.3
	B	SE		7402				8.9	8.95	8.93	1696.7
	C	SW						9.1	8.95	9.03	1715.7
	D	NW						9.1	8.99	9.05	1719.5
	P-1-A	Personal, On Worker, R		7402	12:12	12:22	10	2.05	1.97	2.01	20.1
	B	L		7402				2.10	2.10	2.10	21.0
	C	R						3.41	3.36	3.39	33.9
	D	L						3.33	3.12	3.23	32.3
	A-1-A	Area, During Cut, NE		7402				9.04	9.10	9.07	90.7
	B	SE		7402				8.95	8.94	8.95	89.5
	C	SW						8.95	8.91	8.93	89.3
	D	NW						8.99	9.00	9.00	90.0
	E	Outside ECL			11:03	1:07	116	10.0	10.0	10.0	1160.0
	FB-1-1	Field Blank - 1		7402			0			0	0
	FB-1-2	- 2		7402			0			0	0
		m51856									
	FAB-1-1	Fabric - Before	EPA Fabric (shirt)	EPA Fabric Method							
	FAB-1-2	- After									

CHAIN OF CUSTODY	NAME	COMPANY	MODE OF TRANSFER	LOG IN DATE	RECEIVED BY	COMPANY
First Transfer by:	<u>Mike Mount</u>	<u>MAS, LLC</u>	<u>Hand</u>	<u>9-28-10</u>	<u>A. Seare</u>	<u>MAS</u>
Second Transfer by:						
Third Transfer by:						

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 1 -

MAS Project: Hand Saw MAS Sample #: M51855-001

Client Sample ID: A-01-A Analysis Date: 9/28/10

0	0	0	0	0	0	
0	0	0	0	0	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	20
1.5	0	0	0.5	0	1	
0	0	0	0	0	0	30
0	0	0	0	0	0	
0	0	0	0	0	0	40
0	0	0	0	0	0	
0	0	0	0	0	0	50
0	0	0	0	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0.5	0	0	0	0	0.5	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

2.0	0	0	0.5	0	1.5	2.0
-----	---	---	-----	---	-----	-----

Pump Flow Rate, Liters/Minute (FR) 8.97

Sample Time, Minutes (T) 190

Total Sample Volume, Liters (V) 1704.3

Total Fibers Counted, Sample (FCS) 2

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E= 2.5 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= < 0.002 fibers/cm³

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 10/1/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 1 -

MAS Project: Hand Saw

MAS Sample #: M51855-002

Client Sample ID: A-01-B

Analysis Date: 9/28/10

0	0	0	0	0	0	
0	0	0	0	0	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	20
1	0	0	1	0	0	
0	0	0	0	0	0	30
0	0	0	0	0	0	
0	0	0	0	0	0	40
0	0	0	0	0	0	
0	0	0	0	0	0	50
2	0	1	0	1	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

Pump Flow Rate, Liters/Minute (FR) 8.93

Sample Time, Minutes (T) 190

Total Sample Volume, Liters (V) 1696.7

Total Fibers Counted, Sample (FCS) 3.0

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E= 3.8 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= < 0.002 fibers/cm³

3.0 0 1 1 1 0 3.0

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 10/1/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 1 -

MAS Project: Hand Saw MAS Sample #: M51855-004

Client Sample ID: A-01-D Analysis Date: 9/28/10

0	0	0	0	0	0	
0	0	0	0	0	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
0	0	0	0	0	0	30
0	0	0	0	0	0	
0	0	0	0	0	0	40
0	0	0	0	0	0	
0.5	0	0	0.5	0	0	50
0	0	0	0	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

0.5	0	0	0.5	0	0	0.5
-----	---	---	-----	---	---	-----

Pump Flow Rate, Liters/Minute (FR) 190

Sample Time, Minutes (T) 9.05

Total Sample Volume, Liters (V) 1719.5

Total Fibers Counted, Sample (FCS) 0.5

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E = 0.6 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C = < 0.002 fibers/cm³

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 10/1/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 1 -

MAS Project: Hand Saw MAS Sample #: M51855-005

Client Sample ID: P-1-A Analysis Date: 9/28/10

15.5	3	1	2	8.5	1	
9.5	0.5	3	1	1	4	10
7.5	2.5	0	0	1	4	
11	0	2	5	3	1	20
6	0	1	1	2	2	
12	1	1.5	1	7	1.5	30
8.5	0	3	3.5	2	0	
18	0	5.5	1	5.5	6	40
11	2	2	4.5	1.5	1	
2	2					50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

101.0	11	19	19	31.5	20.5	101.0
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Pump Flow Rate, Liters/Minute (FR) 10
Sample Time, Minutes (T) 2.01

Total Sample Volume, Liters (V) 20.1

Total Fibers Counted, Sample (FCS) 101

Total Fields Counted, Samples (FLS) 46

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²
E= 279.7 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³
C= 5.36 fibers/cm³

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 10/1/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 1 -

MAS Project: Hand Saw MAS Sample #: M51855-006

Client Sample ID: P-1-B Analysis Date: 9/28/10

1	0	1	0	0	0	
3	0	1	2	0	0	10
5	4	0	1	0	0	
0	0	0	0	0	0	20
7	1	1	2	3	0	
1	0	0	1	0	0	30
0	0	0	0	0	0	
6	1	0	3	1	1	40
4.5	0.5	0	4	0	0	
4.5	2	0	0	2	0.5	50
5	0.5	1	1	2	0.5	
4	0.5	0	3.5	0	0	60
1.5	0	0	0.5	0	1	
4.5	1	1	0	2	0.5	70
2	2	0	0	0	0	
5.5	2.5	0	0	3	0	80
3.5	0	1	0	0	2.5	
6	3.5	0	1	1.5	0	90
2	0	0	1	0	1	
4.5	0	0.5	1	0	3	100

Pump Flow Rate, Liters/Minute (FR) 2.1

Sample Time, Minutes (T) 10

Total Sample Volume, Liters (V) 21.0

Total Fibers Counted, Sample (FCS) 70.5

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 89.8 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 1.65 fibers/cm³

70.5	18.5	6.5	21	14.5	10	70.5
------	------	-----	----	------	----	------

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 10/1/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 1 -

MAS Project: Hand Saw

MAS Sample #: M51855-007

Client Sample ID: P-1-C

Analysis Date: 9/28/10

24.5	1	9	10	4	0.5	
14.5	0	6.5	4.5	1	2.5	10
14.5	3.5	3	1	4.5	2.5	
22.5	5	2	8.5	1	6	20
10	0	2	2	2	4	
15	1	5.5	4	2.5	2	30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 3.39

Sample Time, Minutes (T) 10

Total Sample Volume, Liters (V) 33.9

Total Fibers Counted, Sample (FCS) 101

Total Fields Counted, Samples (FLS) 30

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 30

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 428.9 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 4.87 fibers/cm³

101.0 10.5 28 30 15 17.5 101.0

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 10/1/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 1 -

MAS Project: Hand Saw MAS Sample #: M51855-008

Client Sample ID: P-1-D Analysis Date: 9/28/10

9.5	3.5	0	3	1	2	
8	0	2	1	5	0	10
1	1	0	0	0	0	
17	1	0	1	11	4	20
9.5	4	3.5	0	1	1	
6	1.5	2.5	1	1	0	30
4	0	1	3	0	0	
10	0	2	1	6	1	40
9.5	1	0	4	2.5	2	
5.5	1.5	2	0	2	0	50
11	1.5	1	6	1	1.5	
5.5	2	1	2	0.5	0	60
6.5	0	0.5	6			
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 3.23

Sample Time, Minutes (T) 10

Total Sample Volume, Liters (V) 32.3

Total Fibers Counted, Sample (FCS) 103

Total Fields Counted, Samples (FLS) 63

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

$$E = \frac{FCS}{FLS} = \frac{103}{63} = 208.3 \text{ fibers/mm}^2$$

Calc. of Fiber Conc.(C) in Fibers/cm³

$$C = \frac{E}{V} = \frac{208.3}{84} = 2.48 \text{ fibers/cm}^3$$

103.0

17 15.5 28 31 11.5

103.0

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 10/1/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 1 -

MAS Project: Hand Saw MAS Sample #: M51855-009

Client Sample ID: A-1-A Analysis Date: 9/28/10

13	3.5	4.5	2	0.5	2.5	
4.5	2	1	0	0	1.5	10
17.5	2.5	9.5	0	0	5.5	
16.5	0.5	6.5	0.5	0.5	8.5	20
20.5	1	11.5	1	2	5	
17.5	7	2.5	3	4	1	30
12	3	9				
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 9.07

Sample Time, Minutes (T) 10

Total Sample Volume, Liters (V) 90.7

Total Fibers Counted, Sample (FCS) 101.5

Total Fields Counted, Samples (FLS) 32

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 404.1 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 1.72 fibers/cm³

101.5 19.5 44.5 6.5 7 24 **101.5**

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 10/1/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 1 -

MAS Project: Hand Saw MAS Sample #: M51855-010

Client Sample ID: A-1-B Analysis Date: 9/28/10

11.5	0	4	3.5	0	4	
22	0.5	1	13.5	5	2	10
10	0	1	2.5	1	5.5	
9.5	0.5	2	5	2	0	20
5	0	0	1	3	1	
14.5	1	3	5	2.5	3	30
14.5	0.5	1	1	0	12	
8	4.5	2.5	1	0	0	40
6.5	6.5					
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 10

Sample Time, Minutes (T) 8.95

Total Sample Volume, Liters (V) 89.5

Total Fibers Counted, Sample (FCS) 101.5

Total Fields Counted, Samples (FLS) 41

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E= 315.4 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 1.36 fibers/cm³

101.5 13.5 14.5 32.5 13.5 27.5 101.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 10/1/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 1 -

MAS Project: Hand Saw

MAS Sample #: M51855-011

Client Sample ID: A-1-C

Analysis Date: 9/28/10

4	3	1	0	0	0	
12.5	4	0	0	1	7.5	10
11	0	0	3.5	2.5	5	
8	1	3	0.5	0.5	3	20
7	0.5	0	0.5	4	2	
9	1.5	0	0	6.5	1	30
15.5	0	4.5	4.5	1	5.5	
5	1	3.5	0	0	0.5	40
11	1.5	0.5	2	3.5	3.5	
18.5	16	2.5				50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR)

8.93

Sample Time, Minutes (T)

10

Total Sample Volume, Liters (V)

89.3

Total Fibers Counted, Sample (FCS)

101.5

Total Fields Counted, Samples (FLS)

47

Total Fibers Counted, Blank (FCB)

0

Total Fields Counted, Blank (FLB)

100

Area of Filter, mm² (AF)

385

Graticule Field Area, MM² (GFA)

0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 275.1 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 1.19 fibers/cm³

101.5 28.5 15 11 19 28 101.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 10/1/2010

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 1 .

MAS Project: Hand Saw

MAS Sample #: M51855-015

Client Sample ID: FB-1-2

Analysis Date: 9/28/10

0	0	0	0	0	0	
0	0	0	0	0	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
0	0	0	0	0	0	30
0	0	0	0	0	0	
0	0	0	0	0	0	40
0	0	0	0	0	0	
0	0	0	0	0	0	50
0	0	0	0	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

Pump Flow Rate, Liters/Minute (FR) 0

Sample Time, Minutes (T) 0

Total Sample Volume, Liters (V)	0
---------------------------------	---

Total Fibers Counted, Sample (FCS)	0
------------------------------------	---

Total Fields Counted, Samples (FLS)	100
-------------------------------------	-----

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank(FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM ² (GFA)	0.00785
---	---------

Calc. of Fiber Density (E) in Fibers/ mm²

$$E = 7.0 \text{ fibers/mm}^2$$

Calc. of Fiber Conc.(C) in Fibers/cm³

C= NA fibers/cm³

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 10/1/2010

MAS TEM ANALYSIS

M51855-001

CLIENT NAME: Materials Analytical Services Atlanta

CLIENT SAMPLE ID: A-01-A

7402 ANALYSIS

Sample Area/ Volume:	1704.3	Liters	Date Analyzed:	10/4/2010
Filter Type:	MCE 25mm		Analyst:	A. Keeton
Pore size:	0.8		Scope Number:	2
Effective Filter Area:	385		Accelerating Voltage:	100 KV
Sample type:	Air		Indicated Mag:	25 KX
Analysis type:	7402		Screen Mag:	20 KX
Grid Acceptance	YES	3 %	Grid_box:	7707

Number of grids:	3	#1:	110	#3:	110	Asbestos	0
Number of openings:	40	#2:	111	#4:	111	Non-asbestos	0
Average Grid Size:	0.012210	Total Area Analyzed:	0.488				

% Asbestos **0**

Sur#	SourceID	Filter Type	Size	Mo p's	SATD	FDS
NSD	C6-B1					
NSD	B2					
NSD	B3					
NSD	B4					
NSD	B5					
NSD	B6					
NSD	E7					
NSD	E8					
NSD	E9					
NSD	E10					
NSD	G4					
NSD	G5					
NSD	G6					
NSD	G7					
NSD	G8					
NSD	G9					
NSD	G10					
NSD	I5					
NSD	I6					
NSD	I7					
NSD	C7-B4					
NSD	B5					
NSD	B6					
NSD	B7					
NSD	B8					
NSD	B9					
NSD	B10					
NSD	H6					

NSD	H7	
NSD	H8	
NSD	H9	
NSD	H10	
NSD	C8-A8	
NSD	A9	
NSD	A10	
NSD	D2	
NSD	D3	
NSD	D4	
NSD	H7	
NSD	H8	

Grid Op

40

M51855 001 Sample Comments

NE background

MAS TEM ANALYSIS

M51855-002

CLIENT NAME: Materials Analytical Services Atlanta

CLIENT SAMPLE ID: A-01-B

7402 ANALYSIS

Sample Area/ Volume: 1696.7 Liters
 Filter Type: MCE 25mm
 Pore size: 0.8
 Effective Filter Area: 385
 Sample type: Air
 Analysis type: 7402
 Grid Acceptance: YES 3 %

Date Analyzed: 10/4/2010
 Analyst: A.Keeton
 Scope Number: 2
 Accelerating Voltage: 100 KV
 Indicated Mag: 25 KX
 Screen Mag: 20 KX
 Grid_box: 7707

Number of grids:	3	#1:	110	#3:	110	Asbestos	0
Number of openings:	40	#2:	111	#4:	111	Non-asbestos	0
Average Grid Size:	0.012210	Total Area Analyzed:	0.488				
% Asbestos							0

Str#	SquareID	Filter Type	Size	Morph	SABD	EDS
NSD	D6-A4					
NSD	A5					
NSD	A6					
NSD	A8					
NSD	A9					
NSD	A10					
NSD	B5					
NSD	B6					
NSD	B7					
NSD	B8					
NSD	B9					
NSD	B10					
NSD	D4					
NSD	D5					
NSD	D6					
NSD	D7					
NSD	D8					
NSD	D9					
NSD	D10					
NSD	F7					
NSD	D7-F10					
NSD	G2					
NSD	G3					
NSD	G4					
NSD	G5					
NSD	H6					
NSD	H7					
NSD	H8					

NSD	H9	
NSD	H10	
NSD	D8-B5	
NSD	B6	
NSD	B7	
NSD	D6	
NSD	D7	
NSD	D8	
NSD	D9	
NSD	D10	
NSD	G1	
NSD	G2	

Grid Op
40

M51855 002 Sample Comments

SE background

MAS TEM ANALYSIS

M51855-005

CLIENT NAME: Materials Analytical Services Atlanta

CLIENT SAMPLE ID: P-1-A

7402 ANALYSIS

Sample Area/ Volume: 20.1 Liters
 Filter Type: MCE 25mm
 Pore size: 0.8
 Effective Filter Area: 385
 Sample type: Air
 Analysis type: 7402
 Grid Acceptance: YES 5 %

Date Analyzed: 9/29/2010
 Analyst: A. Keeton
 Scope Number: 2
 Accelerating Voltage: 100 KV
 Indicated Mag: 25 KX
 Screen Mag: 20 KX
 Grid box: 7707

Number of grids: 3 #1: 110 #3: 110
 Number of openings: 40 #2: 111 #4: 111
 Average Grid Size: 0.012210 Total Area Analyzed: 0.488

Asbestos 62
 Non-asbestos 2

% Asbestos 96.88

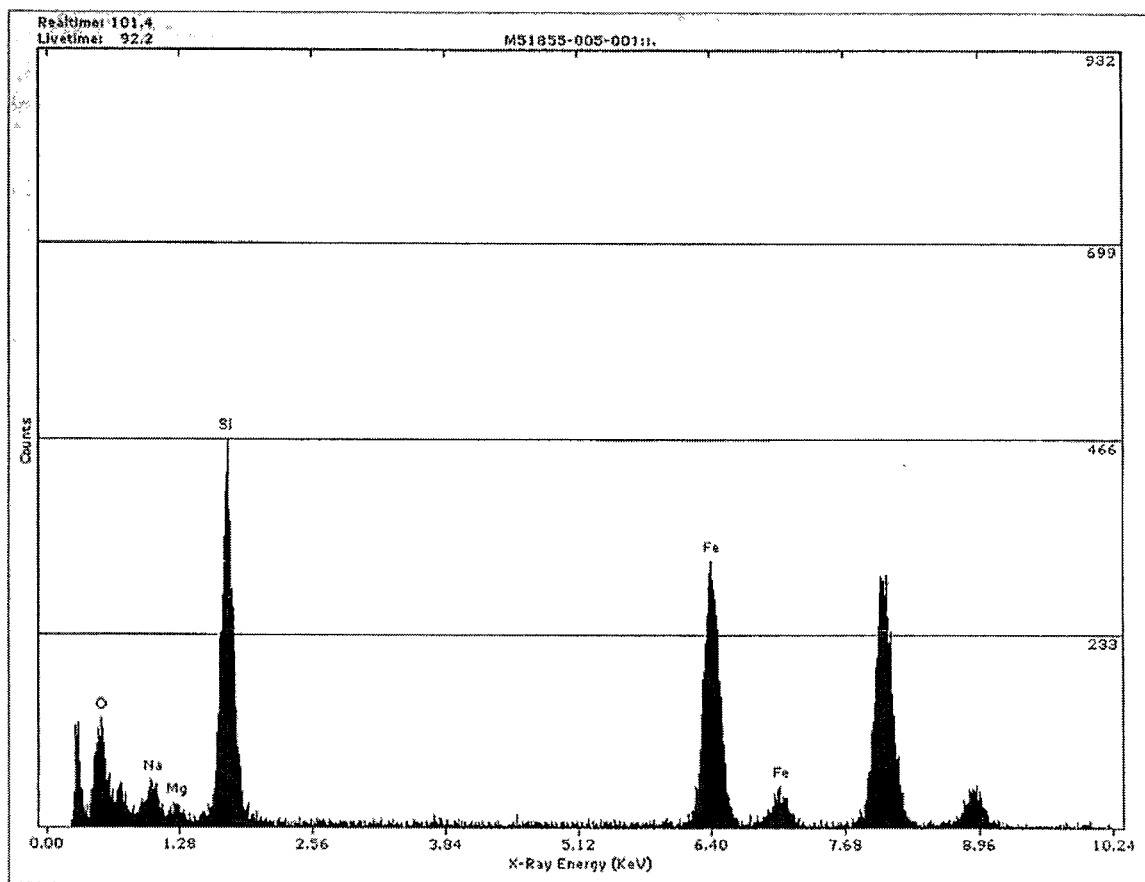
S #	Sample ID	Filter Type	Size	Morph	SAED	Notes
1	E6-B5	Crocidolite	8.2 0.45	Amphibole	Amphibole	✓
2	B8	Crocidolite	5.1 0.3	Amphibole	Amphibole	✓
3	B9	Crocidolite	14 0.5	Amphibole	Amphibole	✓
4		Crocidolite	5.5 0.8	Amphibole	Amphibole	✓
5		Anthophyllite	5.7 1	Amphibole	Amphibole	✓
6		Anthophyllite	9 0.45	Amphibole	Amphibole	✓
NSD	C4					
7	C5	Anthophyllite	25.6 1.5	Amphibole	Amphibole	✓
8		Anthophyllite	17.7 0.3	Amphibole	Amphibole	✓
9		Crocidolite	6.5 0.4	Amphibole	Amphibole	✓
10		Crocidolite	5.3 0.45	Amphibole	Amphibole	✓
11		Anthophyllite	5.5 0.6	Amphibole	Amphibole	
12		Anthophyllite	6 0.5	Amphibole	Amphibole	
13	C8	Crocidolite	18 0.3	Amphibole	Amphibole	
14	C9	Anthophyllite	11.7 0.6	Amphibole	Amphibole	
15		Anthophyllite	5.8 0.8	Amphibole	Amphibole	
16		Anthophyllite	6.8 1	Amphibole	Amphibole	
17		Crocidolite	5.5 0.4	Amphibole	Amphibole	
18		Crocidolite	10.5 0.4	Amphibole	Amphibole	
19		Anthophyllite	18.7 0.6	Amphibole	Amphibole	
20	C10	Anthophyllite	5.9 0.6	Amphibole	Amphibole	✓
21	D8	Crocidolite	13.5 0.45	Amphibole	Amphibole	
22		Crocidolite	24.3 1.6	Amphibole	Amphibole	
23		Anthophyllite	10.8 1.8	Amphibole	Amphibole	
24		Anthophyllite	9 1.5	Amphibole	Amphibole	
25		Crocidolite	22.5 1.1	Amphibole	Amphibole	
NSD	D9					
26	D10	NA	6.9 0.45	Ambiguous	Ambiguous	

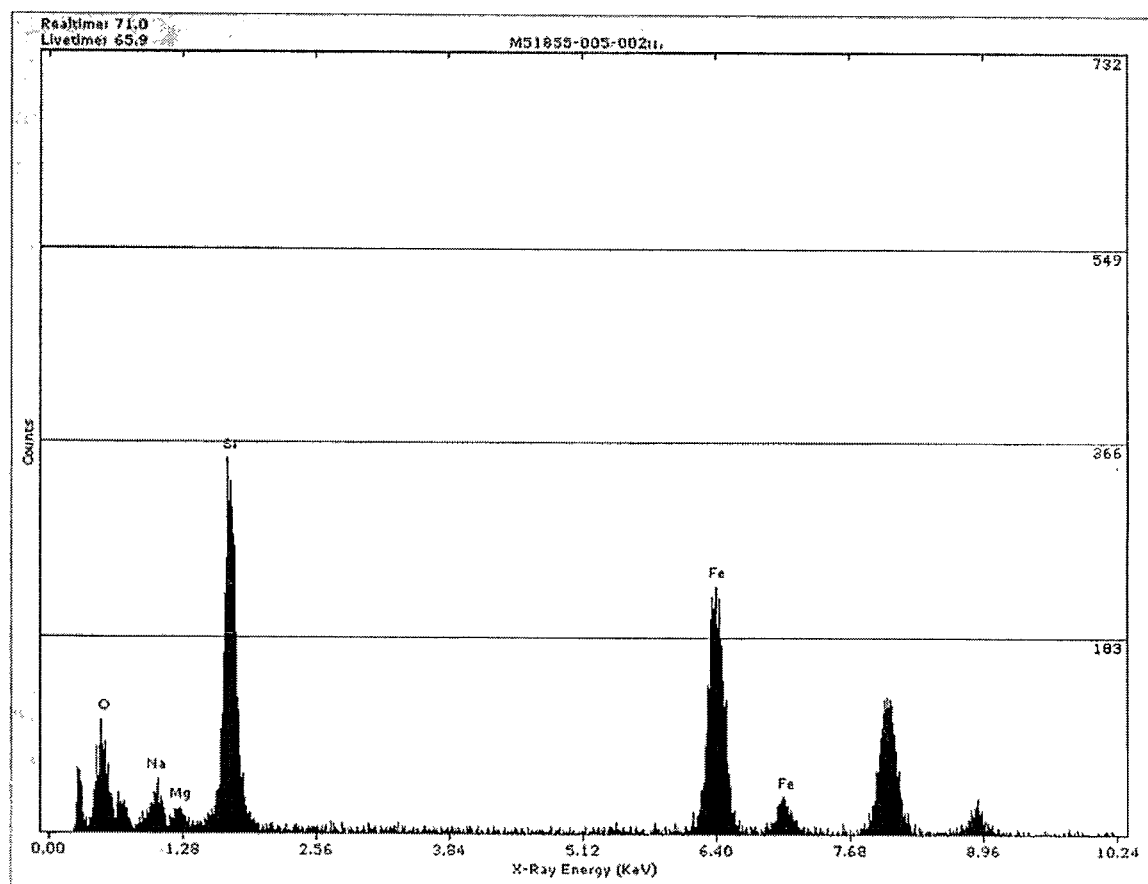
27		Anthophyllite	5.7	0.6	Amphibole	Amphibole	
28		Anthophyllite	6.7	0.3	Amphibole	Amphibole	
29	E7	Anthophyllite	5.2	0.45	Amphibole	Amphibole	
30		Crocidolite	20.7	0.5	Amphibole	Amphibole	
31	E8	Anthophyllite	6.5	1	Amphibole	Amphibole	
32		Anthophyllite	15.7	1.5	Amphibole	Amphibole	
33		Anthophyllite	11.2	0.8	Amphibole	Amphibole	
34		Anthophyllite	8.8	0.6	Amphibole	Amphibole	
35		Anthophyllite	13	0.5	Amphibole	Amphibole	
36		Anthophyllite	5.9	0.4	Amphibole	Amphibole	
37		Crocidolite	9.6	0.3	Amphibole	Amphibole	
38		Crocidolite	32.4	0.3	Amphibole	Amphibole	
39		Crocidolite	5.3	0.45	Amphibole	Amphibole	
40	E9	Crocidolite	9.6	0.45	Amphibole	Amphibole	
41		Crocidolite	5.2	0.8	Amphibole	Amphibole	
NSD	E10						
42	E7-B2	Anthophyllite	9	0.5	Amphibole	Amphibole	
43		Anthophyllite	14.7	0.5	Amphibole	Amphibole	
NSD	B3						
44	B4	Anthophyllite	9.8	1	Amphibole	Amphibole	
45		Crocidolite	6.5	1	Amphibole	Amphibole	
46	B5	Crocidolite	14.7	0.45	Amphibole	Amphibole	
47		Crocidolite	6.3	0.3	Amphibole	Amphibole	
48	B8	Crocidolite	9.5	0.3	Amphibole	Amphibole	
49	B9	Anthophyllite	5.9	0.6	Amphibole	Amphibole	
50		Anthophyllite	16.7	1	Amphibole	Amphibole	
51		Anthophyllite	5.3	0.3	Amphibole	Amphibole	
52	B10	Crocidolite	7.1	0.3	Amphibole	Amphibole	
NSD	D2						
NSD	D3						
53	D4	Crocidolite	8	1	Amphibole	Amphibole	
NSD	E1						
NSD	E2						
NSD	E3						
NSD	E4						
54	G3	Crocidolite	9.8	1	Amphibole	Amphibole	
NSD	G4						
55	G5	Anthophyllite	13.1	1	Amphibole	Amphibole	
56		Crocidolite	6.9	0.3	Amphibole	Amphibole	
NSD	G6						
NSD	G7						
57	G8	Anthophyllite	9	0.3	Amphibole	Amphibole	
58		Anthophyllite	40.5	1	Amphibole	Amphibole	
59	E8-B7	Anthophyllite	10.3	1	Amphibole	Amphibole	
60		Crocidolite	6.5	0.5	Amphibole	Amphibole	
61		Anthophyllite	28.1	0.45	Amphibole	Amphibole	
62	NA		13	0.4	Ambiguous	Ambiguous	
NSD	B8						
NSD	C2						
63	G3	Anthophyllite	11.2	0.5	Amphibole	Amphibole	
64		Crocidolite	18	0.6	Amphibole	Amphibole	
65		Anthophyllite	9	0.4	Amphibole	Amphibole	
NSD	G8						

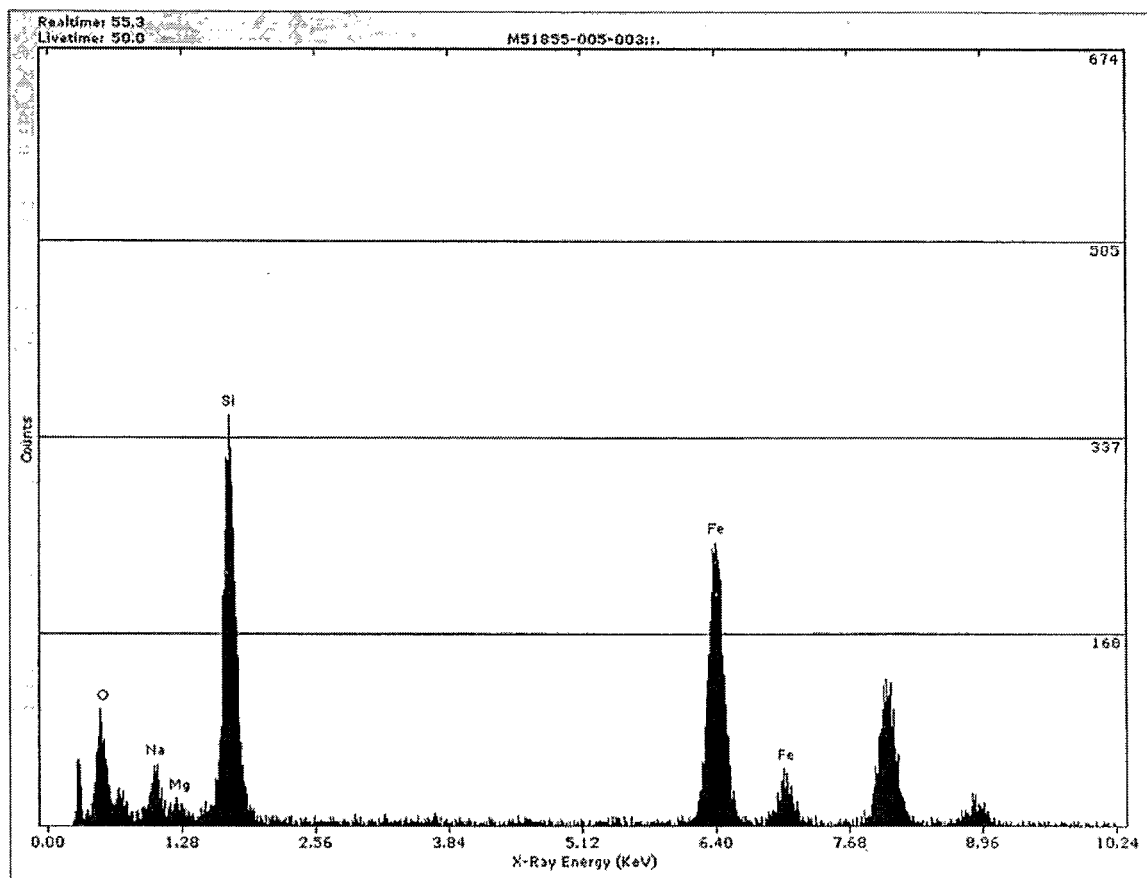
Grid Op
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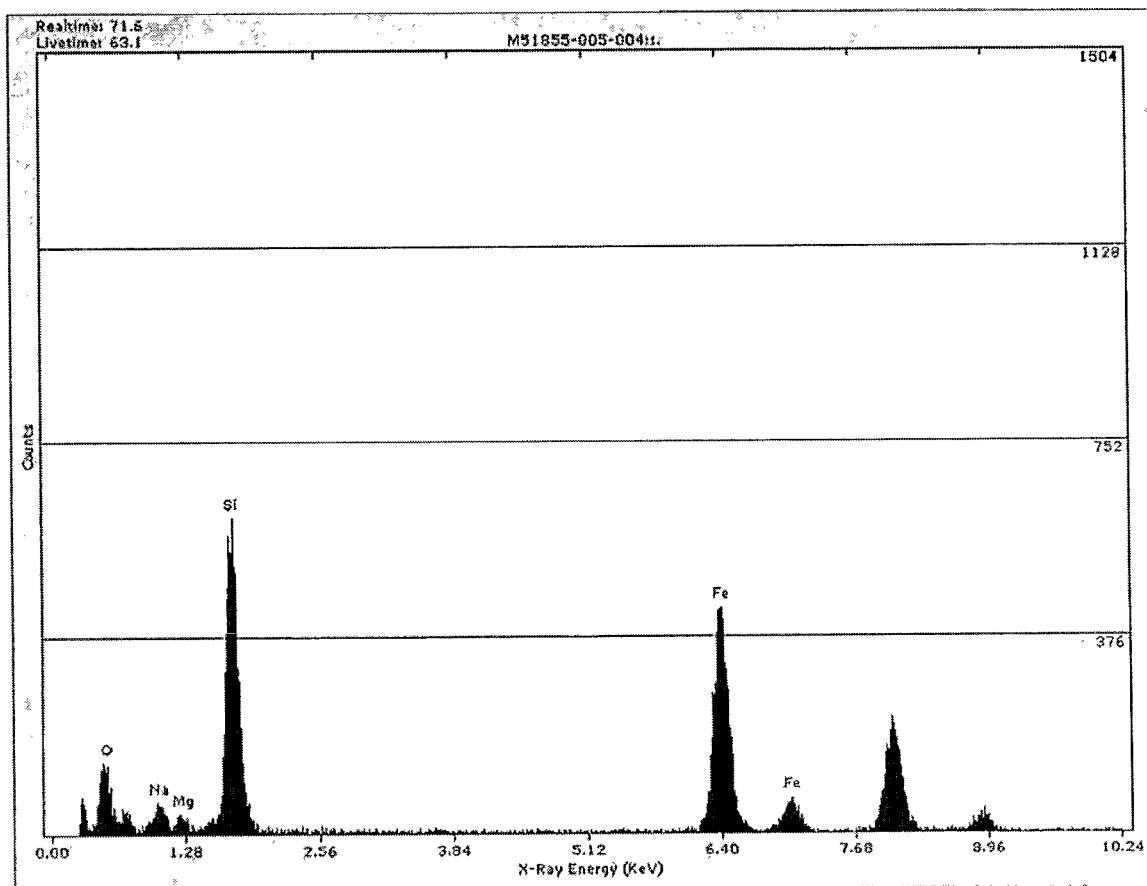
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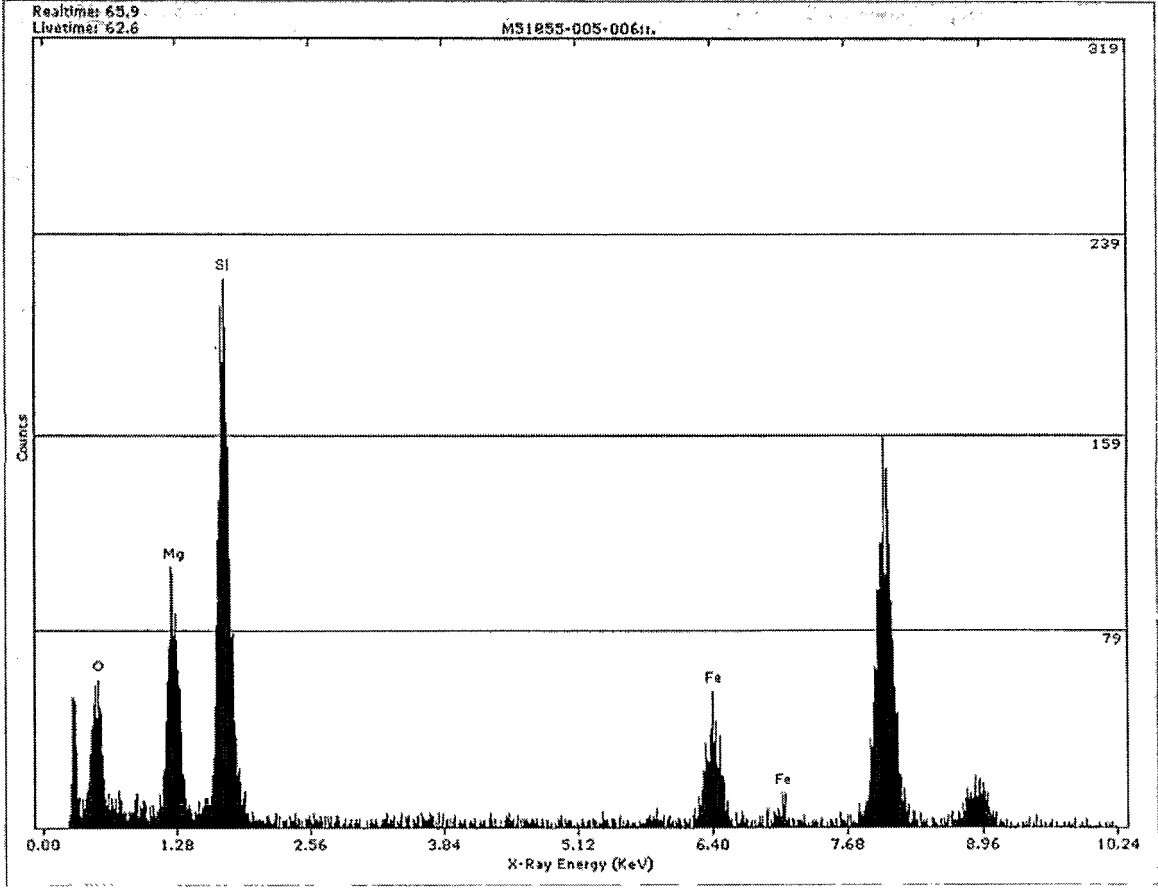
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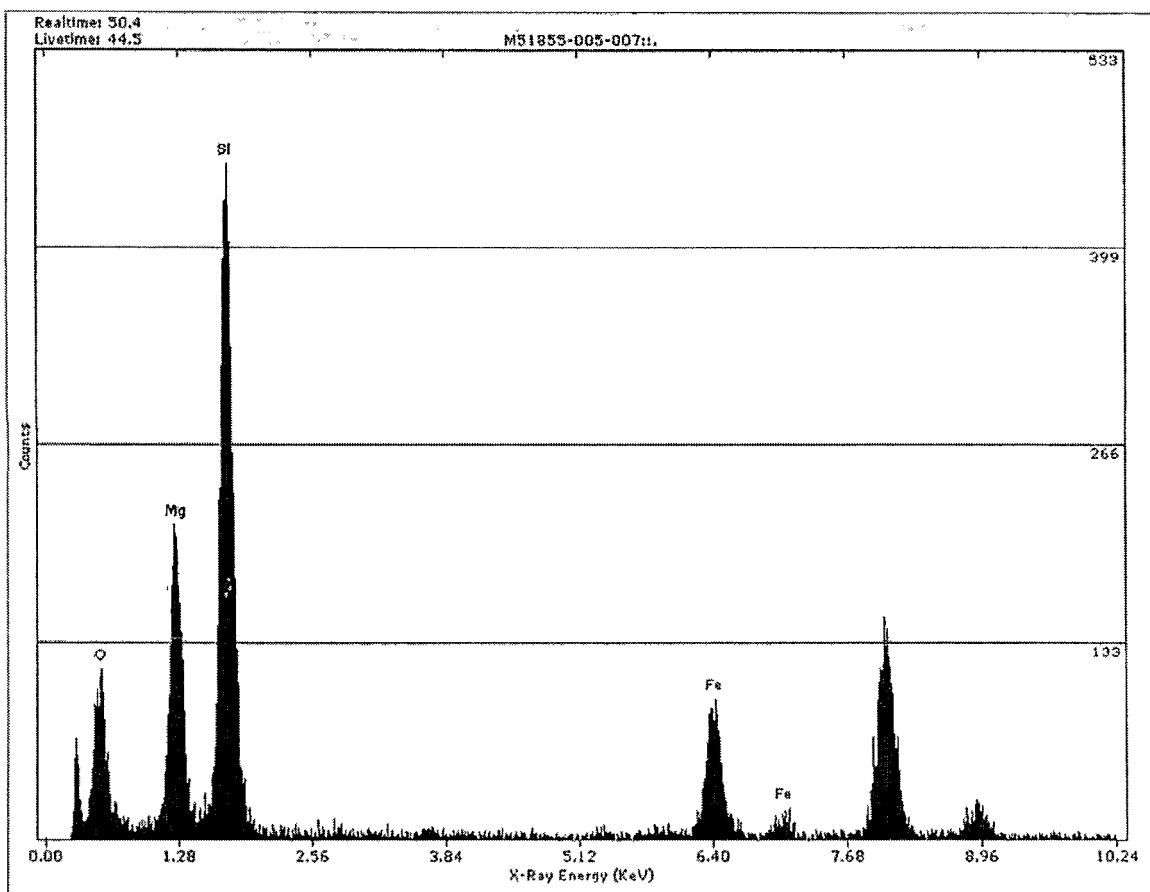


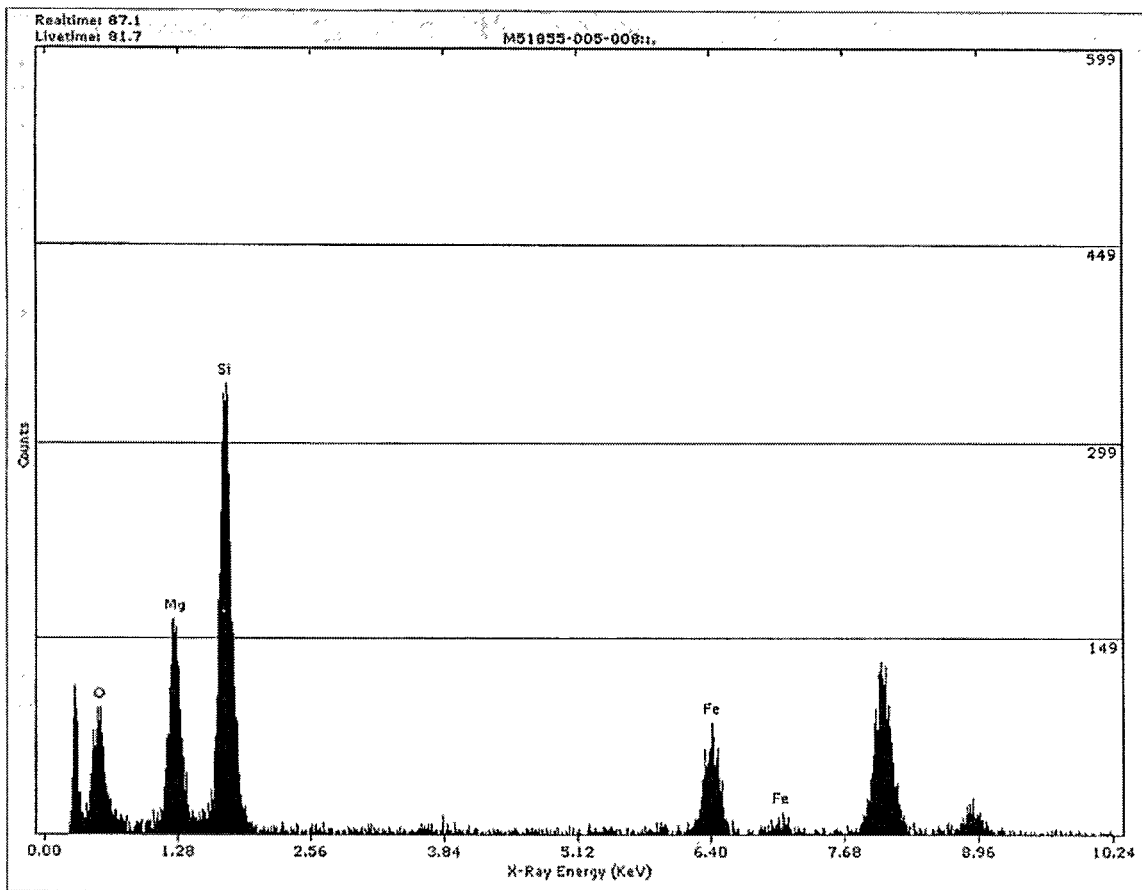


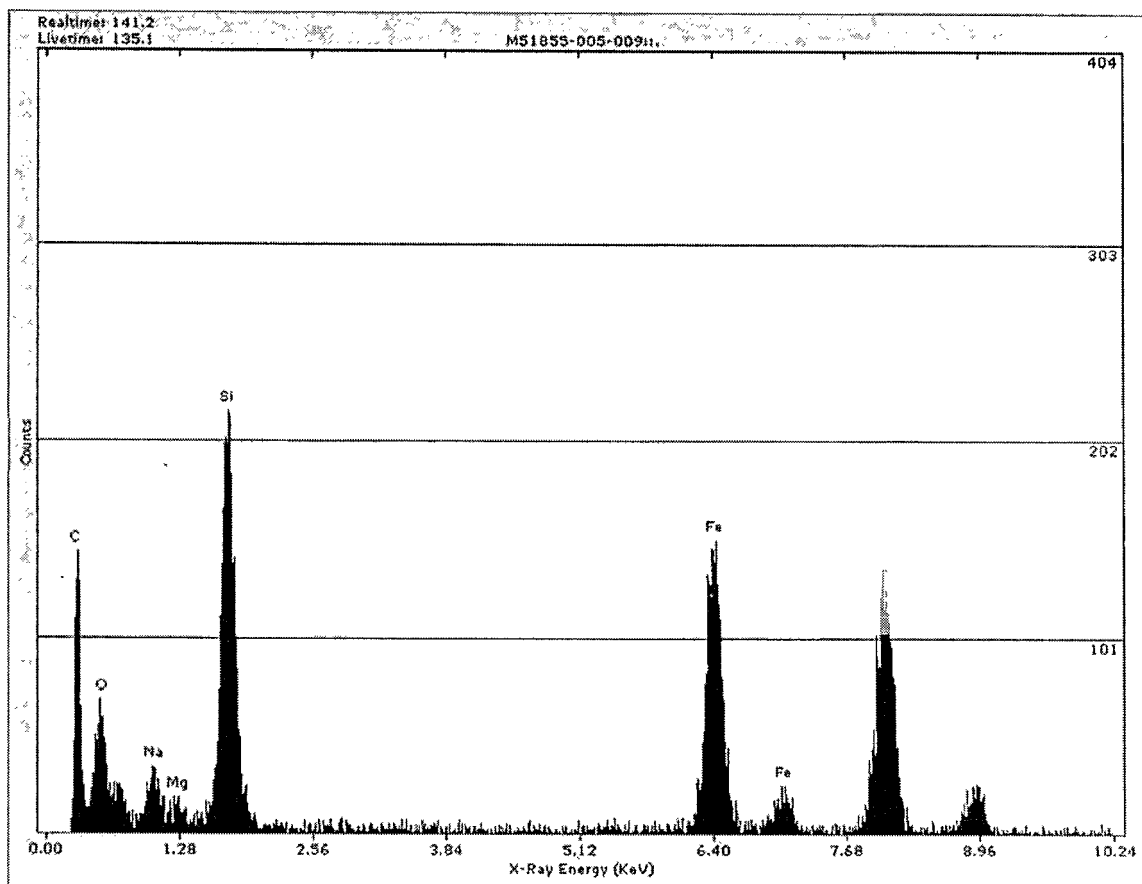


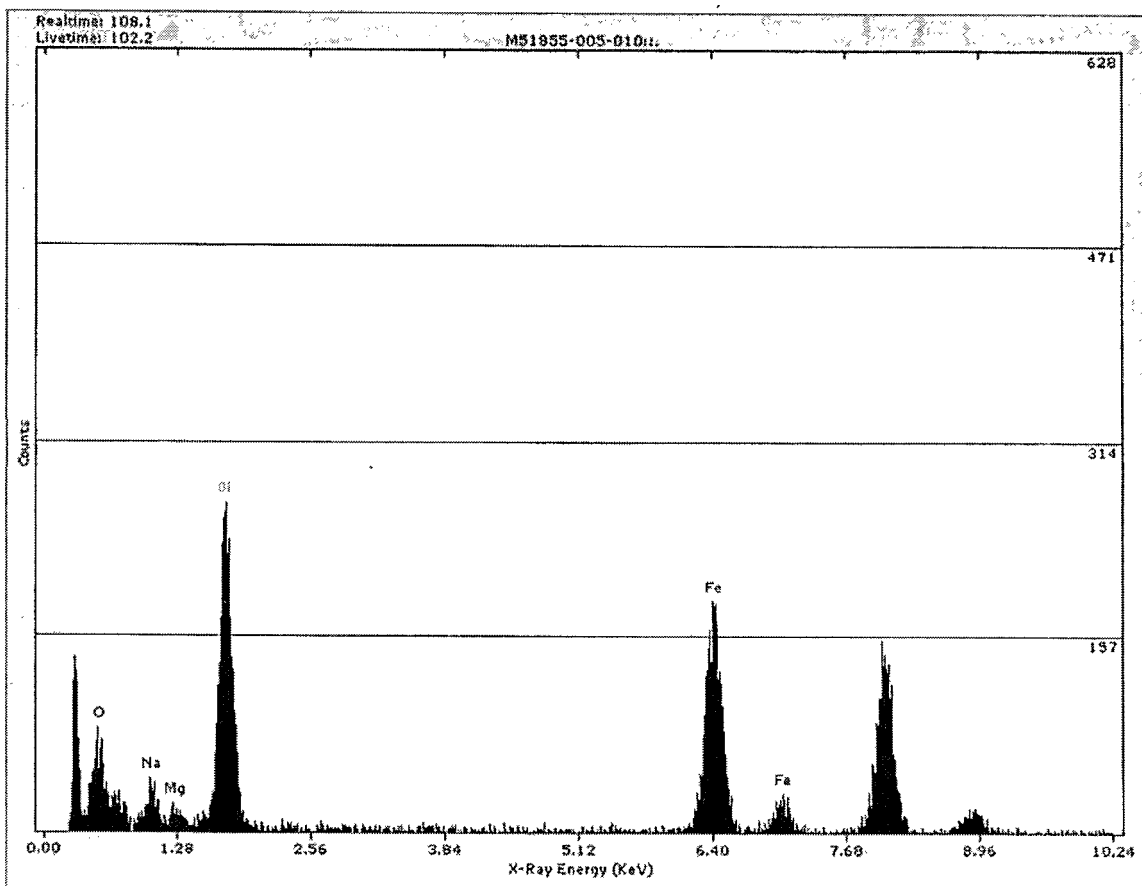


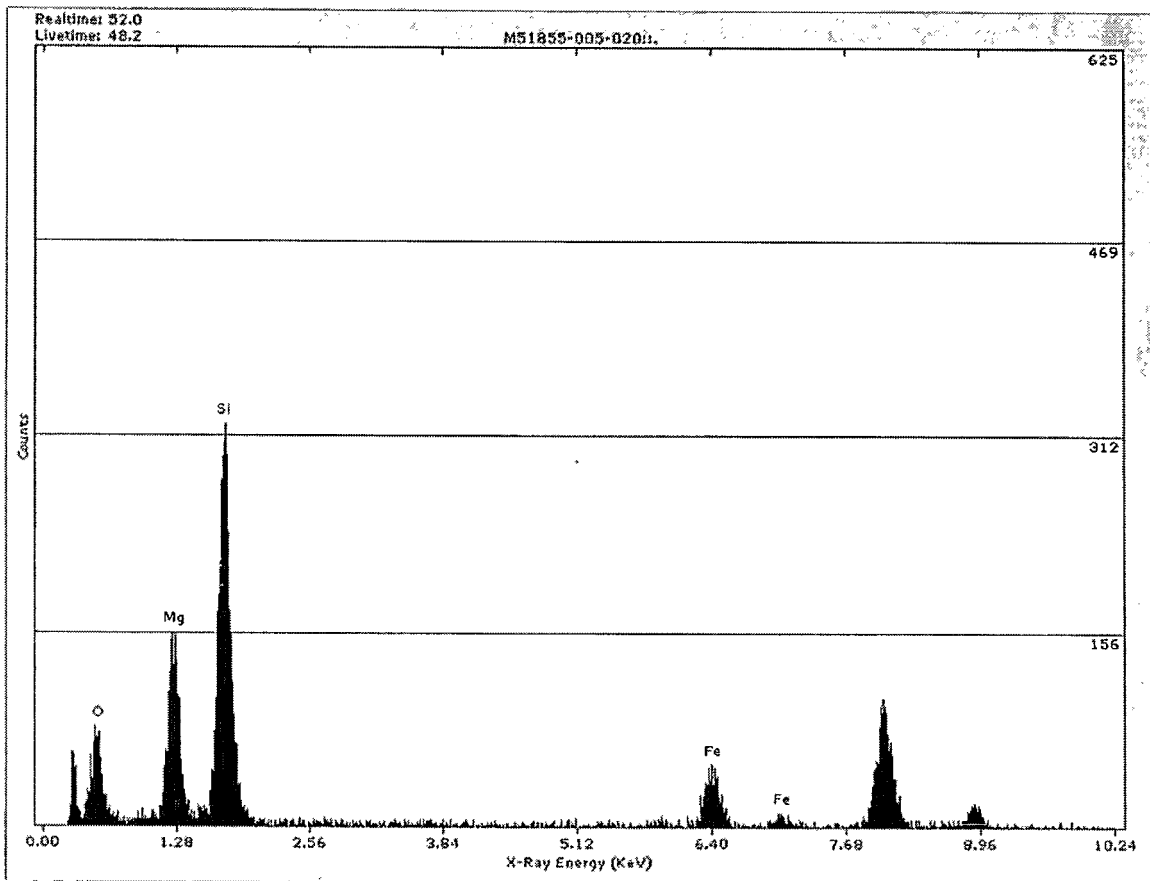


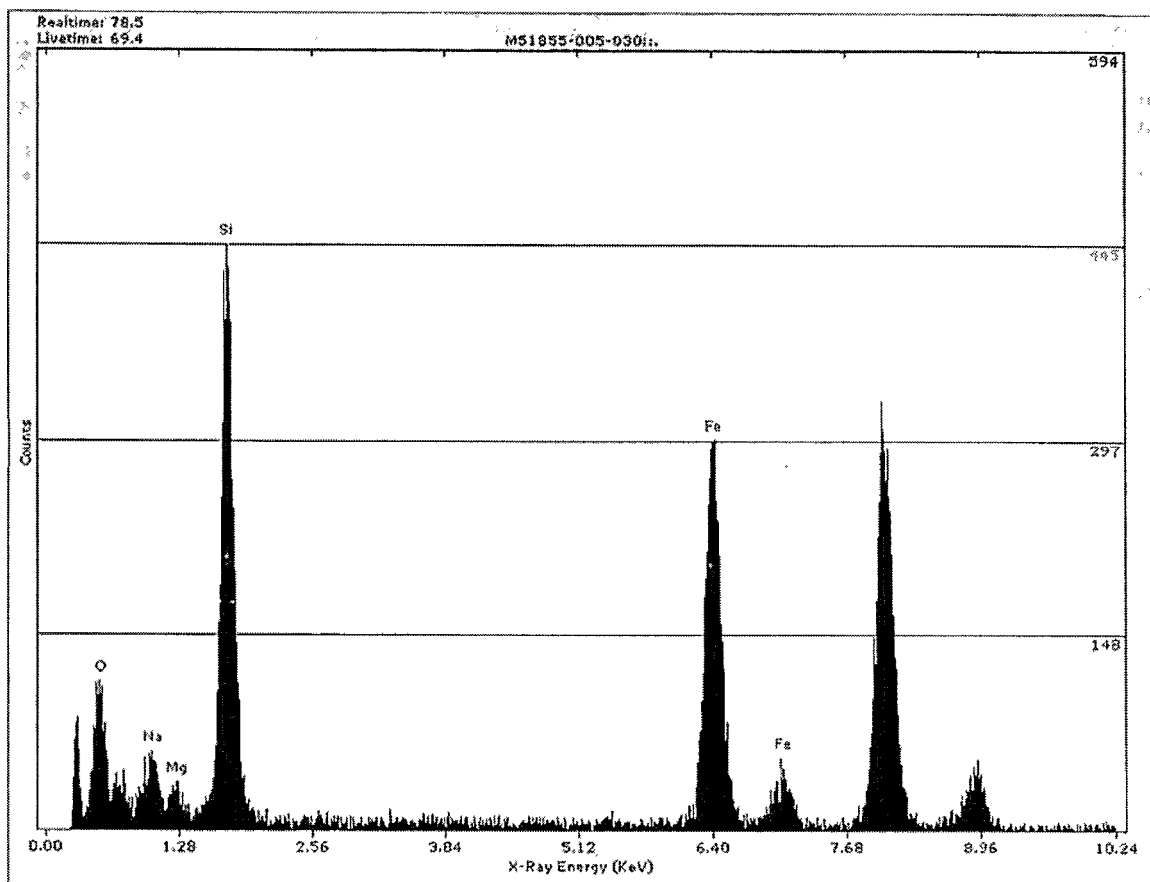


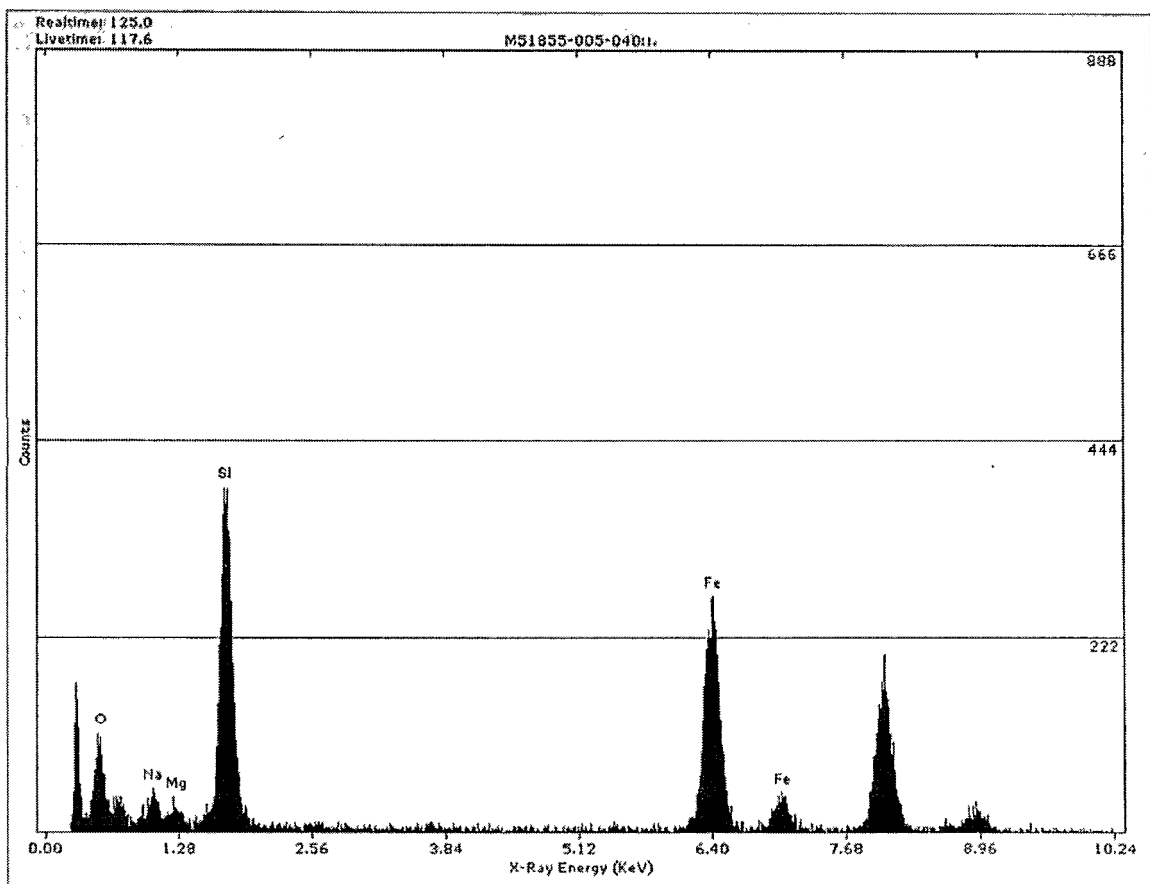


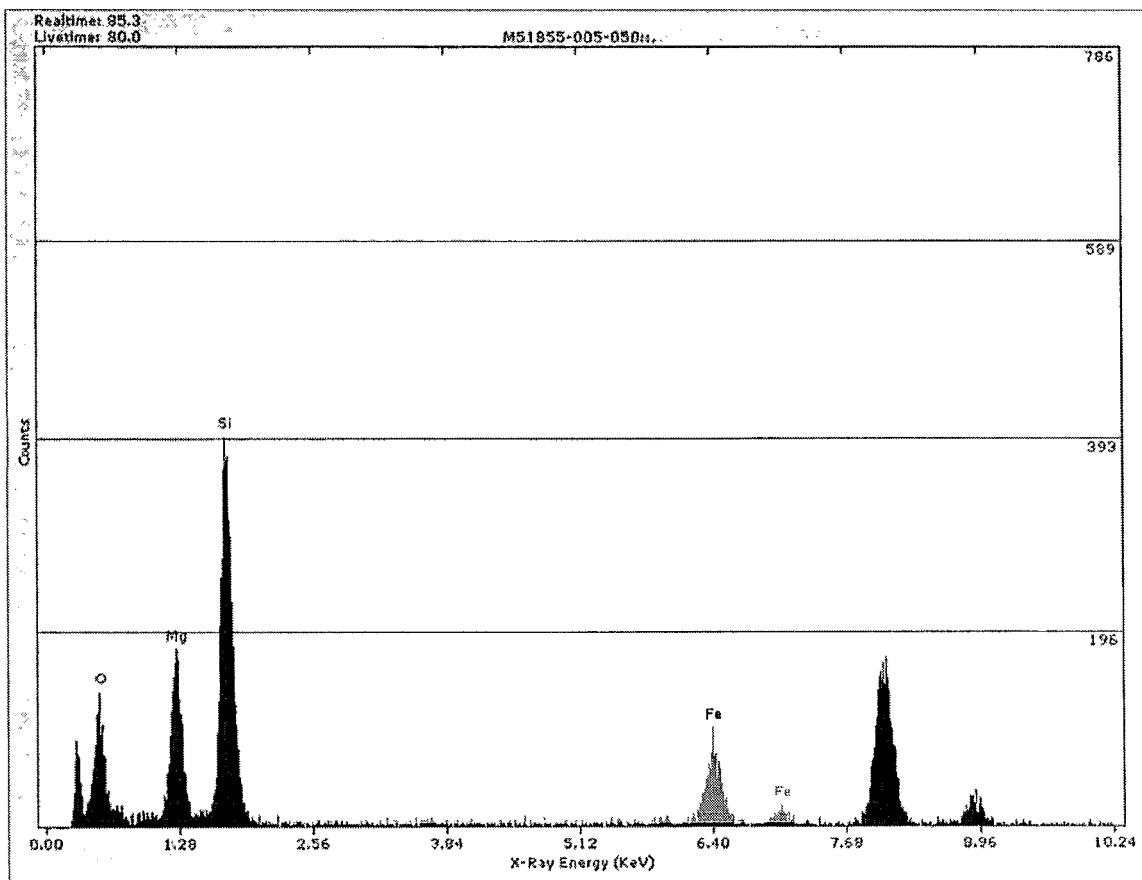


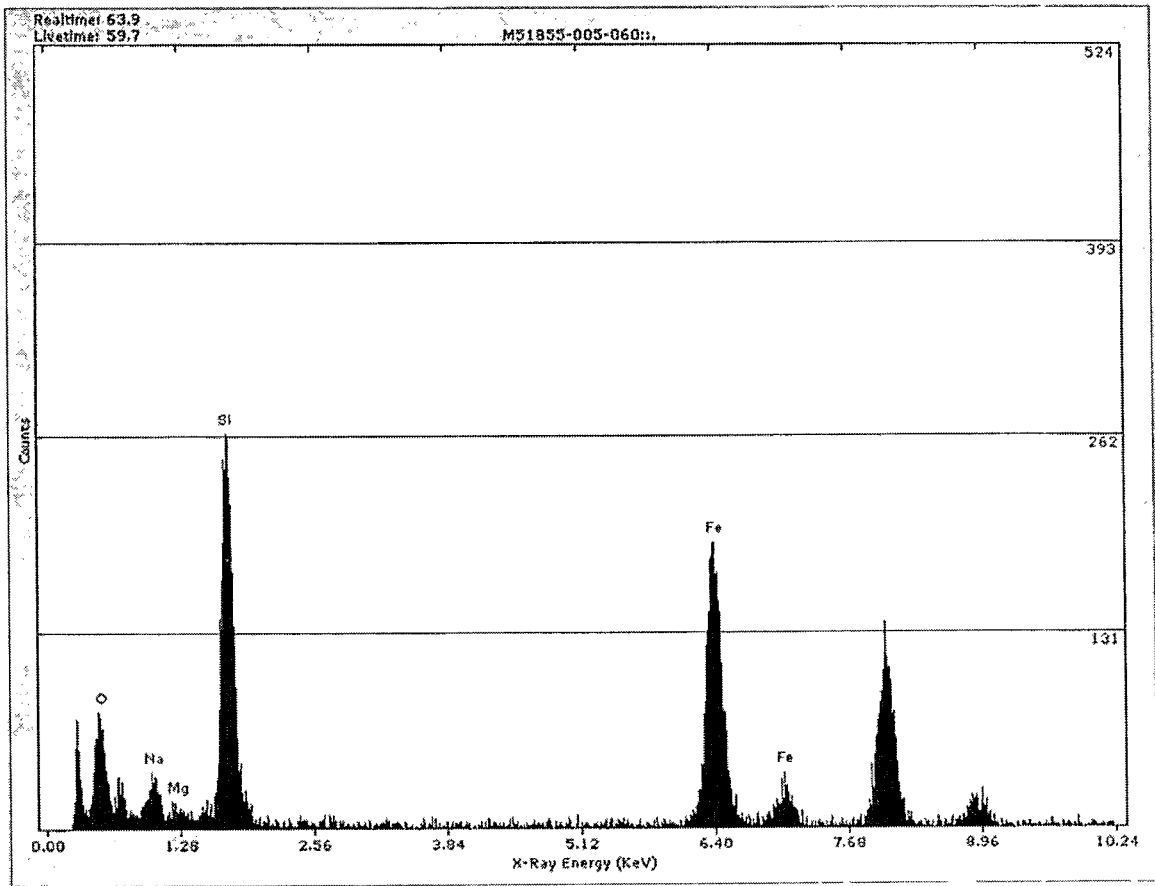












MAS TEM ANALYSIS

M51855-006

CLIENT NAME: Materials Analytical Services Atlanta

CLIENT SAMPLE ID:

P-1-B

7402 ANALYSIS

Sample Area/ Volume: 21 Liters
 Filter Type: MCE 25mm
 Pore size: 0.8
 Effective Filter Area: 385
 Sample type: Air
 Analysis type: 7402
 Grid Acceptance: YES 3 %

Date Analyzed: 10/4/2010
 Analyst: A Keeton
 Scope Number: 2
 Accelerating Voltage: 100 KV
 Indicated Mag: 25 KX
 Screen Mag: 20 KX
 Grid_box: 7707

Number of grids: 3 #1: 110 #3: 110

Number of openings: 40 #2: 111 #4: 111

Asbestos 22

Non-asbestos 2

Average Grid Size: 0.012210 Total Area Analyzed: 0.488

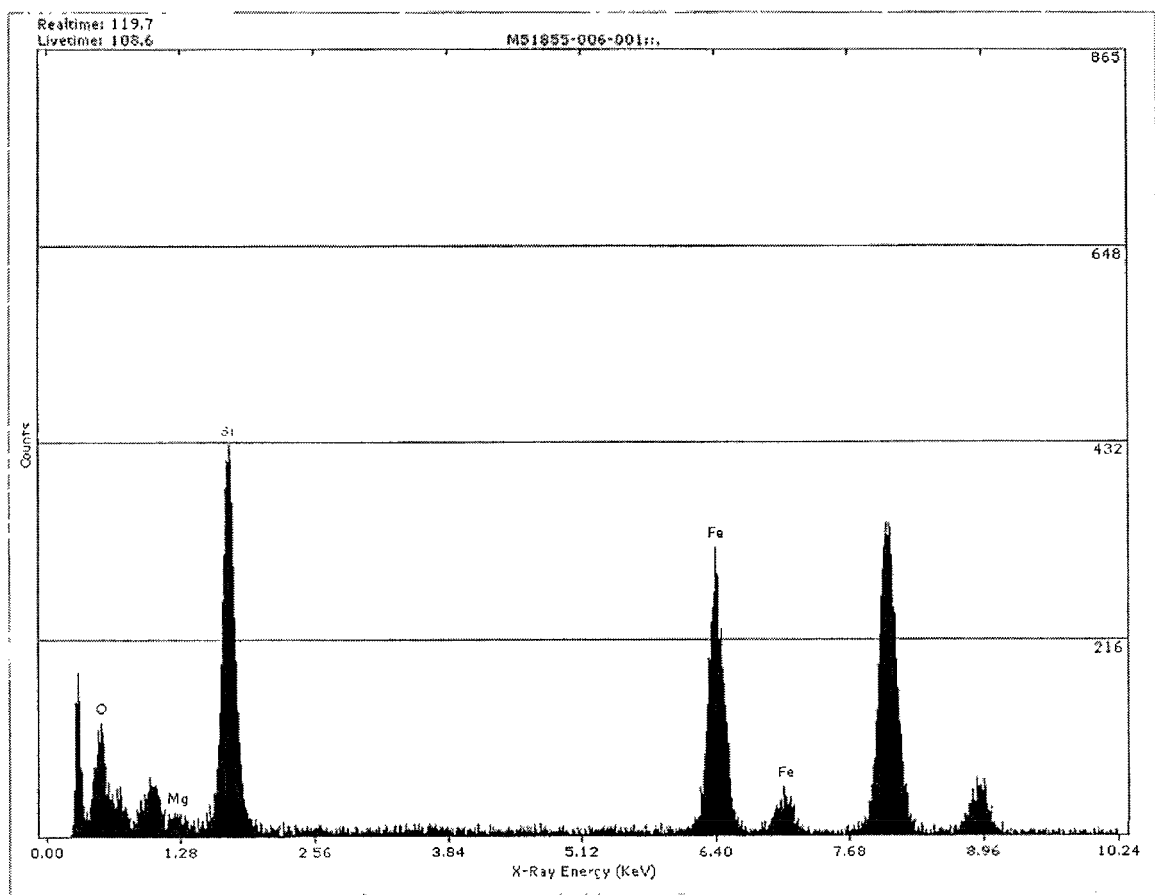
% Asbestos **91.67**

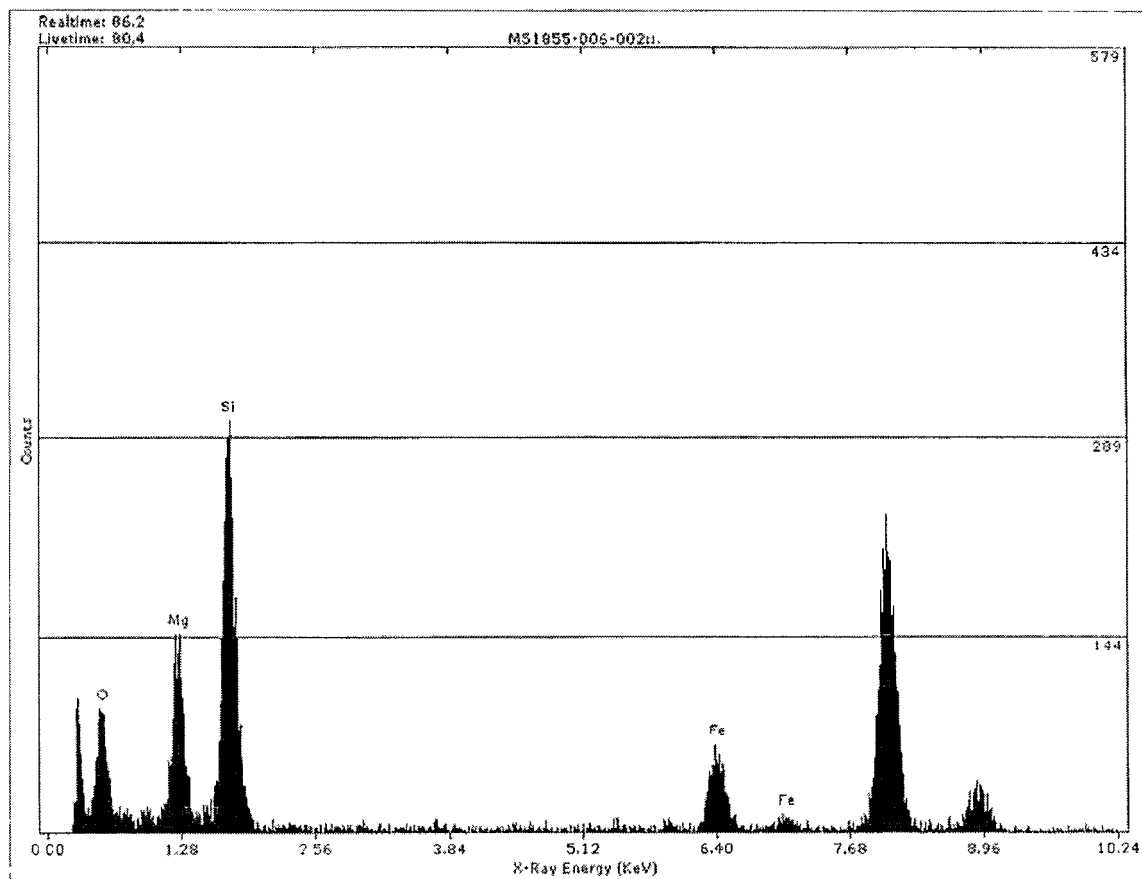
Str#	SquareID	Filter Type	Size		Mo.pl.	SAED	POS
NSD	D9-B2						
1	B3	Crocidolite	18.1	0.9	Amphibole	Amphibole	✓
NSD	B4						
NSD	B5						
NSD	B6						
NSD	B7						
NSD	B8						
NSD	C1						
2	C2	Anthophyllite	9	0.6	Amphibole	Amphibole	✓
NSD	C3						
NSD	C4						
NSD	C5						
3	C6	Anthophyllite	9	0.45	Amphibole	Amphibole	✓
4	C7	Anthophyllite	7.3	0.45	Amphibole	Amphibole	✓
NSD	C8						
5	C9	Anthophyllite	11.5	1	Amphibole	Amphibole	✓
6		Anthophyllite	14.3	2	Amphibole	Amphibole	✓
7		Anthophyllite	13.5	1.5	Amphibole	Amphibole	✓
8		Anthophyllite	10.5	1	Amphibole	Amphibole	✓
9			9	0.5	Ambiguous	Ambiguous	✓
NSD	C10						
NSD	G6						
NSD	G7						
NSD	G8						
10	D10-B2	Anthophyllite	9.5	0.5	Amphibole	Amphibole	✓
11		Anthophyllite	13	0.6	Amphibole	Amphibole	
12		Anthophyllite	6.3	0.4	Amphibole	Amphibole	
13		Anthophyllite	13.5	0.6	Amphibole	Amphibole	

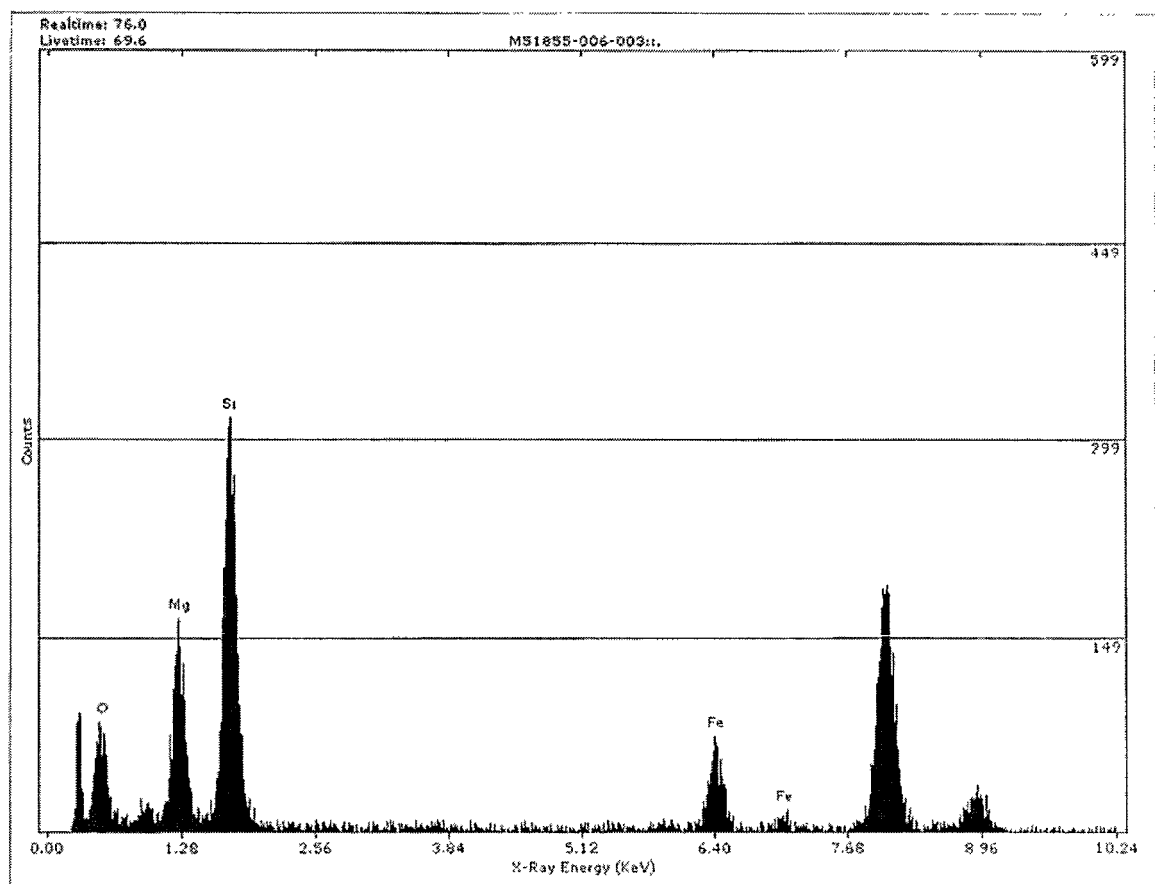
NSD	B3						
14	B4	Anthophyllite	22.6	0.6	Amphibole	Amphibole	
NSD	B5						
NSD	B6						
15	B7	Anthophyllite	22.5	1	Amphibole	Amphibole	
16	B8	NA	15.6	0.4	Ambiguous	None	
17	B9	Anthophyllite	18	1	Amphibole	Amphibole	
NSD	D3						
NSD	F4						
NSD	E9-B1						
NSD	B2						
18	B3	Anthophyllite	10.2	2	Amphibole	Amphibole	
19		Anthophyllite	13.8	0.4	Amphibole	Amphibole	
20		Crocidolite	5.2	0.45	Amphibole	Amphibole	☒
21	B4	Anthophyllite	15.9	1.1	Amphibole	Amphibole	
22		Anthophyllite	7.2	0.45	Amphibole	Amphibole	
NSD	B5						
NSD	B6						
NSD	G2						
23	G3	Anthophyllite	13.5	0.45	Amphibole	Amphibole	
24	G4	Crocidolite	11.3	0.5	Amphibole	Amphibole	
NSD	G6						

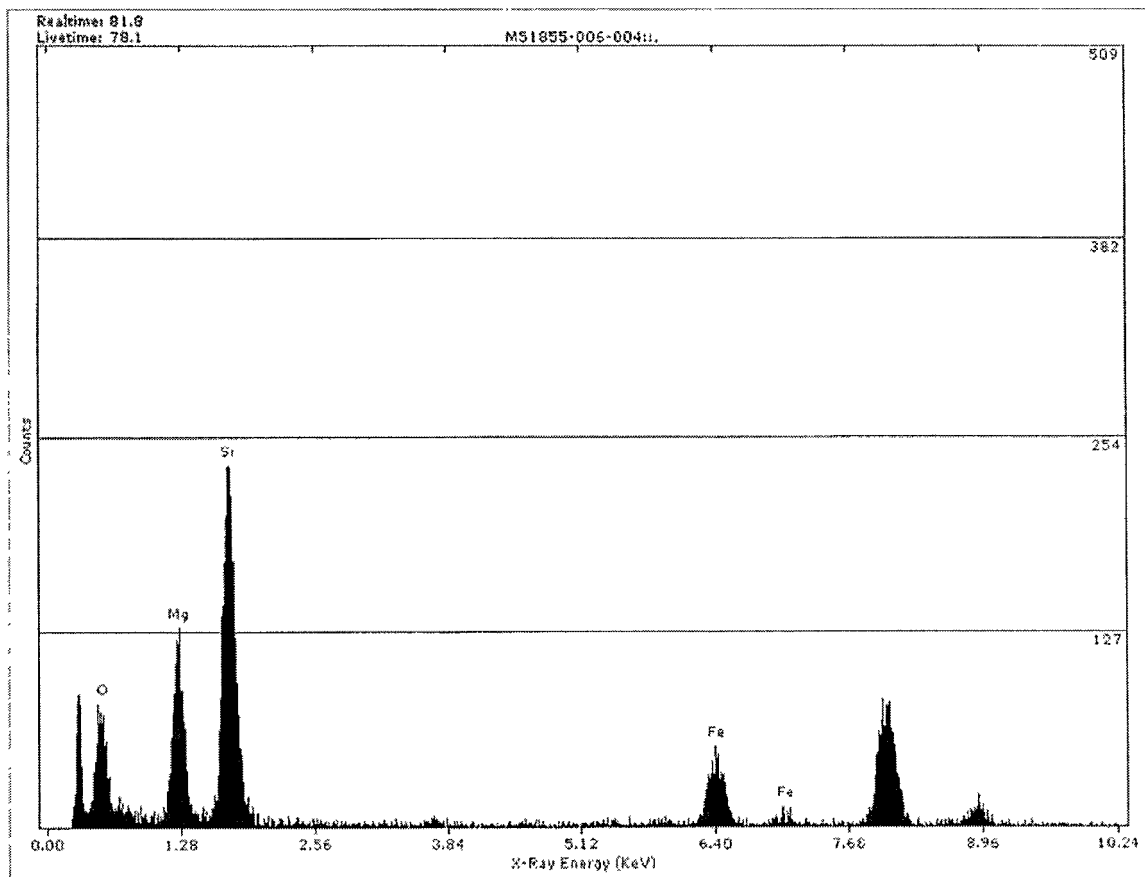
Grid Op
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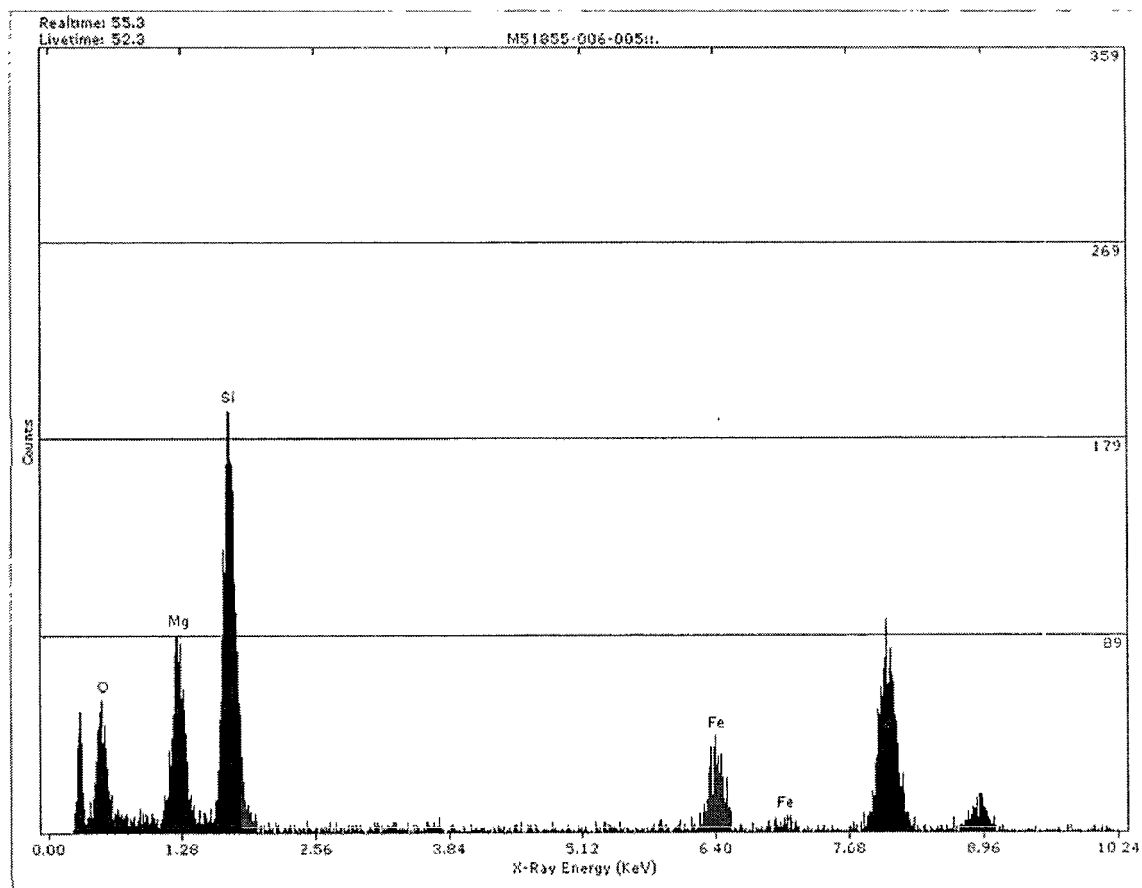
M51855 006 Sample Comments:
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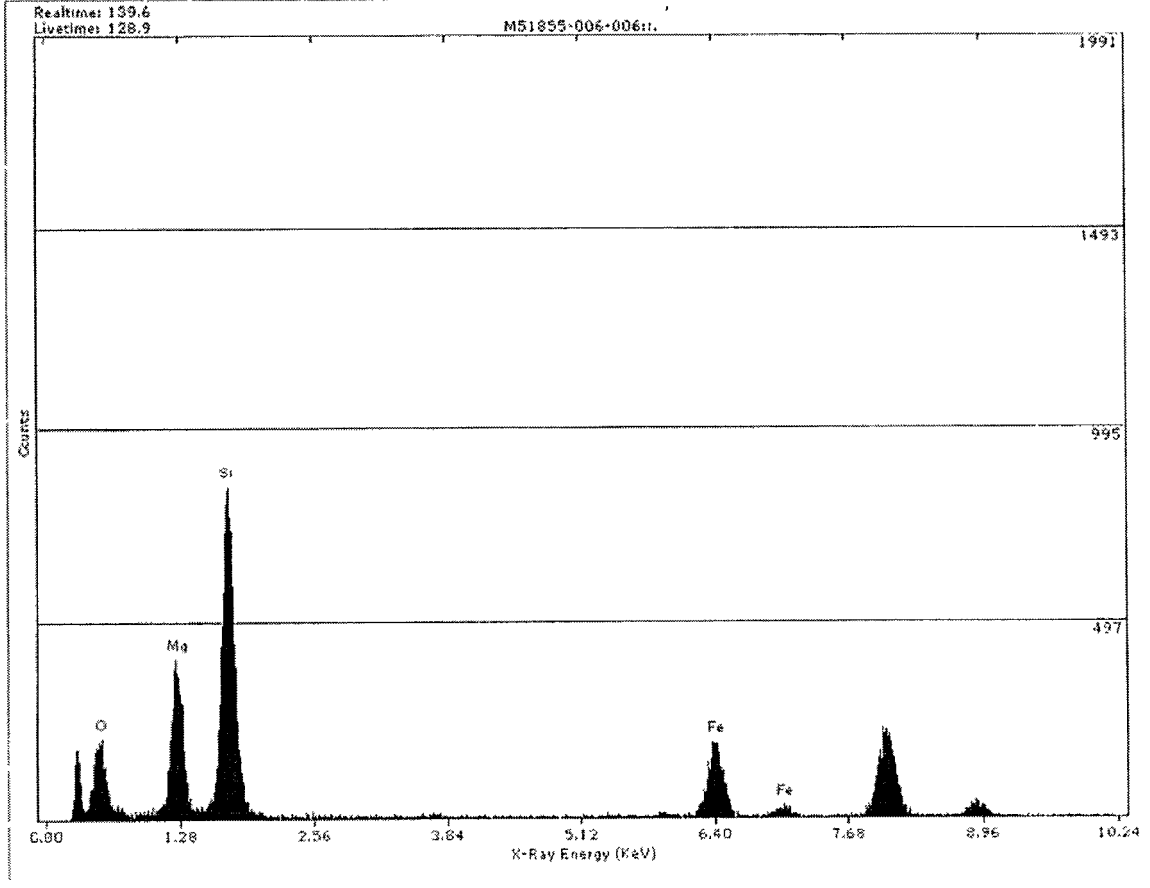


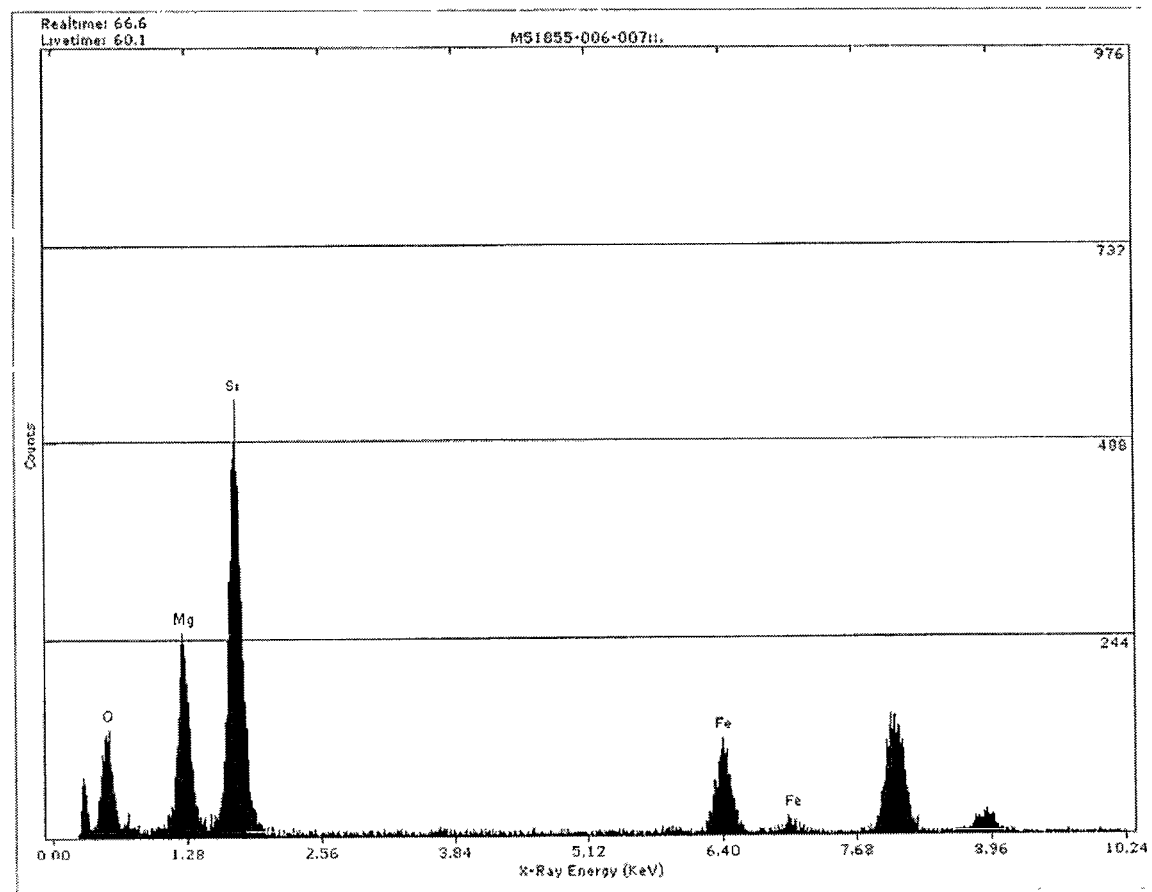


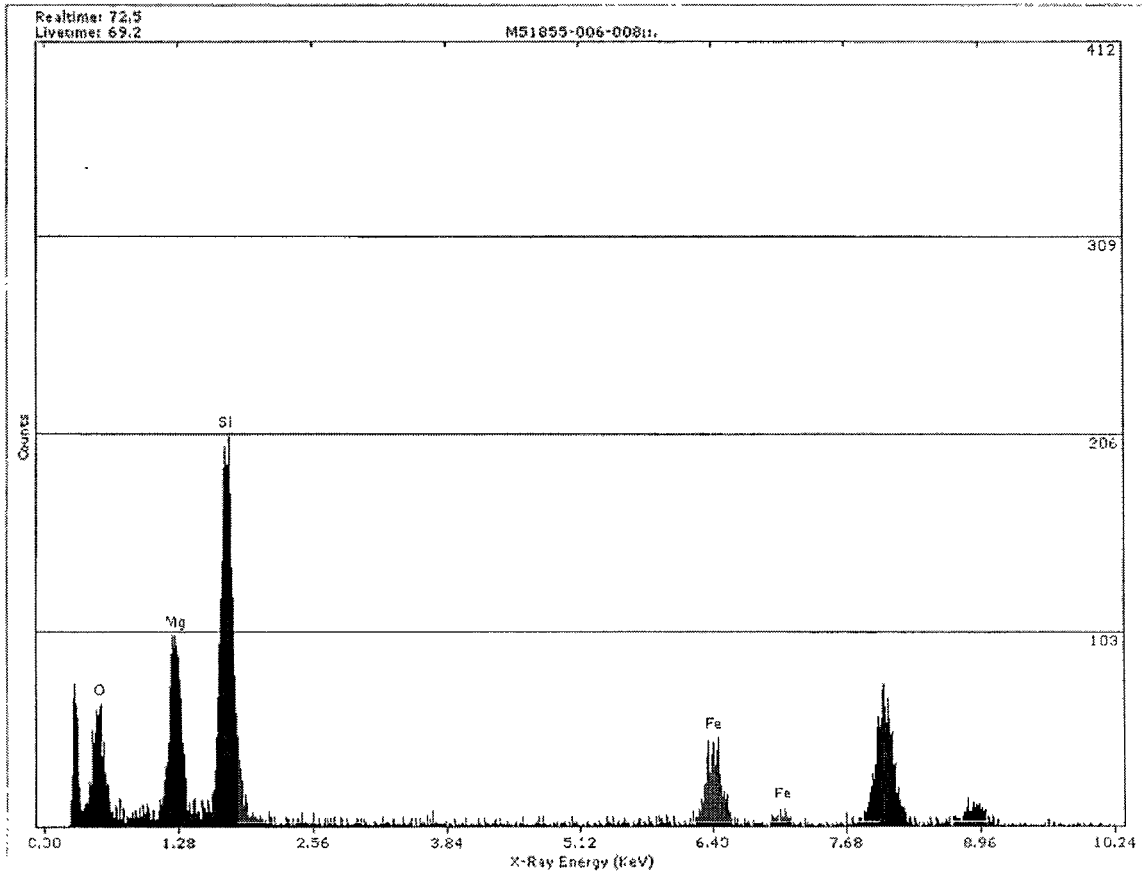


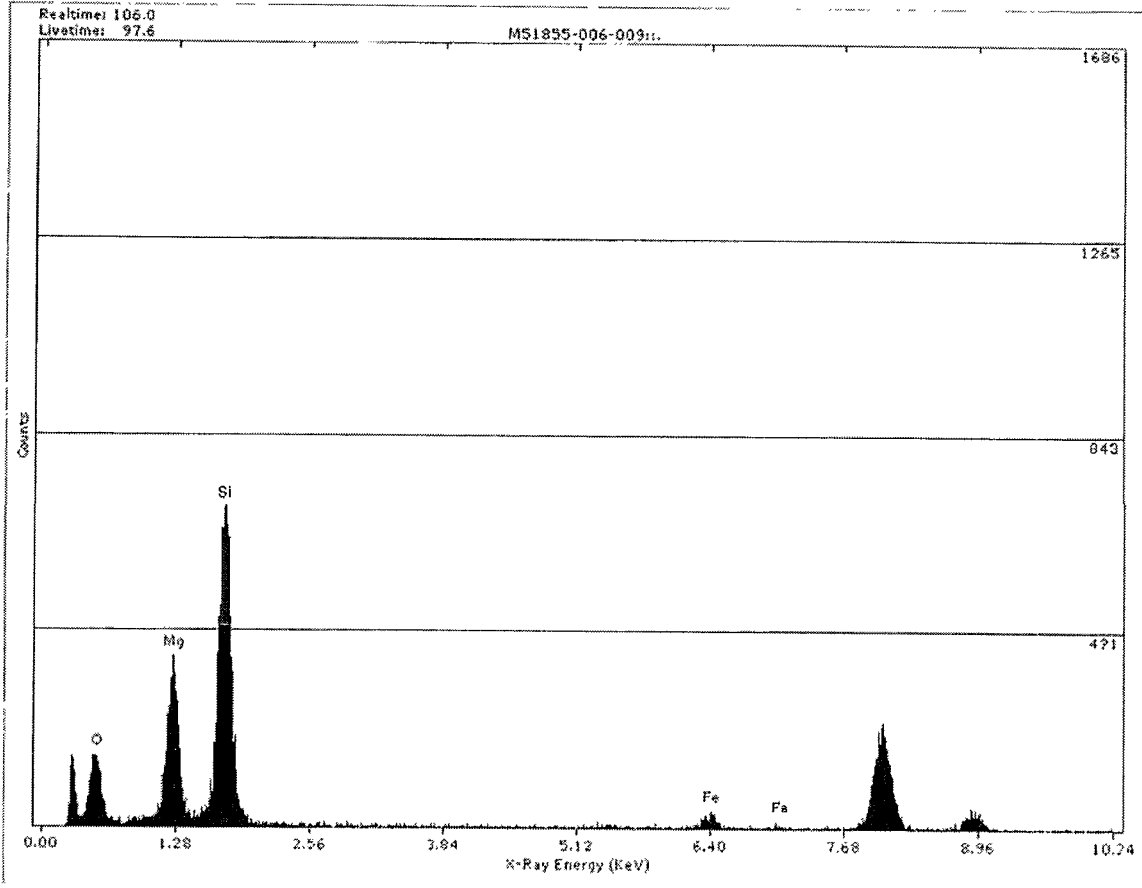


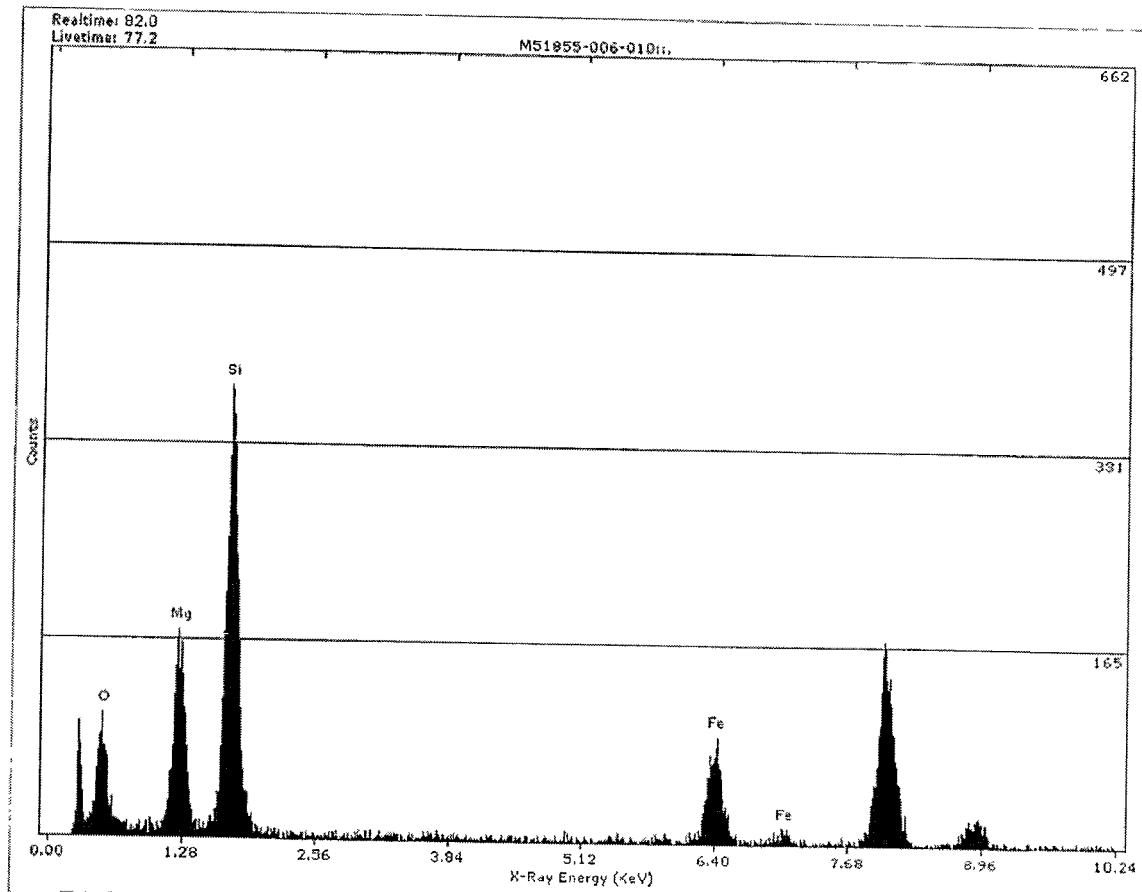


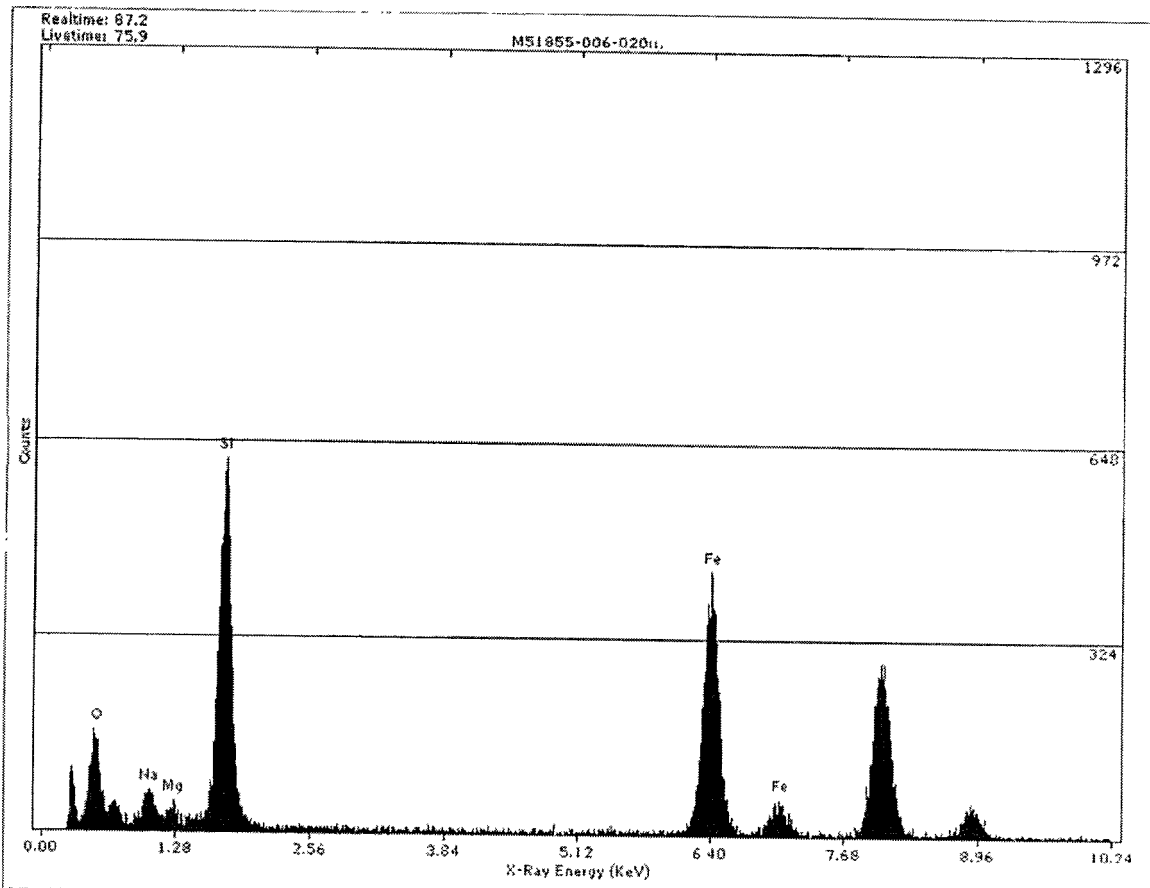












MAS, LLC.
PROJECT COC

MAS ID:	M51857	Client Job No:	
Client Name:	Materials Analytical Services Atlanta	Client PO:	
Project Name:	ECL AC Resin Pipe Cutting Electric Saw	Date In:	9/28/2010
Logged By:	ddmount	Client Code:	MASCORP

TRANSPORT INFORMATION:

Submitted By:	Michael Mount, CIH	Documents:	COC
Delivery By:	Hand Delivery		
Received By:	Nancy Sears	Comments for COC:	
Condition:	good		

CONTACT INFORMATION:

Contact:	Bill Longo	Work Phone:	(770) 866-3200	Ext:	
Title:	First Name: Last Name:	Suffix	Other Phone:	Ext:	
Mr.	William Longo		Fax:	(770) 866-3259	

SAMPLE INFORMATION:

#	Client ID	Volume	#	Client ID	Volume
000	lab blank	0			
001	A-02-A	460			
002	A-02-B	448			
003	A-02-C	445.5			
004	A-02-D	455			
005	P-2-A	3			
006	P-2-B	2.9			
007	P-2-C	3.05			
008	P-2-D	3.25			
009	A-2-A	10.2			
010	A-2-B	10.2			
011	A-2-C	10			
012	A-2-D	10.8			
013	A-2-E	900			
014	FB-2-1	0			
015	FB-2-2	0			

SIGNATURES

RECEIVED BY:

Nancy Sears

INDUSTRIAL HYGIENE AIR SAMPLING CHAIN OF CUSTODY

Page 1 of 1 ~12 CFM
71.8°F
63.1% RH



3945 Lakefield Court
Suwanee, GA 30024
Phone: 770-866-3200
Fax: 770-866-3259

COMPANY NAME MAS, LLC - Dept 14

ADDRESS: _____

PHONE: _____

FAX: _____

PROJECT NUMBER: _____

PROJECT NAME: Haveg Pipe Cutting - Electric SawWORK AREA DESCRIPTION: ECL - Study 2 - Steel BladePROJECT REPRESENTATIVE: Mike MountSAMPLING DATE: 9/27/10

M 51857

TURNAROUND TIMES: _____ 1 DAY _____ 3 DAYS _____ STANDARD 5-7 DAYS

DATE	SAMPLE NUMBER	SAMPLE LOCATION	SAMPLE MEDIA	ANALYSIS DESIRED	START TIME	STOP TIME	TOTAL TIME MINUTES	PRE FLOW RATE LPM	POST FLOW RATE LPM	AVG. FLOW RATE LPM	Total Volume Liters
9/27	A-02-A	Background, NE	0.8um MCE	7400, 7402	1:05	1:55	50	9.1	9.2	9.2	460
	B	SE		↓				8.94	9.0	8.96	448
	C	SW						8.91	8.90	8.91	445.5
	D	NW						9.80	9.1	9.1	455
	P-2-A	Personal, On Worker, R		7402	2:12	2:17	5	.53	.66	.60	3.00
	B	L		7402				.51	.64	.58	2.90
	C	R						.62	.60	.61	3.05
	D	L						.62	.68	.65	3.25
	A-2-A	Area, During Cut, NE		7402				2.04	2.04	2.04	10.2
	B	SE		7402				2.00	2.07	2.04	10.2
	C	SW						2.00	2.00	2.00	10.0
	D	NW						2.16	2.21	2.16	10.8
	A-2-E	Outside ECL			1:35	3:05	90	10.0	10.0	10.0	900
	FB-2-1	Field Blank		7402							0
	FB-2-2			7402							0
	M51858										
	FAB-2-1	Shirt Fabric Before	Fabric	EPA Method							
	↓ 2-2	↓ After	↓	↓							

CHAIN OF CUSTODY	NAME	COMPANY	MODE OF TRANSFER	LOG IN DATE	RECEIVED BY	COMPANY
First Transfer by:	<u>Mike Mount</u>	<u>MAS, LLC,</u>	<u>Hand</u>			
Second Transfer by:						
Third Transfer by:						

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade MAS Sample #: M51857-001

Client Sample ID: A-02-A Analysis Date: 9/28/10

0	0	0	0	0	0	
1	0	0	1	0	0	10
1	0	0	0	1	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
1	0	0	0	0	1	30
0	0	0	0	0	0	
0	0	0	0	0	0	40
0	0	0	0	0	0	
0	0	0	0	0	0	50
0	0	0	0	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0.5	0	0	0	0	0.5	
0	0	0	0	0	0	80
1	0	1	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

Pump Flow Rate, Liters/Minute (FR) 9.2

Sample Time, Minutes (T) 50

Total Sample Volume, Liters (V) 460

Total Fibers Counted, Sample (FCS) 4.5

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 5.7 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= < 0.006 fibers/cm³

<u>4.5</u>	0	1	1	1	1.5	<u>4.5</u>
------------	---	---	---	---	-----	------------

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade MAS Sample #: M51857-002

Client Sample ID: A-02-B Analysis Date: 9/28/10

0	0	0	0	0	0	
0	0	0	0	0	0	10
1	0	0	0	1	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
0	0	0	0	0	0	30
0	0	0	0	0	0	
0.5	0	0	0.5	0	0	40
0	0	0	0	0	0	
0	0	0	0	0	0	50
1	0	0	1	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
1	0	0	0	1	0	100

Pump Flow Rate, Liters/Minute (FR) 8.96

Sample Time, Minutes (T) 50

Total Sample Volume, Liters (V) 448

Total Fibers Counted, Sample (FCS) 3.5

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 4.5 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= < 0.006 fibers/cm³

3.5 0 0 1.5 2 0 3.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade MAS Sample #: M51857-003

Client Sample ID: A-02-C Analysis Date: 9/28/10

0	0	0	0	0	0	
1	0	0	0	1	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
1	0	0	1	0	0	30
0	0	0	0	0	0	
0	0	0	0	0	0	40
0	0	0	0	0	0	
1.5	1.5	0	0	0	0	50
0.5	0	0	0	0	0.5	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
1.5	0	1	0.5	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

Pump Flow Rate, Liters/Minute (FR) 8.91

Sample Time, Minutes (T) 50

Total Sample Volume, Liters (V) 445.5

Total Fibers Counted, Sample (FCS) 5.5

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 7.0 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 0.006 fibers/cm³

5.5 1.5 1 1.5 1 0.5 5.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade MAS Sample #: M51857-004

Client Sample ID: A-02-D Analysis Date: 9/28/10

0	0	0	0	0	0	
0.5	0.5	0	0	0	0	10
0	0	0	0	0	0	
1	0	0	0	0	1	20
0.5	0.5	0	0	0	0	
0	0	0	0	0	0	30
1	0	1	0	0	0	
0	0	0	0	0	0	40
0	0	0	0	0	0	
0	0	0	0	0	0	50
0	0	0	0	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
1	0	0	1	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

Pump Flow Rate, Liters/Minute (FR) 9.1

Sample Time, Minutes (T) 50

Total Sample Volume, Liters (V) 455

Total Fibers Counted, Sample (FCS) 4

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E= 5.1 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= < 0.006 fibers/cm³

4.0	1	1	1	0	1	4.0
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Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade MAS Sample #: M51857-005

Client Sample ID: P-02-A Analysis Date: 9/28/10

16.5	3	2	4.5	0	7	
21.5	4	1	2	8	6.5	10
32.5	2	8.5	3	14	5	
18.5	5	6	5.5	1	1	20
15.5	5.5	1	2	7		
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 0.6

Sample Time, Minutes (T) 5

Total Sample Volume, Liters (V) 3.0

Total Fibers Counted, Sample (FCS) 104.5

Total Fields Counted, Samples (FLS) 24

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 554.7 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 71.2 fibers/cm³

104.5 19.5 18.5 17 30 19.5 104.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade MAS Sample #: M51857-006

Client Sample ID: P-02-B Analysis Date: 9/28/10

41	6.5	16	4	9.5	5	
28.5	8.5	3.5	8.5	3.5	4.5	10
24.5	2.5	4.5	6.5	7.5	3.5	
31.5	2.5	10	5.5	6.5	7	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 0.58

Sample Time, Minutes (T) 5

Total Sample Volume, Liters (V) 2.9

Total Fibers Counted, Sample (FCS) 125.5

Total Fields Counted, Samples (FLS) 20

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E= 799.4 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 106.12 fibers/cm³

125.5 20 34 24.5 27 20 125.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade

MAS Sample #: M51857-007

Client Sample ID: P-02-C

Analysis Date: 9/28/10

27	7.5	3	8.5	4	4	
21.5	2.5	2.5	7	3.5	6	10
42	8	15.5	9	6	3.5	
35.5	11.5	8.5	2.5	3.5	9.5	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR)

0.61

Sample Time, Minutes (T)

5

Total Sample Volume, Liters (V)

3.05

Total Fibers Counted, Sample (FCS)

126

Total Fields Counted, Samples (FLS)

20

Total Fibers Counted, Blank (FCB)

0

Total Fields Counted, Blank (FLB)

100

Area of Filter, mm² (AF)

385

Graticule Field Area, MM² (GFA)

0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E= 802.5 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 101.3 fibers/cm³

126.0	29.5	29.5	27	17	23	126.0
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Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade MAS Sample #: M51857-008

Client Sample ID: P-2-D Analysis Date: 9/28/10

34	6	9.5	7.5	2.5	8.5	
30.5	4	4	6	6.5	10	10
31.5	9.5	7	4	6.5	4.5	
22.5	1.5	3.5	5	3.5	9	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 0.65

Sample Time, Minutes (T) 5

Total Sample Volume, Liters (V) 3.25

Total Fibers Counted, Sample (FCS) 118.5

Total Fields Counted, Samples (FLS) 20

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E= 754.8 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 89.41 fibers/cm³

118.5 21 24 22.5 19 32 118.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: Electric Saw, Steel Blade

Client Sample ID: A-2-A

51.5	9.5	9	13	10	10	
50	17	9	13.5	9.5	9	10
52.5	11.5	8	6.5	15	11.5	
48	12	16	7	7	6	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

C= 50.5 fibers/cm³

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade

MAS Sample #: M51857-010

Client Sample ID: A-2-B

Analysis Date: 9/28/10

46.5	9	10.5	8	11.5	7.5	
68	11.5	9.5	14	19.5	13.5	10
40	10.5	6	9.5	4.5	9.5	
37.5	10.5	8	6	6.5	6.5	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR)

2.04

Sample Time, Minutes (T)

5

Total Sample Volume, Liters (V)

10.2

Total Fibers Counted, Sample (FCS)

192

Total Fields Counted, Samples (FLS)

20

Total Fibers Counted, Blank (FCB)

0

Total Fields Counted, Blank (FLB)

100

Area of Filter, mm² (AF)

385

Graticule Field Area, MM² (GFA)

0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 1222.9 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 46.2 fibers/cm³

192.0

41.5

34

37.5

42

37

192.0

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade

MAS Sample #: M51857-011

Client Sample ID: A-2-C

Analysis Date: 9/28/10

55.5	9	7	10	6	23.5	
51	11.5	6.5	11.5	16.5	5	10
41	13	8	6.5	8.5	5	
53	8.5	9.5	9	10	16	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 2

Sample Time, Minutes (T) 5

Total Sample Volume, Liters (V) 10

Total Fibers Counted, Sample (FCS) 200.5

Total Fields Counted, Samples (FLS) 20

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 1277.1 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 49.17 fibers/cm³

200.5	42	31	37	41	49.5	200.5
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Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade

MAS Sample #: M51857-012

Client Sample ID: A-2-D

Analysis Date: 9/28/10

89	25.5	15.5	15	15.5	17.5	
83	15	12	16.5	19	20.5	10
67	13.5	15	13	14	11.5	
74	17.5	12.5	17.5	11	15.5	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR)

2.16

Sample Time, Minutes (T)

5

Total Sample Volume, Liters (V)

10.8

Total Fibers Counted, Sample (FCS)

313

Total Fields Counted, Samples (FLS)

20

Total Fibers Counted, Blank (FCB)

0

Total Fields Counted, Blank (FLB)

100

Area of Filter, mm² (AF)

385

Graticule Field Area, MM² (GFA)

0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 1993.6 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 71.1 fibers/cm³

313.0	71.5	55	62	59.5	65	313.0
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Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade

MAS Sample #: M51857-013

Client Sample ID: A-2-E

Analysis Date: 9/28/10

0.5	0	0	0.5	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
2	1	0	1	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0.5	0	0	0.5	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
1.5	0	0	0	0.5	1
2	1	0	1	0	0
1	0	0	0	0	1
0	0	0	0	0	0

Pump Flow Rate, Liters/Minute (FR) 10

Sample Time, Minutes (T) 90

Total Sample Volume, Liters (V) 900

Total Fibers Counted, Sample (FCS) 7.5

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 9.6 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 0.004 fibers/cm³

7.5 2 0 3 0.5 2 7.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M. Mount

Date: 9/28/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade

MAS Sample #: M51857-014

Client Sample ID. FB-2-1

Analysis Date: 9/28/10

0	0	0	0	0	0	
0	0	0	0	0	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
0	0	0	0	0	0	30
0	0	0	0	0	0	
0	0	0	0	0	0	40
0	0	0	0	0	0	
0	0	0	0	0	0	50
0	0	0	0	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

Pump Flow Rate, Liters/Minute (FR) 0

Sample Time, Minutes (T) 0

Total Sample Volume, Liters (V) 0

Total Fibers Counted, Sample (FCS) 0

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 0.0 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= NA fibers/cm³

0.0 0 0 0 0 0 0.0

Notes:

Media Type 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M Mount

Date: 9/28/2010

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting, Study 2 -

MAS Project: Electric Saw, Steel Blade

MAS Sample #: M51857-015

Client Sample ID: FB-2-2

Analysis Date: 9/28/10

0	0	0	0	0	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	20
1	0	1	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	30
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	40
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	50
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	
1	0	0	0	0	1	70
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	100

Pump Flow Rate, Liters/Minute (FR) **0**

Sample Time, Minutes (T) 0

Total Sample Volume, Liters (V)	0
---------------------------------	---

Total Fibers Counted, Sample (FCS)	2
------------------------------------	---

Total Fields Counted, Samples (FLS)	100
-------------------------------------	-----

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank(FLB) 100

Area of Filter, mm ² (AF)	385
--------------------------------------	-----

Graticule Field Area, MM ² (GFA)	0.00785
---	---------

Calc. of Fiber Density (E) in Fibers/ mm²

$$E = 2.5 \text{ fibers/mm}^2$$

Calc. of Fiber Conc.(C) in Fibers/cm³

$$C = \boxed{\text{NA}} \text{ fibers/cm}^3$$

2.0	0	1	0	0	1	2.0
-----	---	---	---	---	---	-----

Notes¹

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased

Analyst: W. B. Egeland

Date: 9/28/2010

Reviewed By: M Mount

Date: 9/28/2010

MAS TEM ANALYSIS

M51857-005

CLIENT NAME: Materials Analytical Services Atlanta

CLIENT SAMPLE ID:

P-2-A

7402 ANALYSIS

Sample Area/ Volume: 3 Liters
 Filter Type: MCE 25mm
 Pore size: 0.8
 Effective Filter Area: 385
 Sample type: Air
 Analysis type: 7402
 Grid Acceptance: YES 5 %

Date Analyzed: 10/1/2010
 Analyst: Mehrdad Motamedi
 Scope Number: 4
 Accelerating Voltage: 100 KV
 Indicated Mag: 25 KX
 Screen Mag: 20 KX
 Grid_box: 7809

Number of grids: 2 #1: 108 #3: 108
 Number of openings: 22 #2: 106 #4: 108
 Average Grid Size: 0.011556 Total Area Analyzed: 0.254

Asbestos 101
 Non-asbestos 0

% Asbestos 100

Str#.	squareID	Fiber type	Size	Morph	SAED	EDS
1	E1-F1	Anthophyllite	36.5 0.5	Amphibole	Amphibole	✓
2	F2	Crocidolite	19 0.4	Amphibole	Amphibole	✓
3		Crocidolite	6 0.4	Amphibole	Amphibole	✓
4		Anthophyllite	5.8 0.5	Amphibole	Amphibole	✓
5		Anthophyllite	8 0.6	Amphibole	Amphibole	✓
6	F3	Crocidolite	9 0.4	Amphibole	Amphibole	✓
7		Anthophyllite	6.5 0.8	Amphibole	Amphibole	✓
8		Crocidolite	5.5 0.3	Amphibole	Amphibole	✓
9	F4	Crocidolite	6 0.4	Amphibole	Amphibole	✓
10	F5	Crocidolite	11 0.3	Amphibole	Amphibole	✓
11		Anthophyllite	7 0.6	Amphibole	Amphibole	
12	F6	Crocidolite	14 1	Amphibole	Amphibole	
13		Anthophyllite	14 0.9	Amphibole	Amphibole	
14		Crocidolite	22.5 0.5	Amphibole	Amphibole	
15		Crocidolite	15 0.8	Amphibole	Amphibole	
16		Crocidolite	24 1.5	Amphibole	Amphibole	
17	F7	Anthophyllite	8.5 0.8	Amphibole	Amphibole	
18		Anthophyllite	12 1	Amphibole	Amphibole	
19		Anthophyllite	8 0.8	Amphibole	Amphibole	
20		Crocidolite	31 0.8	Amphibole	Amphibole	✓
21		Crocidolite	14 0.7	Amphibole	Amphibole	
22		Crocidolite	20 0.5	Amphibole	Amphibole	
23		Crocidolite	8 0.4	Amphibole	Amphibole	
24		Anthophyllite	12 1.5	Amphibole	Amphibole	
25	F8	Anthophyllite	6 1	Amphibole	Amphibole	
26		Crocidolite	13 1	Amphibole	Amphibole	
27	F9	Crocidolite	6 0.4	Amphibole	Amphibole	
28		Crocidolite	28 2	Amphibole	Amphibole	

29		Anthophyllite	7	0.8	Amphibole	Amphibole
NSD	G10					
30	G9	Anthophyllite	42	0.5	Amphibole	Amphibole
31		Crocidolite	16	3	Amphibole	Amphibole
32	G8	Crocidolite	9	0.4	Amphibole	Amphibole
33		Crocidolite	5.8	0.3	Amphibole	Amphibole
34		Anthophyllite	6.5	0.9	Amphibole	Amphibole
35	G7	Crocidolite	9	0.3	Amphibole	Amphibole
36		Anthophyllite	8	1	Amphibole	Amphibole
37		Anthophyllite	11	1.5	Amphibole	Amphibole
38		Anthophyllite	6	0.8	Amphibole	Amphibole
39		Anthophyllite	6.5	0.3	Amphibole	Amphibole
40		Crocidolite	7	0.3	Amphibole	Amphibole
41	G6	Anthophyllite	6.6	0.4	Amphibole	Amphibole
42		Crocidolite	8	0.4	Amphibole	Amphibole
43	G5	Crocidolite	20	2	Amphibole	Amphibole
44		Crocidolite	23	0.7	Amphibole	Amphibole
45		Anthophyllite	5.7	0.4	Amphibole	Amphibole
46		Crocidolite	5.8	0.4	Amphibole	Amphibole
47		Anthophyllite	5.8	0.4	Amphibole	Amphibole
48		Crocidolite	6	0.4	Amphibole	Amphibole
49		Crocidolite	11.5	0.4	Amphibole	Amphibole
50		Anthophyllite	7	0.3	Amphibole	Amphibole
51	G4	Anthophyllite	28	0.7	Amphibole	Amphibole
52		Anthophyllite	12	1	Amphibole	Amphibole
53		Anthophyllite	12	0.4	Amphibole	Amphibole
54		Anthophyllite	12	1	Amphibole	Amphibole
55		Crocidolite	18	0.9	Amphibole	Amphibole
56		Crocidolite	17.5	0.7	Amphibole	Amphibole
57		Crocidolite	7	0.7	Amphibole	Amphibole
58		Anthophyllite	9	0.9	Amphibole	Amphibole
59	E2-I4	Anthophyllite	8	0.4	Amphibole	Amphibole
60		Crocidolite	16	0.5	Amphibole	Amphibole
61		Anthophyllite	9	0.8	Amphibole	Amphibole
62		Crocidolite	9	0.6	Amphibole	Amphibole
63		Anthophyllite	10	1.5	Amphibole	Amphibole
64	I5	Crocidolite	8	1.5	Amphibole	Amphibole
65		Crocidolite	12	0.5	Amphibole	Amphibole
66		Crocidolite	12	1	Amphibole	Amphibole
67		Anthophyllite	6	0.9	Amphibole	Amphibole
68		Crocidolite	8	1	Amphibole	Amphibole
69		Crocidolite	11	0.4	Amphibole	Amphibole
70	I6	Crocidolite	36	3	Amphibole	Amphibole
71		Crocidolite	16	2	Amphibole	Amphibole
72		Crocidolite	12	1.5	Amphibole	Amphibole
73		Crocidolite	10	1	Amphibole	Amphibole
74		Crocidolite	6	0.3	Amphibole	Amphibole
75		Crocidolite	24.5	0.9	Amphibole	Amphibole
76		Anthophyllite	10	0.6	Amphibole	Amphibole
77		Anthophyllite	7	0.9	Amphibole	Amphibole
78		Anthophyllite	7	1.5	Amphibole	Amphibole
79		Crocidolite	9.8	0.3	Amphibole	Amphibole
80		Crocidolite	5.8	0.8	Amphibole	Amphibole
81		Anthophyllite	8.5	0.4	Amphibole	Amphibole

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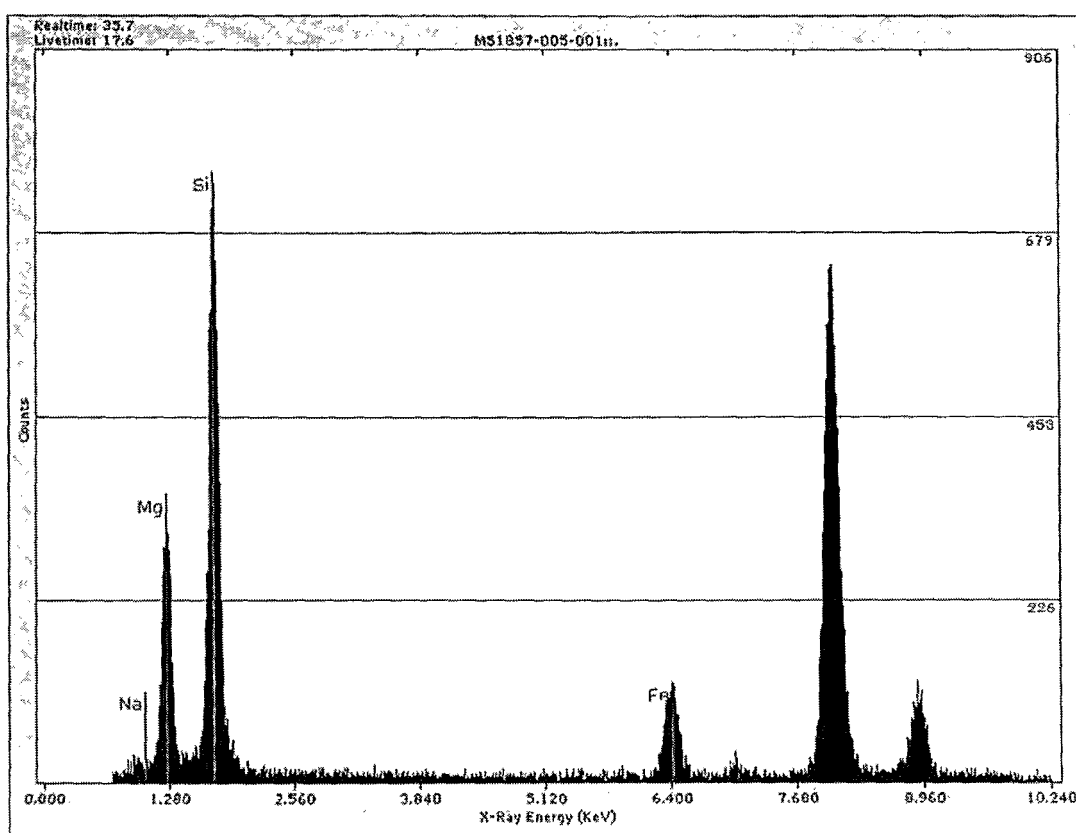
82		Anthophyllite	10	0.6	Amphibole	Amphibole	
83	17	Crocidolite	12	0.8	Amphibole	Amphibole	
84	18	Crocidolite	24	0.34	Amphibole	Amphibole	
85		Crocidolite	10	0.6	Amphibole	Amphibole	
86	19	Anthophyllite	7.5	0.4	Amphibole	Amphibole	
87		Anthophyllite	6	0.5	Amphibole	Amphibole	
88		Crocidolite	6	0.5	Amphibole	Amphibole	
89		Crocidolite	14	0.8	Amphibole	Amphibole	
90		Anthophyllite	7.6	0.4	Amphibole	Amphibole	
91		Crocidolite	6	0.4	Amphibole	Amphibole	
92		Crocidolite	12.5	0.4	Amphibole	Amphibole	
93		Anthophyllite	12	0.8	Amphibole	Amphibole	
94		Crocidolite	8	2	Amphibole	Amphibole	
95		Anthophyllite	6.3	0.5	Amphibole	Amphibole	
96		Crocidolite	7	0.3	Amphibole	Amphibole	
97		Anthophyllite	22	1.5	Amphibole	Amphibole	
98		Crocidolite	35	0.7	Amphibole	Amphibole	
99		Anthophyllite	15	2	Amphibole	Amphibole	
100		Anthophyllite	8	1	Amphibole	Amphibole	
101		Anthophyllite	7.5	0.4	Amphibole	Amphibole	

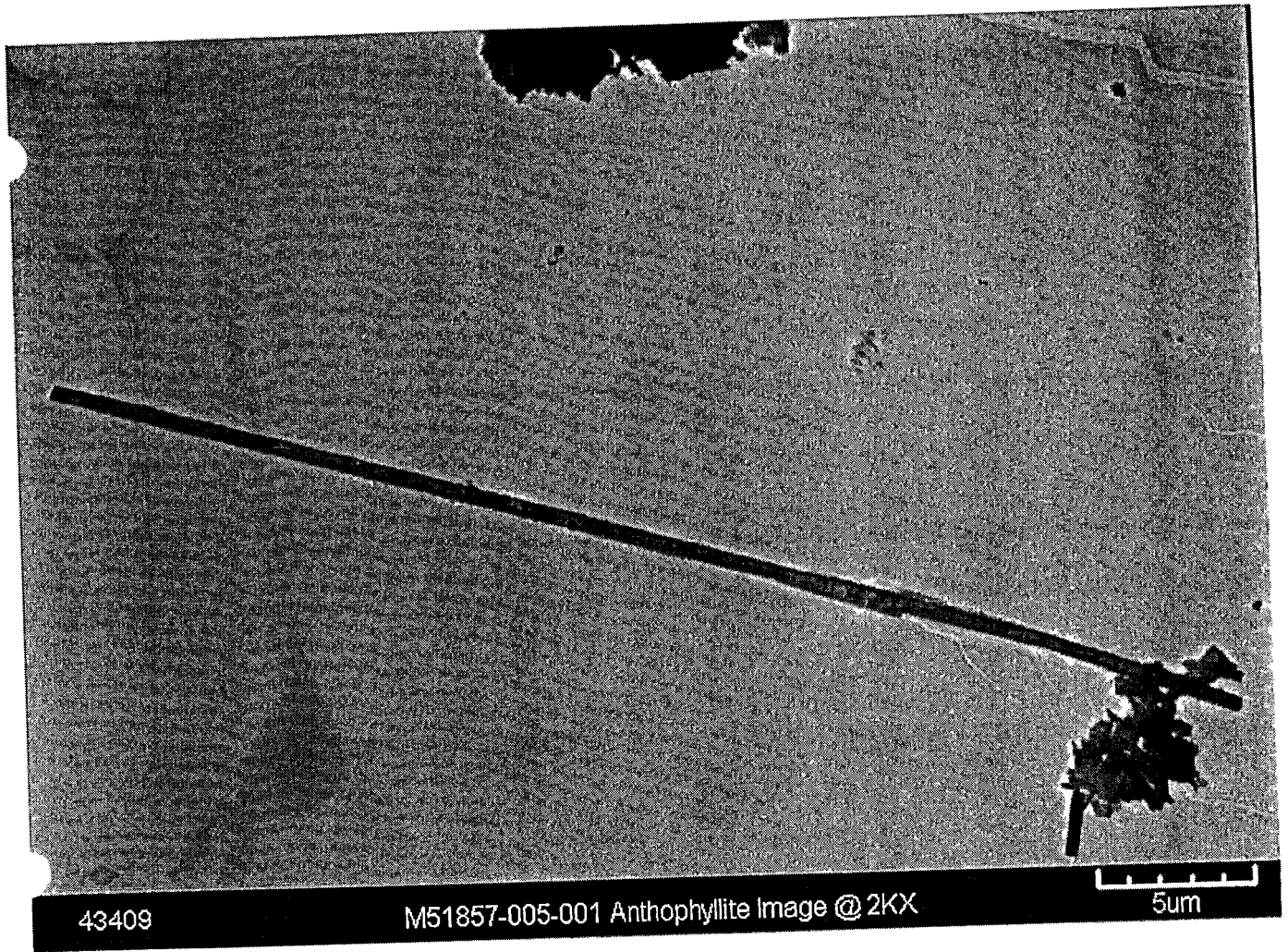
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22

M51857 005 Sample Comments:

personal right

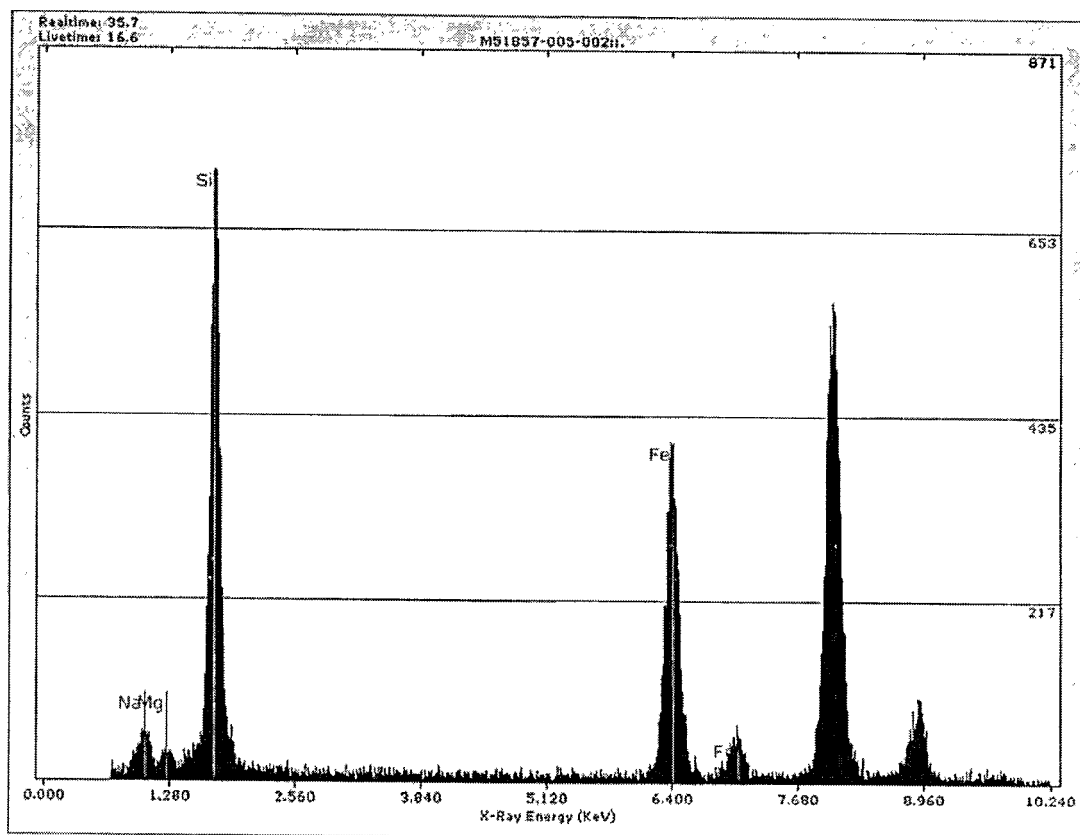


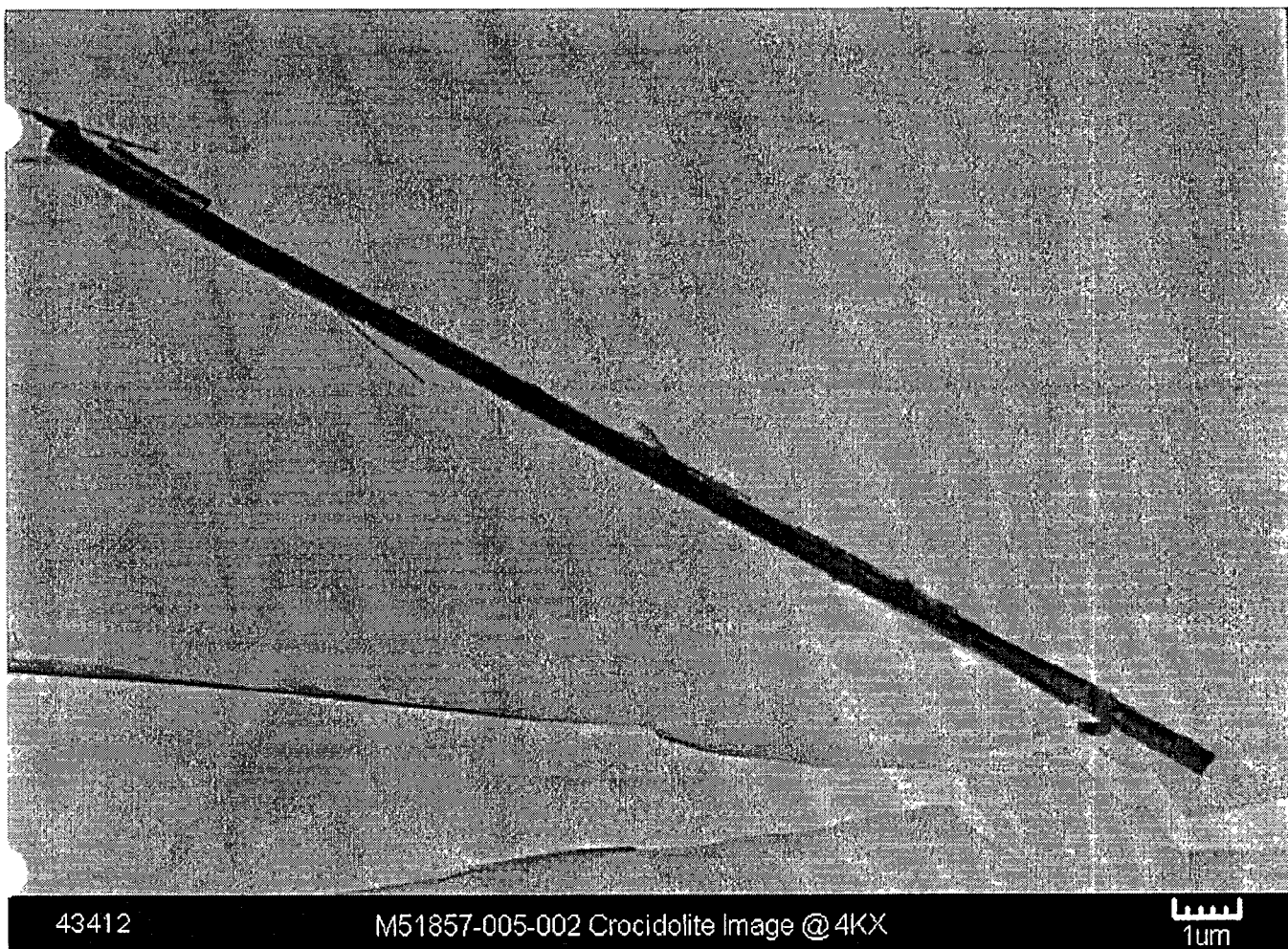


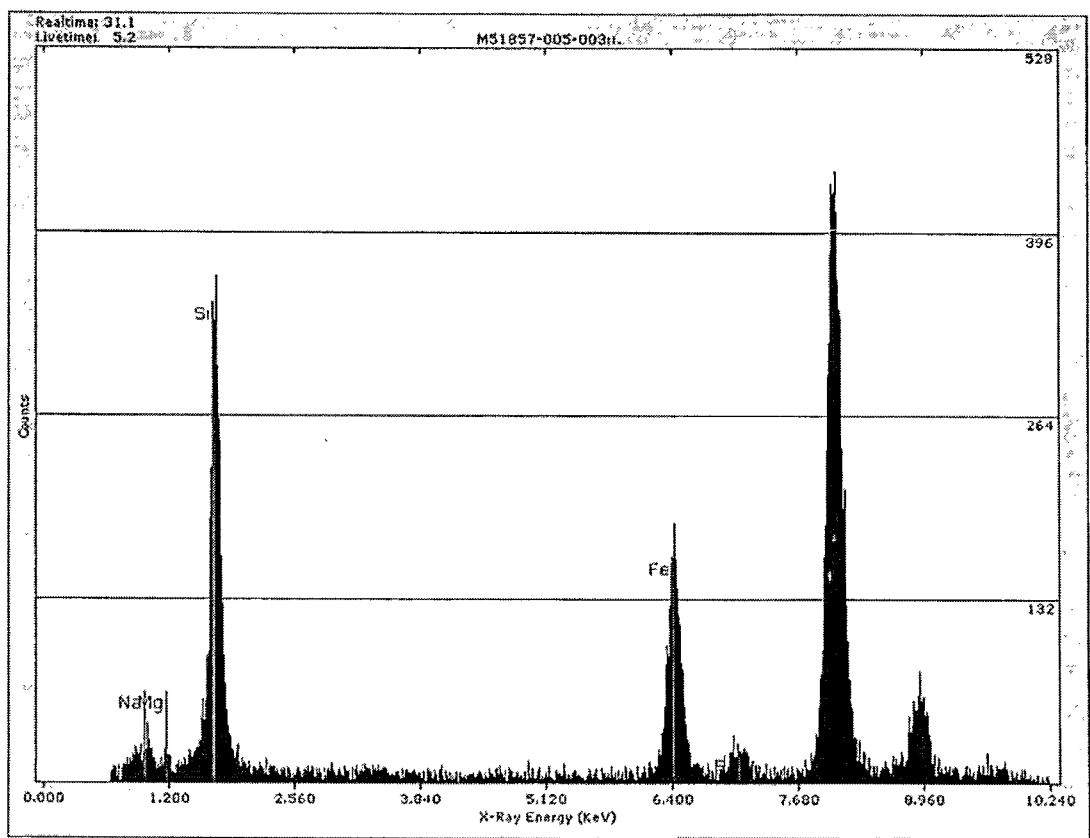
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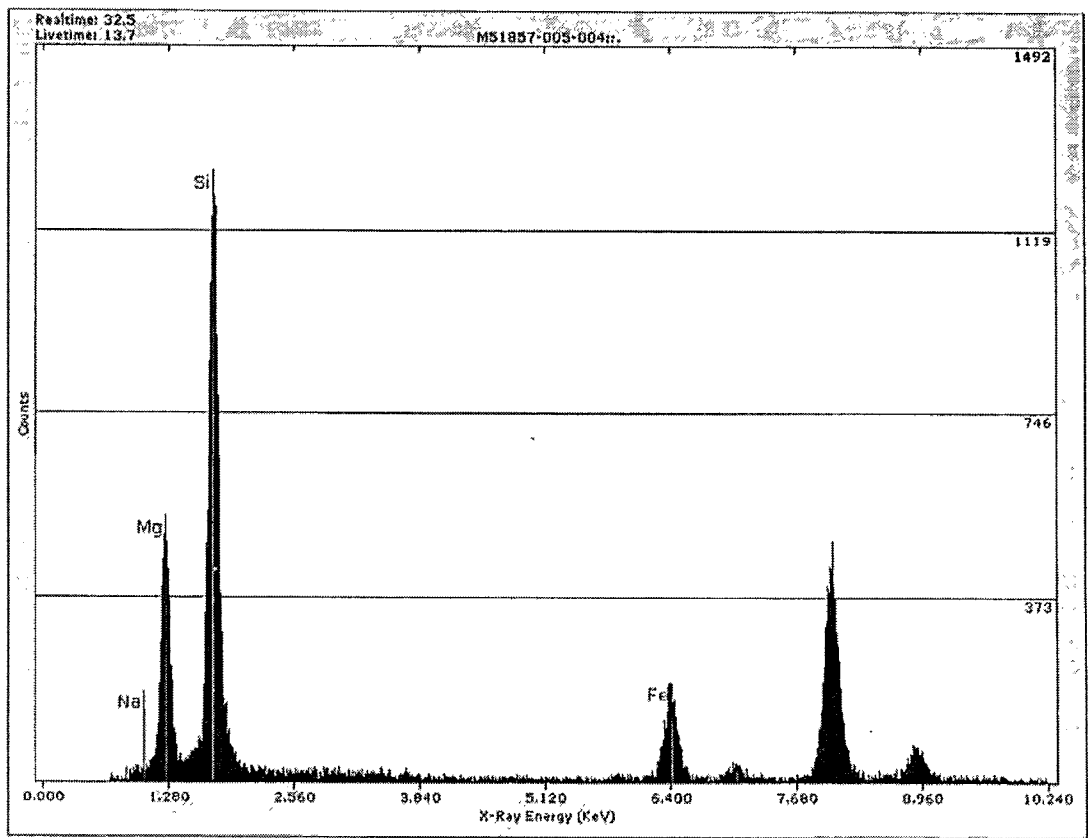
M51857-005-001 Anthophyllite Image @ 2KX

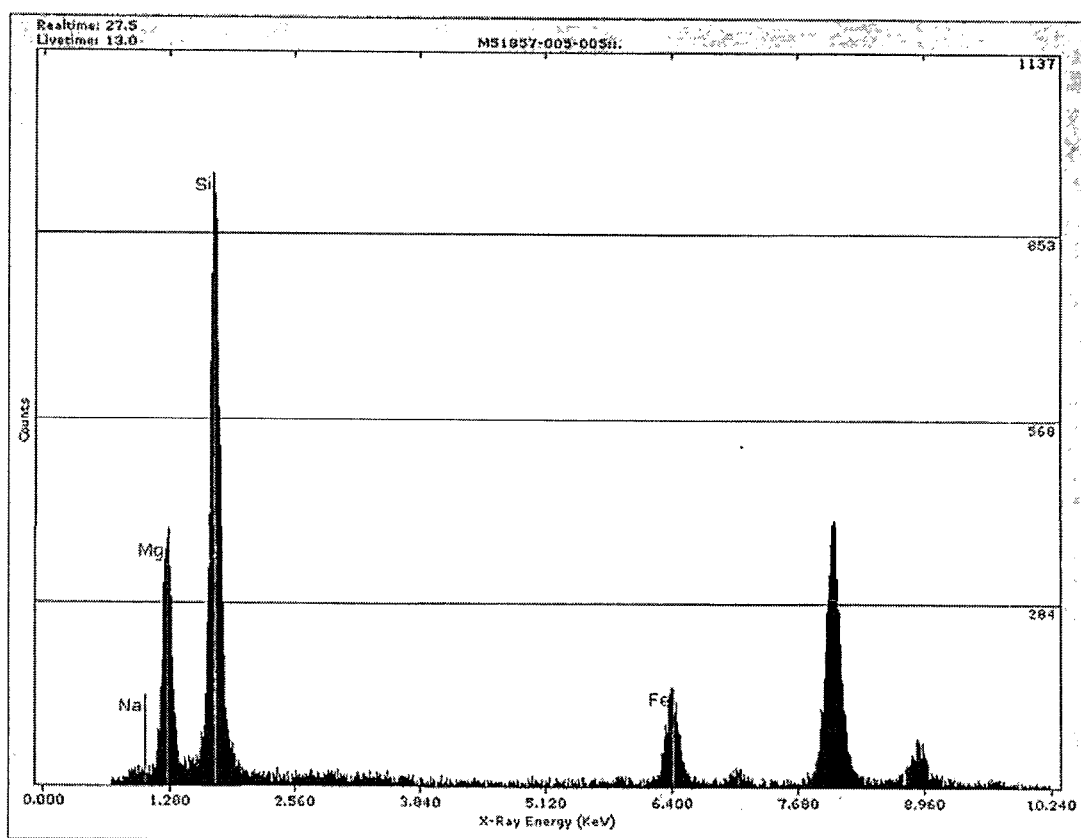
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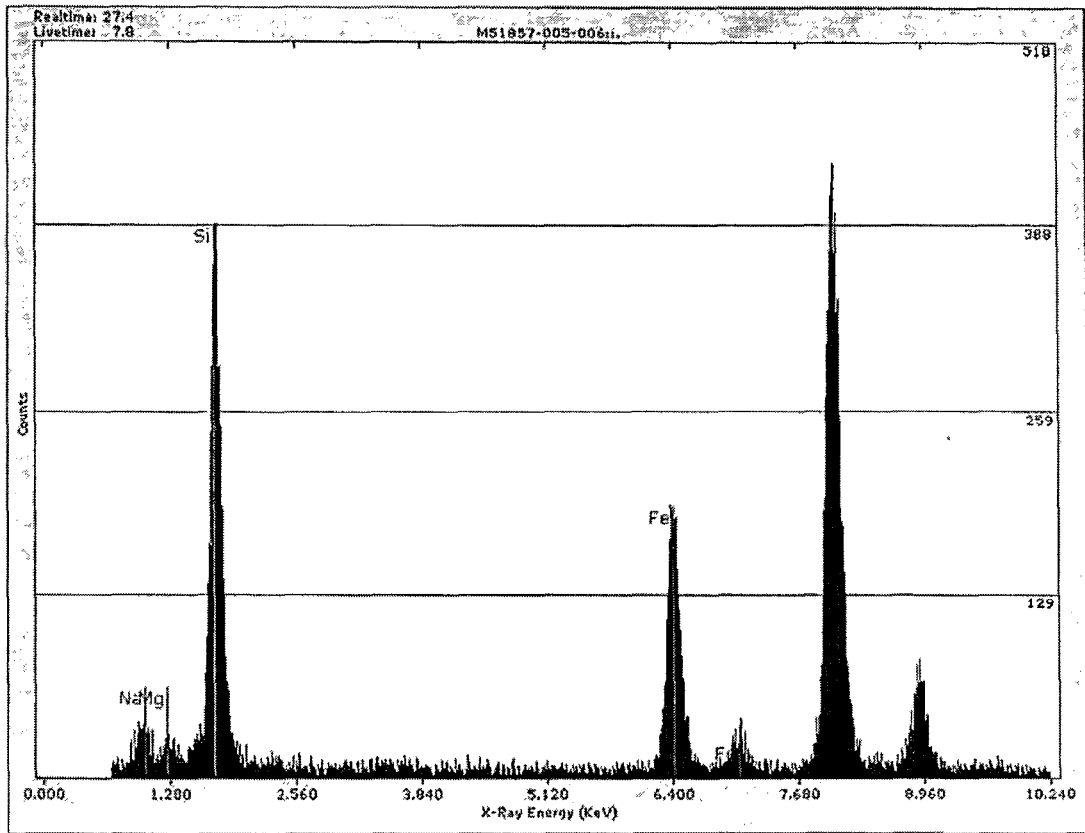


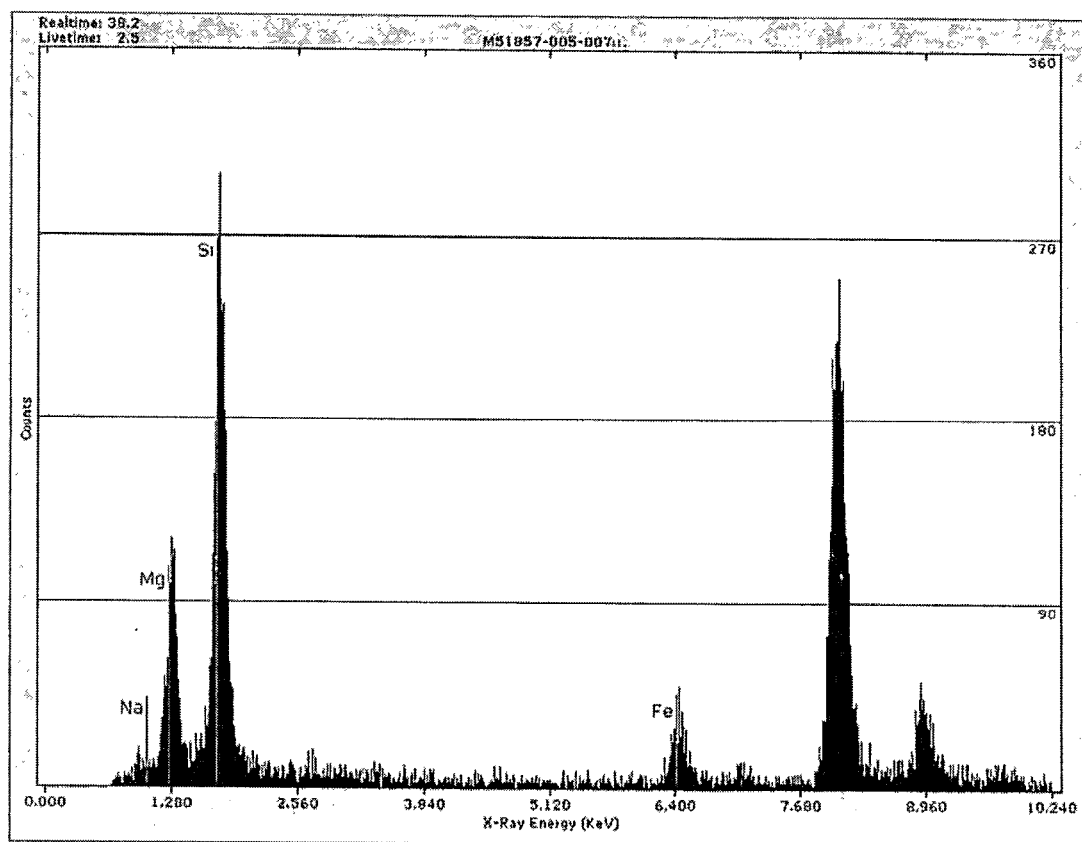


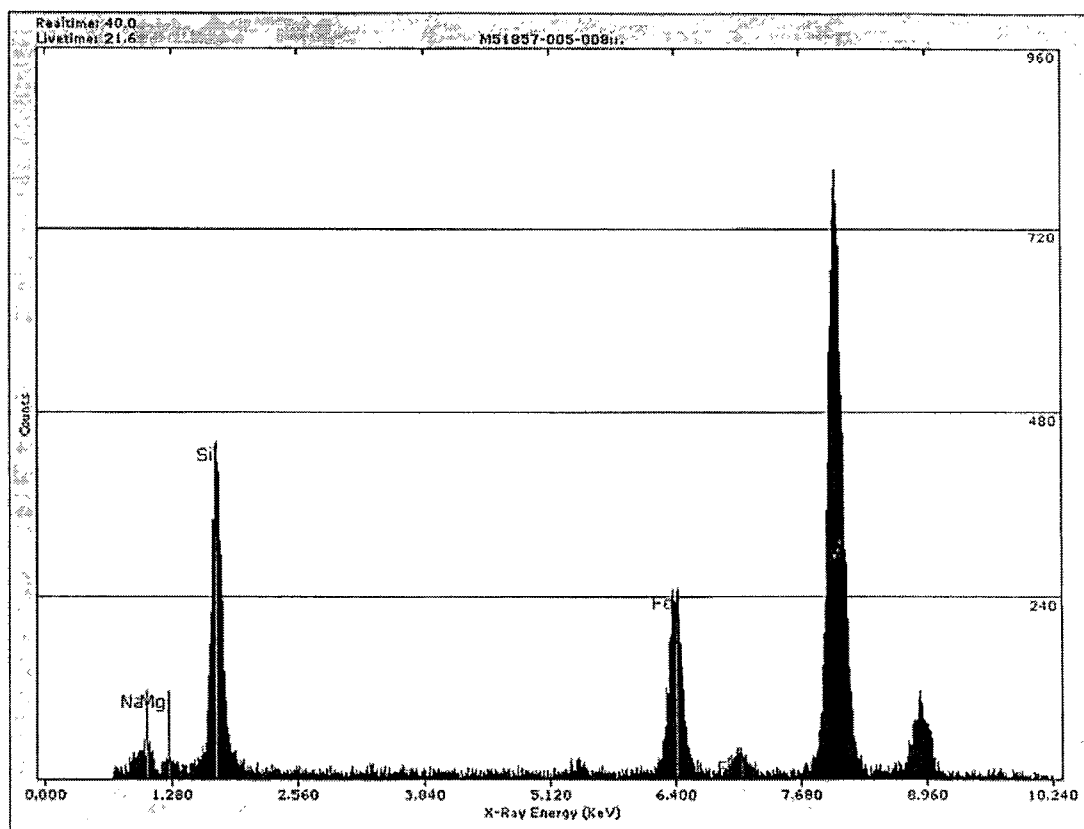


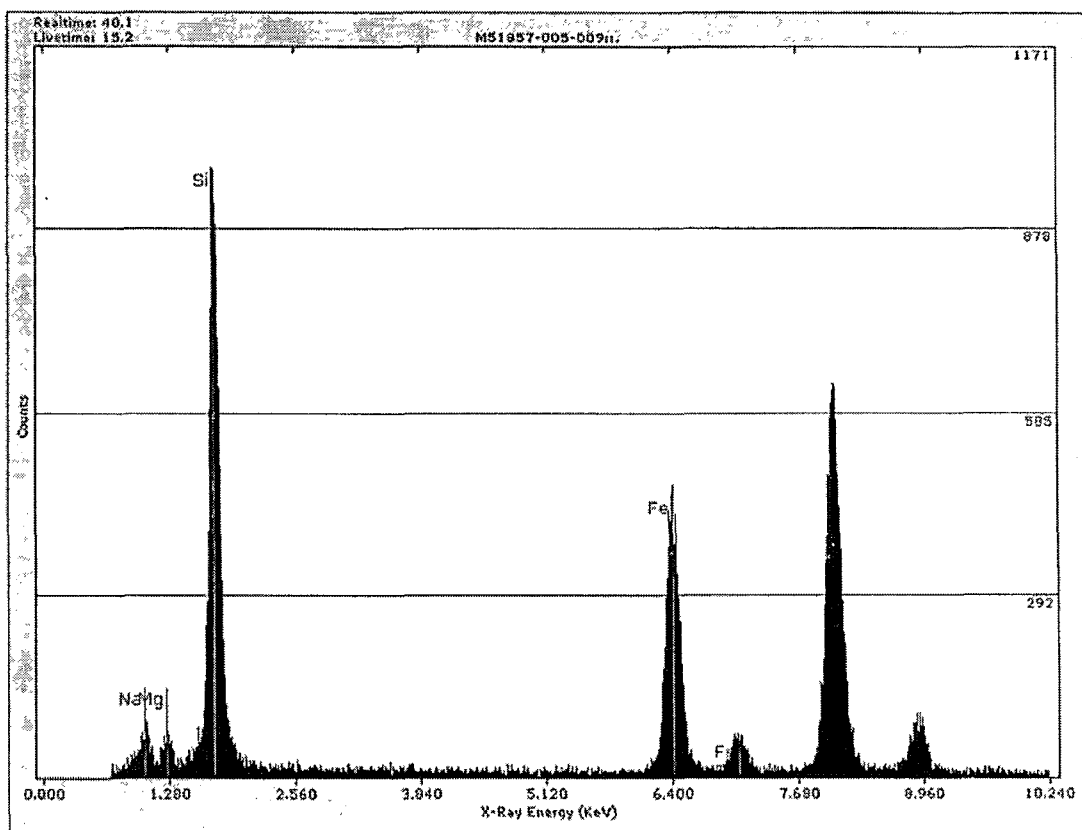


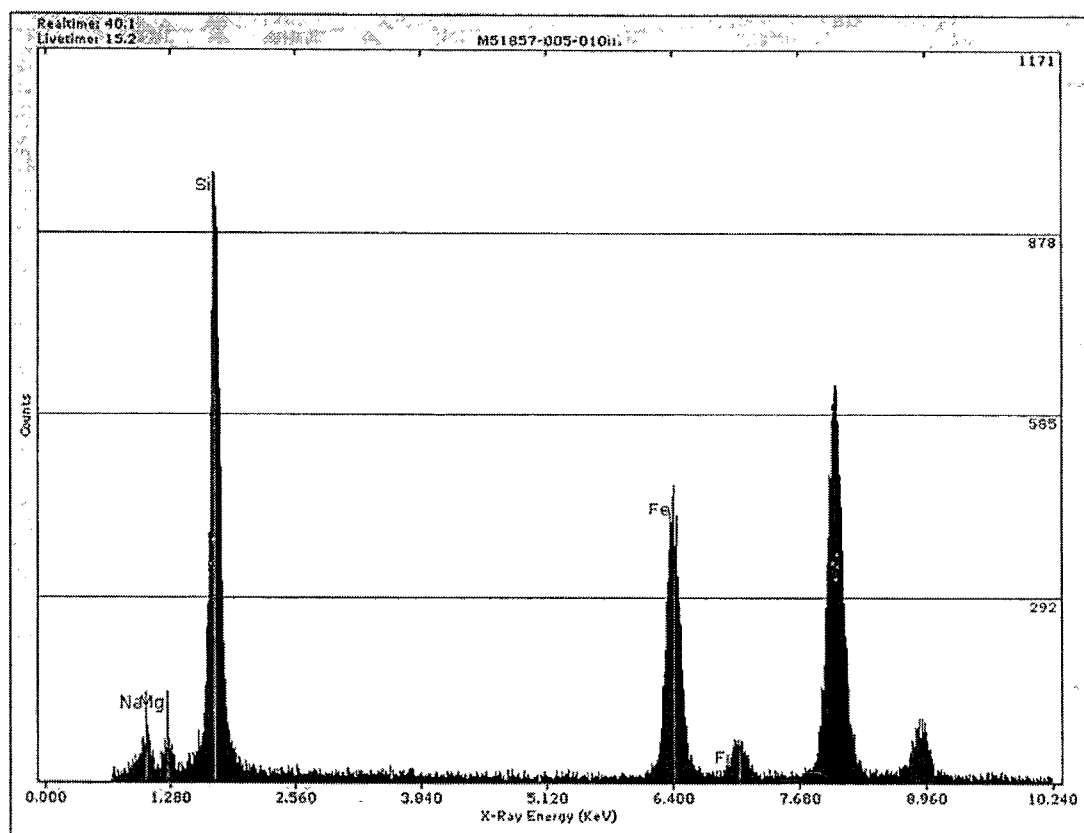


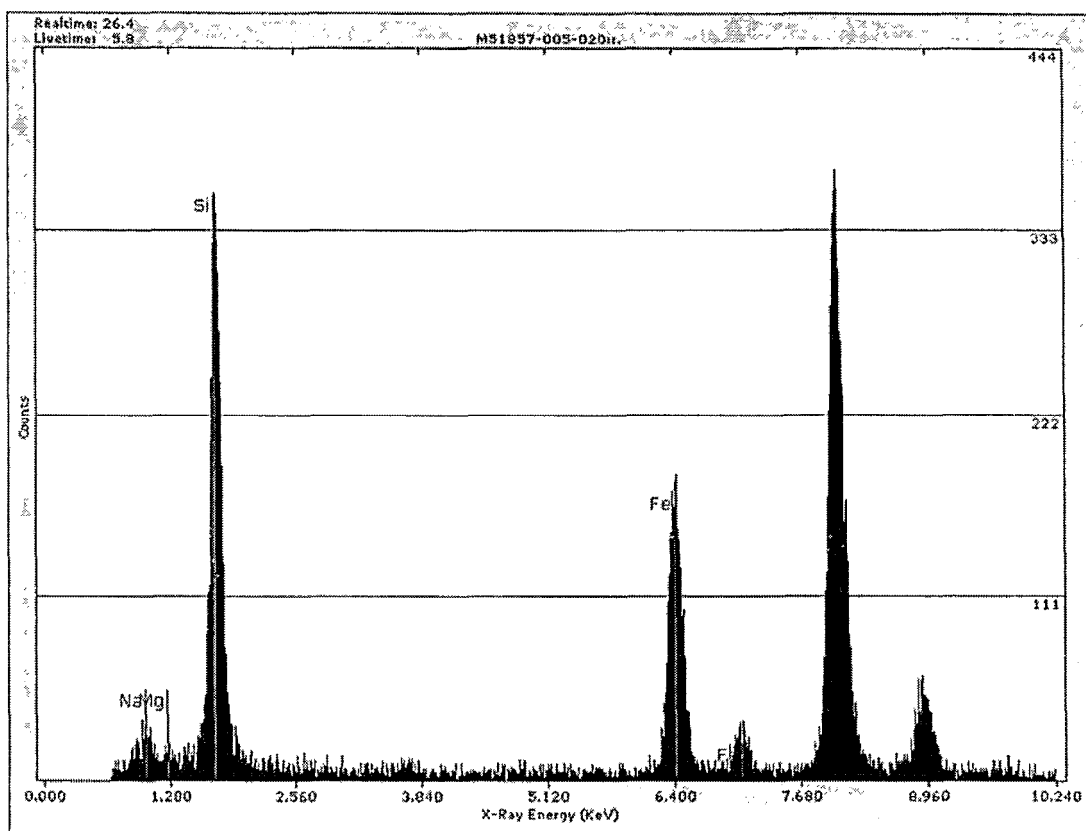


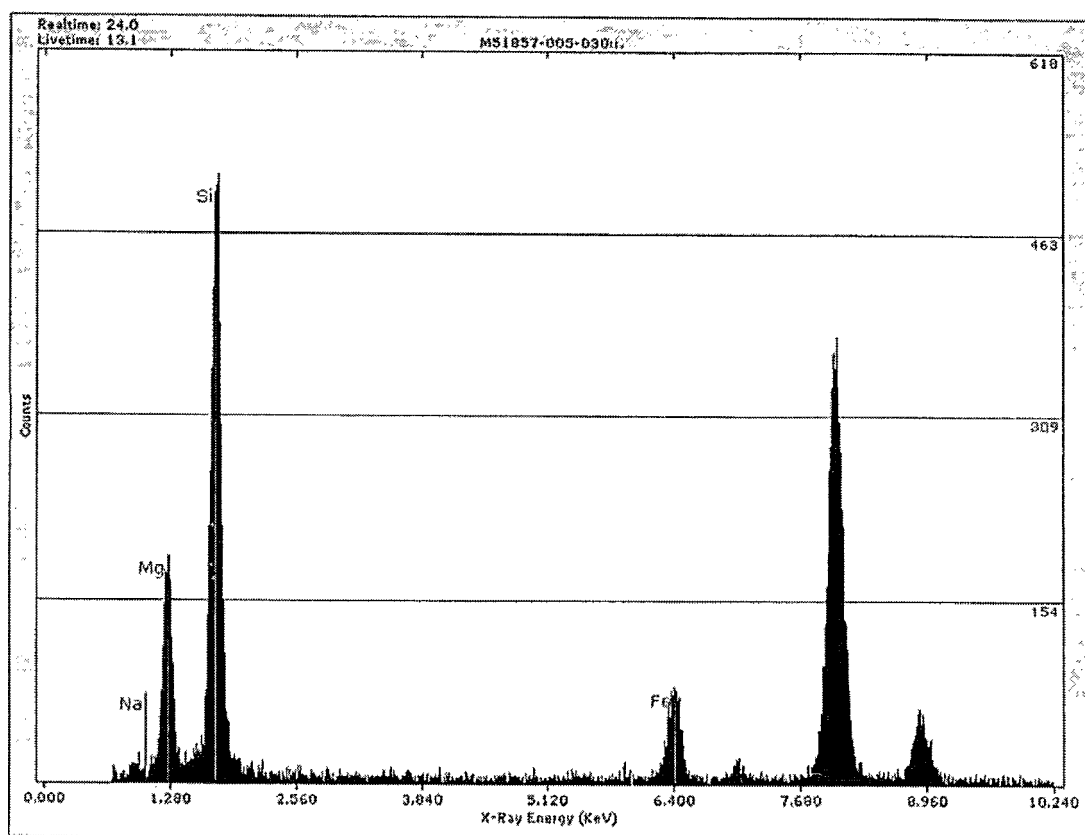


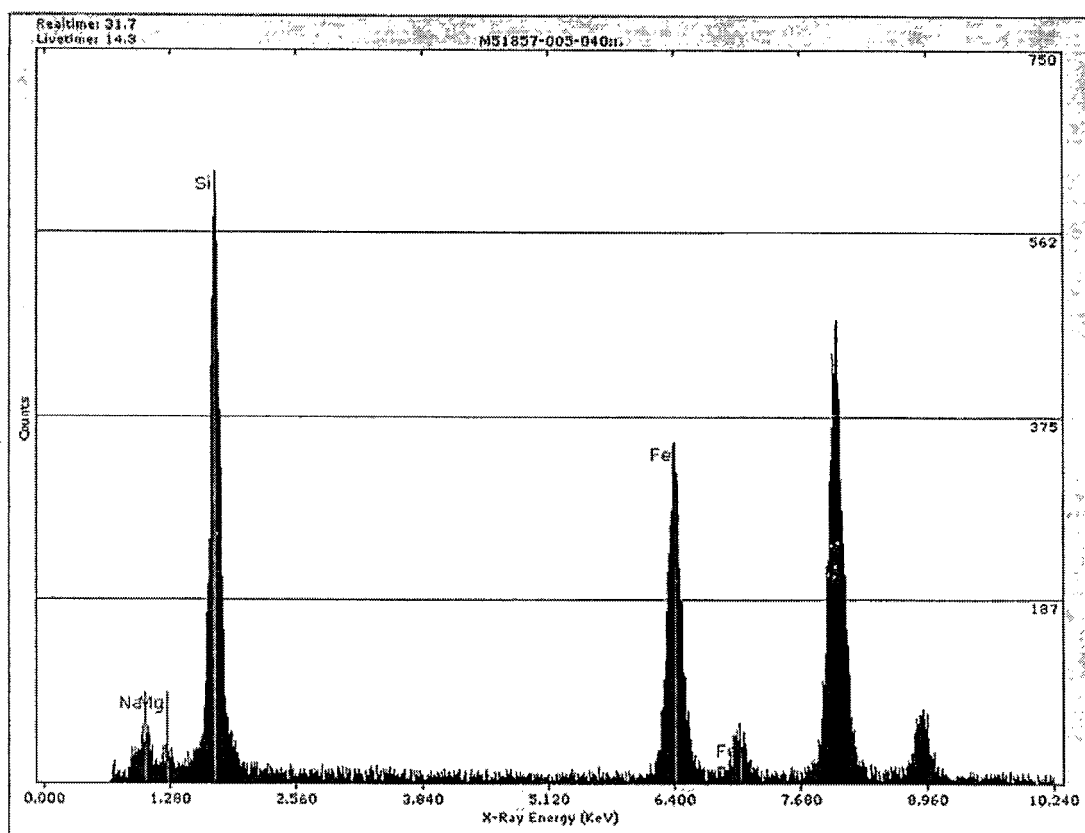


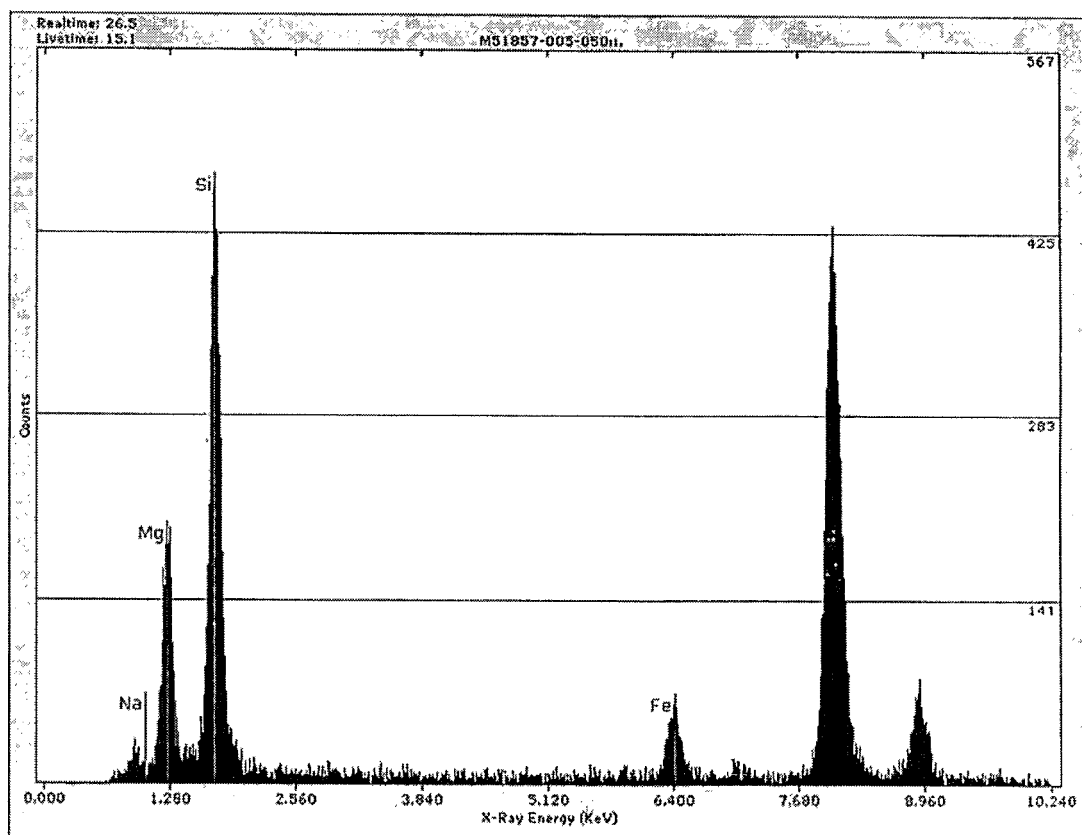


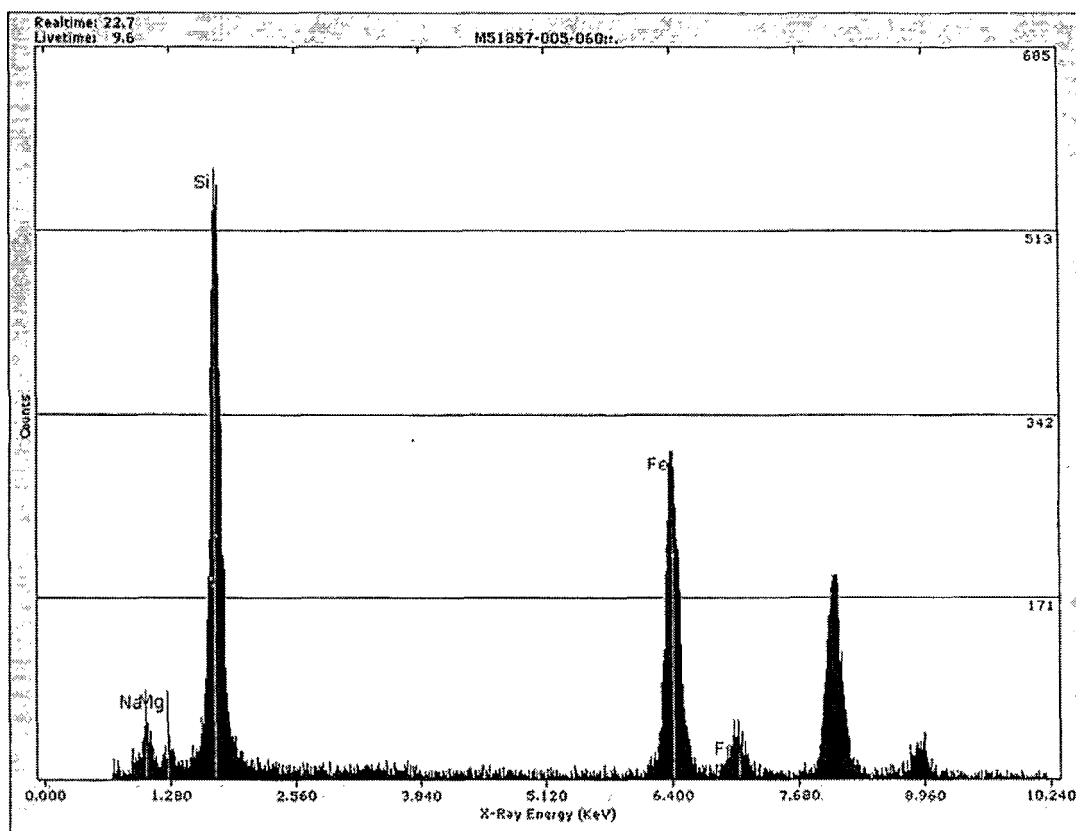


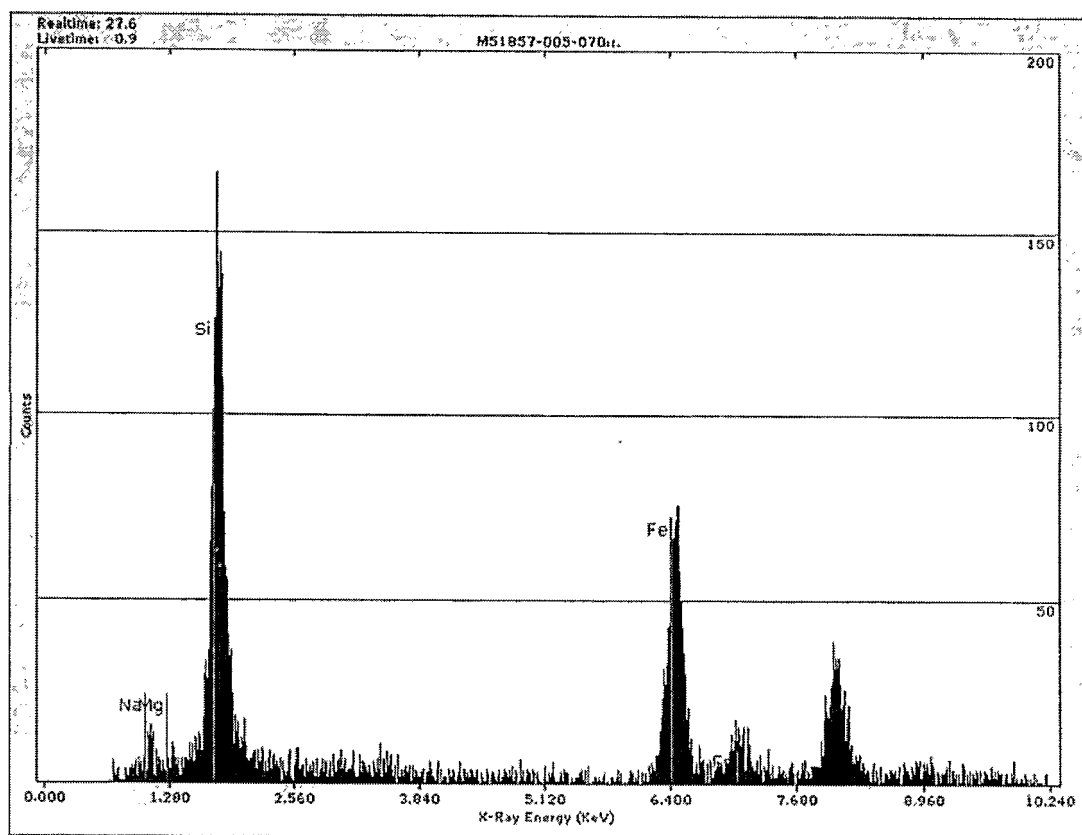


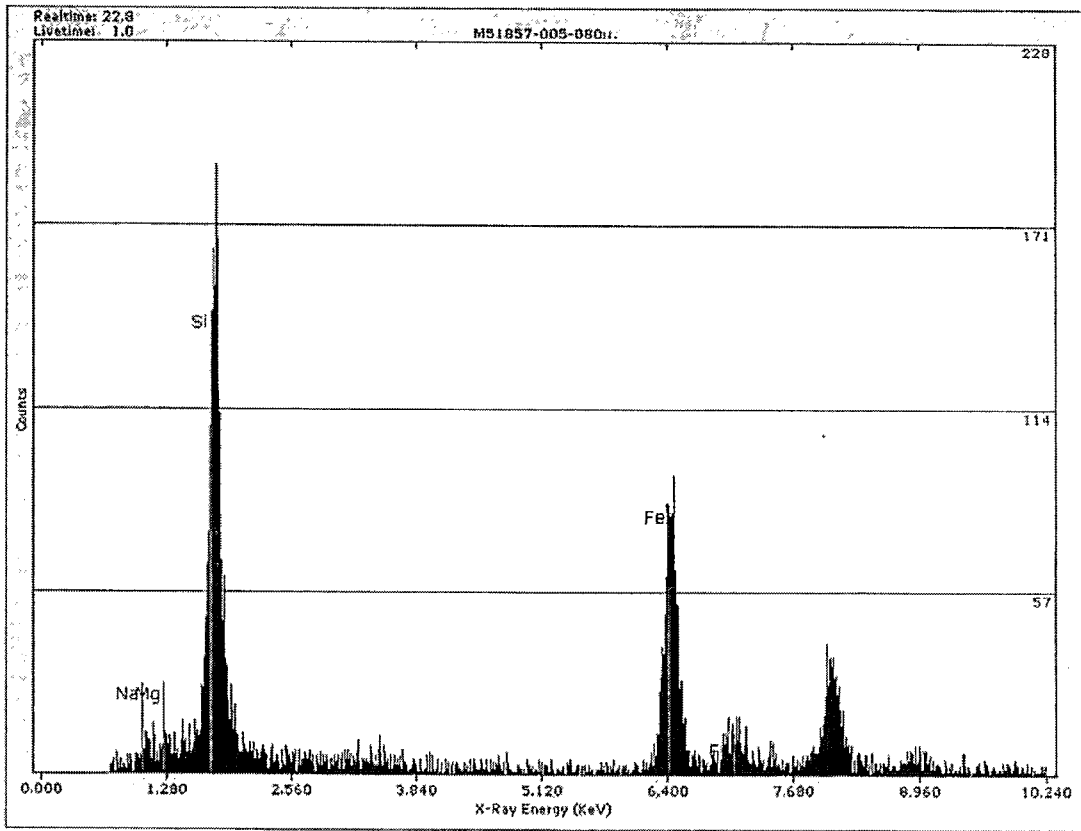


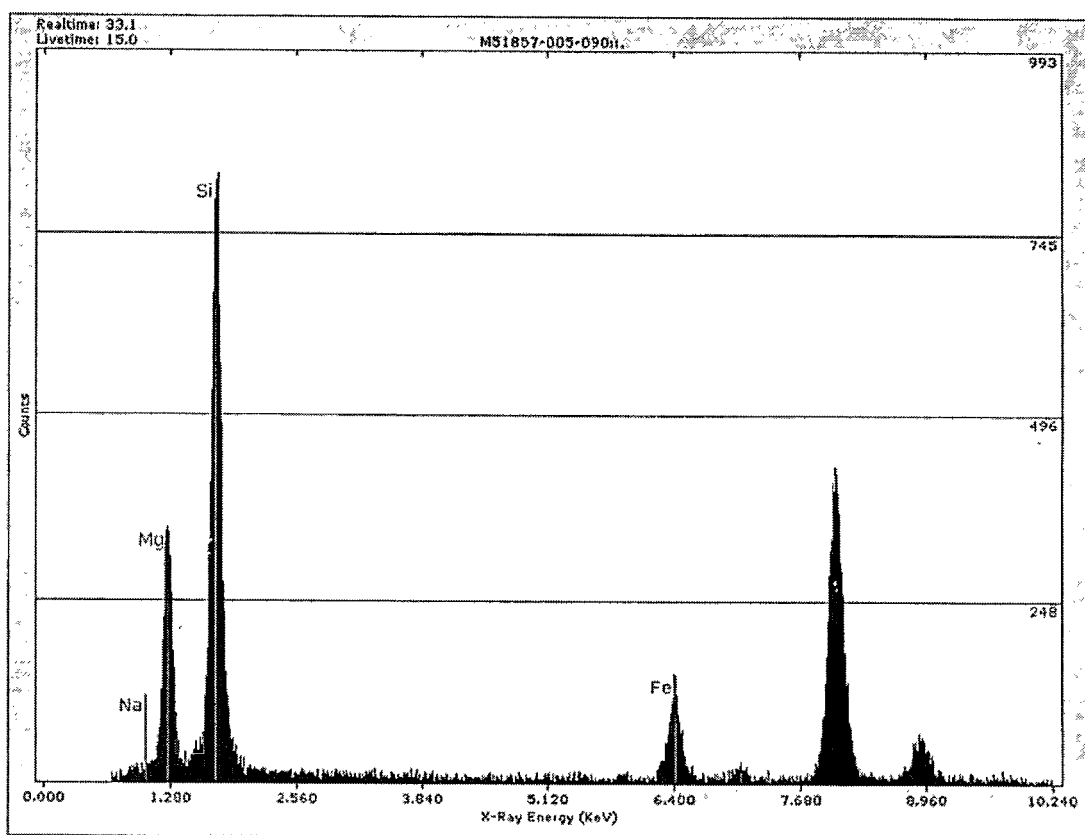


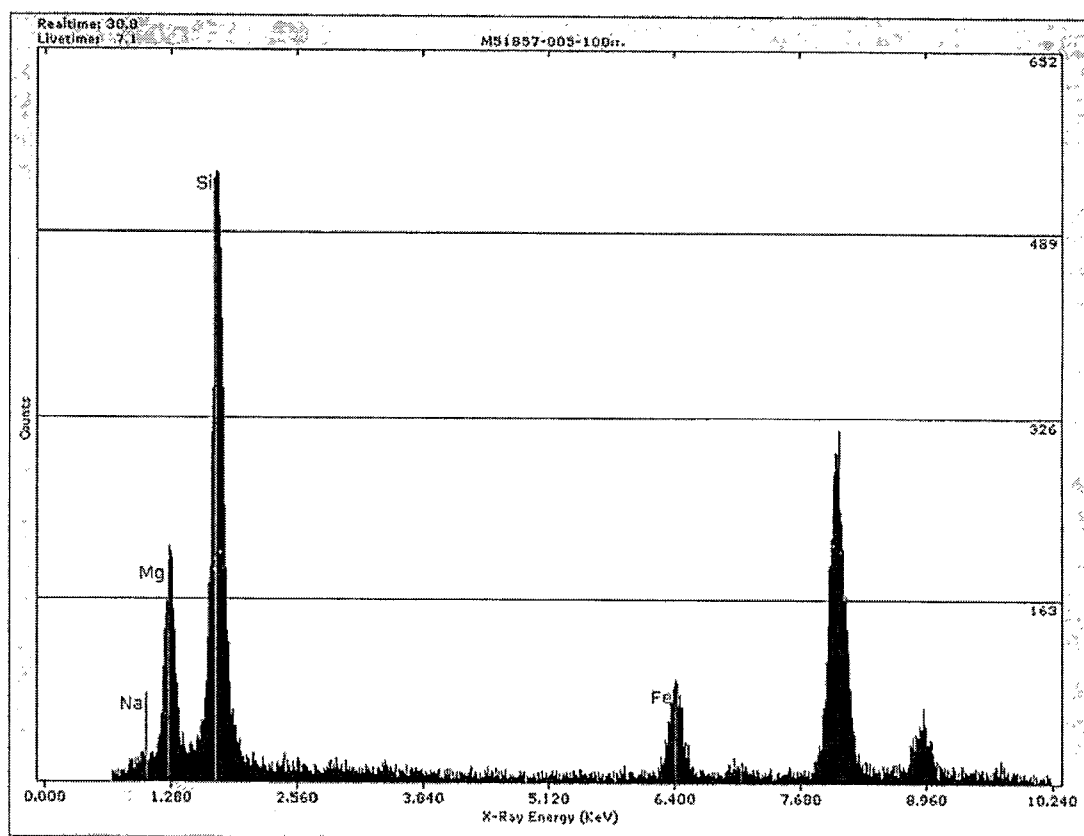












SECTION 6

MAS, LLC.
PROJECT COC

MAS ID: M51863	Client Job No: _____
Client Name: Materials Analytical Services Atlanta	Client PO: _____
Project Name: ECL AC Resin Pipe Cutting Electric Saw	Date In: 9/28/2010
Logged By: ddmount	Client Code: MASCORP

TRANSPORT INFORMATION:

Submitted By: Michael Mount, CIH	Documents: COC
Delivery By: Hand Delivery	_____
Received By: Nancy Sears	Comments for COC: _____
Condition: good	_____

CONTACT INFORMATION:

Contact: Bill Longo	Work Phone: (770) 866-3200	Ext: _____	
Title: First Name: Last Name: Suffix	Other Phone: _____	Ext: _____	
Mr. William Longo	Fax: (770) 866-3259		

SAMPLE INFORMATION:

#	Client ID	Volume	#	Client ID	Volume
000	lab blank	0			
001	A-03-A	540			
002	A-03-B	100			
003	A-03-C	540			
004	A-03-D	500			
005	P-3-A	2.4			
006	P-3-B	2.32			
007	P-3-C	2.44			
008	P-3-D	2.64			
009	A-3-A	8.16			
010	A-3-B	8.24			
011	A-3-C	8.2			
012	A-3-D	7.52			
013	A-3-E	900			
014	FB-3-1	0			
015	FB-3-2	0			

SIGNATURES

RECEIVED BY: _____

m 5100

212 CFM
11.6°F
61.40% RH

INDUSTRIAL HYGIENE AIR SAMPLING CHAIN OF CUSTODY



3945 Lakefield Court
Suwanee, GA 30024
Phone: 770-866-3200
Fax: 770-866-3259

COMPANY NAME MAS, LLC, Dept 14
ADDRESS: _____
PHONE: _____
FAX: _____

PROJECT NUMBER: _____
PROJECT NAME: AC Pipe Cutting, Electric SAW
WORK AREA DESCRIPTION: Study 3 - Carbide Blac
PROJECT REPRESENTATIVE: Mike Mount
SAMPLING DATE: 9/27/10

TURNAROUND TIMES: _____ 1 DAY _____ 3 DAYS _____ STANDARD 5-7 DAYS

DATE	SAMPLE NUMBER	SAMPLE LOCATION	SAMPLE MEDIA	ANALYSIS DESIRED	START TIME	STOP TIME	TOTAL TIME MINUTES	PRE FLOW RATE LPM	POST FLOW RATE LPM	AVG. FLOW RATE LPM	Total Volume Liters
9/27	A-03-A	Background, NE	Bum MCE	7400, 7402	3:55	3:45	50	10.0	11.51	10.8	540
	B	SE		7402				2.0	2.0	2.0	100
	C	SW						10.0	11.6	10.8	540
	D	NW						10.1	9.9	10.0	500
	P-3-A	Personal, On Worker, R		7402	4:04	4:08	4	.66	.53	.60	2.40
	B	L		7402				.64	.52	.58	2.32
	C	R						.60	.62	.61	2.44
	D	L						.68	.64	.66	2.64
	A-3-A	Area, Grinding Cut, NE		7402				2.06	2.02	2.04	8.16
	B	SE		7402				2.09	2.02	2.06	8.24
	C	SW						2.08	2.02	2.05	8.2
	D	NW						1.93	1.83	1.88	247.52
	E	Outside ECh			3:05	4:35	90	10.0	10.0	10	900
	FB-3-1	Field Blank,		7402							0
	2	m51864		7402							0
	FAB-3-1	Fabric Shift Before	Fabric								
	2	AFTER									

CHAIN OF CUSTODY	NAME	COMPANY	MODE OF TRANSFER	LOG IN DATE	RECEIVED BY	COMPANY
First Transfer by:	<u>Mike Mount</u>	<u>Hand MAS LLC</u>	<u>Hand</u>	<u>9-28-10</u>	<u>Paragear</u>	<u>MAS</u>
Second Transfer by:						
Third Transfer by:						

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-001

Client Sample ID: A-03-A Analysis Date: 9/29/10

0	0	0	0	0	0	
0	0	0	0	0	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
1	1	0	0	0	0	30
0	0	0	0	0	0	
0	0	0	0	0	0	40
1	0	0	0	1	0	
1	0	1	0	0	0	50
2	0	0	0	0	2	
1	1	0	0	0	0	60
0.5	0	0	0.5	0	0	
1	1	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
2	1	0	0	0	1	90
2	0	0	2	0	0	
1	0	0	0	1	0	100

Pump Flow Rate, Liters/Minute (FR) 10.8

Sample Time, Minutes (T) 50

Total Sample Volume, Liters (V) 540

Total Fibers Counted, Sample (FCS) 12.5

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 15.9 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= < 0.011 fibers/cm³

12.5

4 1 2.5 2 3

12.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M518635-002

Client Sample ID: A-03-B Analysis Date: 9/29/10

0	0	0	0	0	0	
0	0	0	0	0	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
0	0	0	0	0	0	30
0	0	0	0	0	0	
0	0	0	0	0	0	40
1	0	0	1	0	0	
0	0	0	0	0	0	50
0	0	0	0	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

1.0	0	0	1	0	0	1.0
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Pump Flow Rate, Liters/Minute (FR) 2

Sample Time, Minutes (T) 50

Total Sample Volume, Liters (V) 100

Total Fibers Counted, Sample (FCS) 1.0

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 1.3 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= < 0.027 fibers/cm³

Notes:

Media Type. 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-003

Client Sample ID: A-03-C Analysis Date: 9/29/10

2	0	0	2	0	0	
0	0	0	0	0	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
2	0	1	1	0	0	30
3	1	0	0	1	1	
3	0	0	3	0	0	40
0.5	0	0	0	0	0.5	
0	0	0	0	0	0	50
1	0	1	0	0	0	
3	0	0	0	0	3	60
1	0	0	1	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

Pump Flow Rate, Liters/Minute (FR) 10.8

Sample Time, Minutes (T) 50

Total Sample Volume, Liters (V) 540

Total Fibers Counted, Sample (FCS) 15.5

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 19.7 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 0.014 fibers/cm³

15.5 1 2 7 1 4.5 15.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-004

Client Sample ID: A-03-D Analysis Date: 9/29/10

1	1	0	0	0	0	
0	0	0	0	0	0	10
0	0	0	0	0	0	
2	0	0	0	2	0	20
0	0	0	0	0	0	
2	0	0	1	0	1	30
1	0	1	0	0	0	
0	0	0	0	0	0	40
1	0	0	0	1	0	
0	0	0	0	0	0	50
0	0	0	0	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
1	0	1	0	0	0	80
0	0	0	0	0	0	
0.5	0.5	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

8.5	1.5	2	1	3	1	8.5
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Pump Flow Rate, Liters/Minute (FR) 10

Sample Time, Minutes (T) 50

Total Sample Volume, Liters (V) 500

Total Fibers Counted, Sample (FCS) 8.5

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E= 10.8 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 0.008 fibers/cm³

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-005

Client Sample ID: P-3-A Analysis Date: 9/29/10

29	2.5	6	12	3	5.5	
21.5	4	5	5	5	2.5	10
19	5.5	5.5	1	6	1	
22	5.5	5	4	5	2.5	20
8.5	3.5	2	3			
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 0.6

Sample Time, Minutes (T) 4

Total Sample Volume, Liters (V) 2.4

Total Fibers Counted, Sample (FCS) 100

Total Fields Counted, Samples (FLS) 23

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 553.9 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 88.8 fibers/cm³

100.0 21 23.5 25 19 11.5 100.0

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting Study 3 -
MAS Project: Electric Saw, Carbide Blade MAS Sample #: M51863-006

Client Sample ID: P-3-B Analysis Date: 9/29/10

28.5	7	7	6	5.5	3	
32.5	8.5	5	8	7	4	10
41	6	11.5	7	8.5	8	
28.5	6	7	3.5	6	6	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 0.58

Sample Time, Minutes (T) 4

Total Sample Volume, Liters (V) 2.3

Total Fibers Counted, Sample (FCS) 130.5

Total Fields Counted, Samples (FLS) 20

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 831.2 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 137.9 fibers/cm³

130.5 27.5 30.5 24.5 27 21 130.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-007

Client Sample ID: P-3-C Analysis Date: 9/29/10

36.5	7	8	4	14	3.5	
37.5	8	7.5	7	6	9	10
33.5	5	4	13.5	6	5	
40.5	11	6	2	14.5	7	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100
	148.0	31	25.5	26.5	40.5	24.5 148.0

Pump Flow Rate, Liters/Minute (FR) 0.61

Sample Time, Minutes (T) 4

Total Sample Volume, Liters (V) 2.44

Total Fibers Counted, Sample (FCS) 148

Total Fields Counted, Samples (FLS) 20

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 30

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 942.7 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 148.7 fibers/cm³

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-008

Client Sample ID: P-3-D Analysis Date: 9/29/10

15	2	1.5	9.5	2	0	
22	2	2	8	3	7	10
13.5	3	5	0	2	3.5	
15.5	6.5	2.5	3	3	0.5	20
9.5	2	1	4.5	2	0	
6.5	1	0	2.5	3	0	30
17.5	3	2	2.5	8	2	
2.5	2.5					40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 0.66

Sample Time, Minutes (T) 4

Total Sample Volume, Liters (V) 2.64

Total Fibers Counted, Sample (FCS) 102

Total Fields Counted, Samples (FLS) 36

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E= 360.9 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 52.6 fibers/cm³

102.0

22 14 30 23 13

102.0

Notes.

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-009

Client Sample ID: A-3-A Analysis Date: 9/29/10

57	15	14	15.5	7.5	5	
68.5	10	17.5	12.5	10	18.5	10
77	17.5	17.5	10.5	14.5	17	
72	13.5	14.5	11.5	16	16.5	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 2.04

Sample Time, Minutes (T) 4

Total Sample Volume, Liters (V) 8.16

Total Fibers Counted, Sample (FCS) 274.5

Total Fields Counted, Samples (FLS) 20

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E= 1748.4 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 82.5 fibers/cm³

274.5	56	63.5	50	48	57	274.5
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Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 -
Electric Saw, Carbide Blade MAS Sample #: M51863-010

Client Sample ID: A-3-B Analysis Date: 9/29/10

44.5	7.5	9	6.5	10	11.5	
60.5	8.5	7	8	17	20	10
56.5	13	9.5	9.5	8	16.5	
45	9	11.5	6	14	4.5	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 2.06

Sample Time, Minutes (T) 4

Total Sample Volume, Liters (V) 8.24

Total Fibers Counted, Sample (FCS) 206.5

Total Fields Counted, Samples (FLS) 20

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E = 1315.3 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C = 61.5 fibers/cm³

206.5 38 37 30 49 52.5 **206.5**

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-011

Client Sample ID: A-3-C Analysis Date: 9/29/10

68.5	16	15	20	7	10.5	
81.5	11.5	19.5	15.5	18.5	16.5	10
81	19.5	17.5	15	17.5	11.5	
71	13.5	19	17.5	11.5	9.5	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100
	60.5	71	68	54.5	48	

Pump Flow Rate, Liters/Minute (FR) 2.05

Sample Time, Minutes (T) 4

Total Sample Volume, Liters (V) 8.2

Total Fibers Counted, Sample (FCS) 302

Total Fields Counted, Samples (FLS) 20

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E= 1923.6 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 90.3 fibers/cm³

302.0

302.0

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

AC Resin Pipe Cutting Study 3 -
 MAS Project: Electric Saw, Carbide Blade MAS Sample #: M51863-012

Client Sample ID: A-3-D Analysis Date: 9/29/10

62.5	18.5	6	17	14.5	6.5	
60	12	19.5	10	6	12.5	10
64	10.5	15.5	12	8	18	
65	16.5	8.5	18	10.5	11.5	20
0						
0						30
0						
0						40
0						
0						50
0						
0						60
0						
0						70
0						
0						80
0						
0						90
0						
0						100

Pump Flow Rate, Liters/Minute (FR) 1.88

Sample Time, Minutes (T) 4

Total Sample Volume, Liters (V) 7.52

Total Fibers Counted, Sample (FCS) 251.5

Total Fields Counted, Samples (FLS) 20

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= 1601.9 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= 82.0 fibers/cm³

251.5 57.5 49.5 57 39 48.5 251.5

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-013

Client Sample ID: A-3-E Analysis Date: 9/29/10

0.5	0	0.5	0	0	0	
0	0	0	0	0	0	10
1	0	0	1	0	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
0	0	0	0	0	0	30
0	0	0	0	0	0	
2	2	0	0	0	0	40
0	0	0	0	0	0	
0	0	0	0	0	0	50
1.5	0	0	1	0	0.5	
0.5	0	0	0.5	0	0	60
0	0	0	0	0	0	
1	1	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
1	0	0	0	1	0	
1	0	0	0	1	0	90
0.5	0	0.5	0	0	0	
1	0	0	1	0	0	100

Pump Flow Rate, Liters/Minute (FR) 10

Sample Time, Minutes (T) 90

Total Sample Volume, Liters (V) 900

Total Fibers Counted, Sample (FCS) 10

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E = 12.7 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C = 0.005 fibers/cm³

10.0 3 1 3.5 2 0.5 10.0

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-014

Client Sample ID: FB-3-1 Analysis Date: 9/29/10

0	0	0	0	0	0	
0	0	0	0	0	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
0	0	0	0	0	0	30
0	0	0	0	0	0	
0	0	0	0	0	0	40
0	0	0	0	0	0	
0	0	0	0	0	0	50
0	0	0	0	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

Pump Flow Rate, Liters/Minute (FR) 0

Sample Time, Minutes (T) 0

Total Sample Volume, Liters (V) 0

Total Fibers Counted, Sample (FCS) 0

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= < 7.0 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= NA fibers/cm³

0.0 0 0 0 0 0 0.0

Notes:

Media Type. 25 mm MCE Filter

Limit of Quantition (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-015

Client Sample ID: FB-3-2 Analysis Date: 9/29/10

0	0	0	0	0	0	
0	0	0	0	0	0	10
0	0	0	0	0	0	
0	0	0	0	0	0	20
0	0	0	0	0	0	
0	0	0	0	0	0	30
0	0	0	0	0	0	
0	0	0	0	0	0	40
0	0	0	0	0	0	
0	0	0	0	0	0	50
0	0	0	0	0	0	
0	0	0	0	0	0	60
0	0	0	0	0	0	
0	0	0	0	0	0	70
0	0	0	0	0	0	
0	0	0	0	0	0	80
0	0	0	0	0	0	
0	0	0	0	0	0	90
0	0	0	0	0	0	
0	0	0	0	0	0	100

Pump Flow Rate, Liters/Minute (FR) 0

Sample Time, Minutes (T) 0

Total Sample Volume, Liters (V) 0

Total Fibers Counted, Sample (FCS) 0

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/ mm²

E= < 7.0 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C= NA fibers/cm³

0.0 0 0 0 0 0 0.0

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased.

Analyst: W. B. Egeland

Date: 9/29/2010

Reviewed By: M. Mount

Date: 10/4/2010

Materials Analytical Services

Airborne Fiber Analysis-NIOSH 7400 Issue 2, PCM

MAS Project: AC Resin Pipe Cutting Study 3 - Electric Saw, Carbide Blade MAS Sample #: M51863-

Client Sample ID: _____ Analysis Date: _____

0					
0					10
0					
0					20
0					
0					30
0					
0					40
0					
0					50
0					
0					60
0					
0					70
0					
0					80
0					
0					90
0					
0					100

Pump Flow Rate, Liters/Minute (FR) 0

Sample Time, Minutes (T) 0

Total Sample Volume, Liters (V) 0

Total Fibers Counted, Sample (FCS) 0

Total Fields Counted, Samples (FLS) 100

Total Fibers Counted, Blank (FCB) 0

Total Fields Counted, Blank (FLB) 100

Area of Filter, mm² (AF) 385

Graticule Field Area, MM² (GFA) 0.00785

Calc. of Fiber Density (E) in Fibers/mm²

E = < 7.0 fibers/mm²

Calc. of Fiber Conc.(C) in Fibers/cm³

C = < #DIV/0! fibers/cm³

0.0 0 0 0 0 0 0.0

Notes:

Media Type: 25 mm MCE Filter

Limit of Quantitation (LOQ) = 7 fibers/mm²

Fiber counts outside the 100-1300 fibers/mm² range have greater than optimal variability and are probably biased

Analyst: W. B. Egeland

Date: _____

Reviewed By: M. Mount

Date: _____

m 51863

Page 1 of 1 $\bar{a}$ CFM
21.6°F
61.40% RH

INDUSTRIAL HYGIENE AIR SAMPLING CHAIN OF CUSTODY

3945 Lakefield Court
Suwanee, GA 30024
Phone: 770-866-3200
Fax: 770-866-3259COMPANY NAME MAS, LLC, Dept 14

ADDRESS: _____

PHONE: _____

FAX: _____

PROJECT NUMBER: _____

PROJECT NAME: PR: Pipe Cutting, Electric SawWORK AREA DESCRIPTION: Study 3 - Carbide BladePROJECT REPRESENTATIVE: Mike MountSAMPLING DATE: 9/27/10

TURNAROUND TIMES: _____ 1 DAY _____ 3 DAYS _____ STANDARD 5-7 DAYS

DATE	SAMPLE NUMBER	SAMPLE LOCATION	SAMPLE MEDIA	ANALYSIS DESIRED	START TIME	STOP TIME	TOTAL TIME MINUTES	PRE FLOW RATE LPM	POST FLOW RATE LPM	AVG. FLOW RATE LPM	Total Volume Liters
9/27	A-03-A	Background, NE	8um, MCE	7400, 7402	2:55	3:45	50	10.0	11.51	10.8	540
	B	SE		7402				2.0	2.0	2.0	100
	C	SW						10.0	11.6	10.8	540
	D	NW						10.1	9.9	10.0	500
	P-3-A	Personal, On Worker, R		7402	4:04	4:08	4	.66	.53	.60	2.40
	B	L		7402				.64	.52	.58	2.32
	C	R						.60	.62	.61	2.44
	D	L						.68	.64	.66	2.64
	A-3-A	Area, During Cut, NE		7402				2.06	2.02	2.04	8.16
	B	SE		7402				2.09	2.02	2.06	8.24
	C	SW						2.08	2.02	2.05	8.2
	D	NW						1.93	1.83	1.88	7.52
	E	Outside ECH			3:05	4:35	90	10.0	10.0	10	900
	FB-3-1	Field Blank,		7402							0
	2			7402							0
	FB-3-1	Fabric Shirt Before	Fabric								
	2	AFTER									

CHAIN OF CUSTODY	NAME	COMPANY	MODE OF TRANSFER	LOG IN DATE	RECEIVED BY	COMPANY
First Transfer by:	<u>Mike Mount</u>	<u>MAS LLC</u>	<u>Hand</u>	<u>9-28-10</u>	<u>Paras</u>	<u>MAS</u>
Second Transfer by:						
Third Transfer by:						

m 51863

Page 1 of 1 2. 3FM
71.6°F
61.40% RH

INDUSTRIAL HYGIENE AIR SAMPLING CHAIN OF CUSTODY



3945 Lakefield Court
Suwanee, GA 30024
Phone: 770-866-3200
Fax: 770-866-3259

COMPANY NAME MAS, LLC, Dept 14

ADDRESS: _____

PHONE: _____

FAX: _____

PROJECT NUMBER: _____

PROJECT NAME: PR: Pipe Cutting, Electric SAW
WORK AREA DESCRIPTION: Study 3- Carbide BladePROJECT REPRESENTATIVE: Mike MountSAMPLING DATE: 9/27/10

TURNAROUND TIMES: _____ 1 DAY _____ 3 DAYS _____ STANDARD 5-7 DAYS

DATE	SAMPLE NUMBER	SAMPLE LOCATION	SAMPLE MEDIA	ANALYSIS DESIRED	START TIME	STOP TIME	TOTAL TIME MINUTES	PRE FLOW RATE LPM	POST FLOW RATE LPM	AVG. FLOW RATE LPM	Total Volume Liters
9/27	A-03-A	Background, NE	8um MCF	7400, 7402	2:55	3:45	50	10.0	11.51	10.8	540
	B	SE		7402				2.0	2.0	2.0	100
	C	SW						10.0	11.6	10.8	540
	D	NW						10.1	9.9	10.0	500
	P-3-A	Personal, Dr Worker, R		7402	4:04	4:08	4	.66	.53	.60	2.40
	b	L		7402				.64	.52	.58	2.32
	c	R						.60	.62	.61	2.44
	D	L						.68	.64	.66	2.64
	A-3-A	Area, Drilling Cut, NE		7402				2.06	2.02	2.04	8.16
	B	SE		7402				2.09	2.02	2.06	8.24
	C	SW						2.08	2.02	2.05	8.2
	D	NW						1.93	1.83	1.88	7.52
	E	Outside ECh			3:05	4:35	90	10.0	10.0	10	900
	FB-3-1	Field Blank,		7402							0
	2			7402							0
		m 51864									
	FAB-3-1	Fabric Shirt Before Fabric									
	2	AFTER									

CHAIN OF CUSTODY	NAME	COMPANY	MODE OF TRANSFER	LOG IN DATE	RECEIVED BY	COMPANY
First Transfer by:	<u>Mike Mount</u>	<u>MAS LLC</u>	<u>Hand</u>	<u>9-28-10</u>	<u>Narayana S</u>	<u>MAS</u>
Second Transfer by:						
Third Transfer by:						

MAS TEM ANALYSIS

M51863-005

CLIENT NAME: Materials Analytical Services Atlanta

CLIENT SAMPLE ID: P-3-A

7402 ANALYSIS

Sample Area/ Volume: 2.4 Liters

Filter Type: MCE 25mm

Pore size: 0.8

Effective Filter Area: 385

Sample type: Air

Analysis type: 7402

Grid Acceptance YES 5 %

Date Analyzed: 10/1/2010

Analyst: A. Keeton

Scope Number: 2

Accelerating Voltage: 100 KV

Indicated Mag: 25 KX

Screen Mag: 20 KX

Grid_box: 7710

Number of grids: 3 #1: 110 #3: 110

Number of openings: 14 #2: 110 #4: 110

Asbestos 102

Non-asbestos 0

Average Grid Size: 0.012100 Total Area Analyzed: 0.169

% Asbestos 100

Str#:	SquareID:	Fiber Type	Size		Morph:	SAED	EDS
1	A5-A2	Anthophyllite	16.2	1.1	Amphibole	Amphibole	✓
2		Anthophyllite	21.4	0.6	Amphibole	Amphibole	✓
3		Crocidolite	8.7	0.6	Amphibole	Amphibole	✓
4		Anthophyllite	13.5	0.5	Amphibole	Amphibole	✓
5		Anthophyllite	14.8	0.4	Amphibole	Amphibole	✓
6	A3	Anthophyllite	6.5	0.6	Amphibole	Amphibole	✓
7		Anthophyllite	7.2	1.1	Amphibole	Amphibole	✓
8		Anthophyllite	14	2	Amphibole	Amphibole	✓
9		Anthophyllite	7.1	1	Amphibole	Amphibole	✓
10		Anthophyllite	9	1.2	Amphibole	Amphibole	✓
11	B10	Anthophyllite	13	0.4	Amphibole	Amphibole	✓
12		Crocidolite	5.8	0.3	Amphibole	Amphibole	✓
13		Anthophyllite	14	1.5	Amphibole	Amphibole	✓
14		Anthophyllite	14.1	0.4	Amphibole	Amphibole	✓
15		Anthophyllite	6.2	0.8	Amphibole	Amphibole	✓
16	D2	Anthophyllite	8.5	0.5	Amphibole	Amphibole	✓
17		Crocidolite	7	0.45	Amphibole	Amphibole	✓
18		Anthophyllite	8	0.5	Amphibole	Amphibole	✓
19		Crocidolite	12.1	0.3	Amphibole	Amphibole	✓
20		Anthophyllite	14	0.5	Amphibole	Amphibole	✓
21		Crocidolite	7.1	0.4	Amphibole	Amphibole	✓
22		Crocidolite	8.5	0.3	Amphibole	Amphibole	✓
23		Anthophyllite	22.5	0.4	Amphibole	Amphibole	✓
24		Anthophyllite	5.1	0.6	Amphibole	Amphibole	✓
25		Crocidolite	17.1	0.8	Amphibole	Amphibole	✓
26		Anthophyllite	18	2	Amphibole	Amphibole	✓
27		Anthophyllite	6.7	0.4	Amphibole	Amphibole	✓
28		Crocidolite	23.1	1.5	Amphibole	Amphibole	✓

29		Anthophyllite	10.2	0.5	Amphibole	Amphibole	
30		Anthophyllite	9	0.5	Amphibole	Amphibole	
31		Anthophyllite	6.8	0.4	Amphibole	Amphibole	
32		Crocidolite	11.3	0.3	Amphibole	Amphibole	
33		Anthophyllite	8.5	0.5	Amphibole	Amphibole	
34		Anthophyllite	5.8	0.3	Amphibole	Amphibole	
35		Anthophyllite	15.5	2.2	Amphibole	Amphibole	
36		Anthophyllite	20.8	0.6	Amphibole	Amphibole	
37		Anthophyllite	13	2	Amphibole	Amphibole	
38		Anthophyllite	13.5	0.3	Amphibole	Amphibole	
39		Crocidolite	13.3	0.6	Amphibole	Amphibole	
40	D4	Anthophyllite	7	0.6	Amphibole	Amphibole	
41		Crocidolite	10.1	0.4	Amphibole	Amphibole	
42		Crocidolite	85.5	2	Amphibole	Amphibole	
43		Anthophyllite	48.6	2	Amphibole	Amphibole	
44		Anthophyllite	7	0.5	Amphibole	Amphibole	
45		Crocidolite	13.5	0.5	Amphibole	Amphibole	
46		Crocidolite	18.5	0.4	Amphibole	Amphibole	
47	G2	Crocidolite	22.5	2.7	Amphibole	Amphibole	
48		Crocidolite	10.2	0.3	Amphibole	Amphibole	
49		Crocidolite	5.1	0.4	Amphibole	Amphibole	
50		Crocidolite	31.8	0.3	Amphibole	Amphibole	
51	G10	Anthophyllite	23	1.5	Amphibole	Amphibole	
52		Crocidolite	17.1	0.3	Amphibole	Amphibole	
53		Crocidolite	35.1	0.5	Amphibole	Amphibole	
54		Anthophyllite	5.5	0.6	Amphibole	Amphibole	
55		Crocidolite	17.3	2	Amphibole	Amphibole	
56		Crocidolite	35.1	0.6	Amphibole	Amphibole	
57		Anthophyllite	9	0.4	Amphibole	Amphibole	
58		Crocidolite	11.8	0.6	Amphibole	Amphibole	
59	A6-A3	Anthophyllite	16.3	1.5	Amphibole	Amphibole	
60		Crocidolite	9	0.3	Amphibole	Amphibole	
61		Crocidolite	5.3	0.3	Amphibole	Amphibole	
62		Anthophyllite	11.8	0.4	Amphibole	Amphibole	
63		Anthophyllite	6.7	0.3	Amphibole	Amphibole	
64	A4	Anthophyllite	9	0.3	Amphibole	Amphibole	
65		Anthophyllite	7	0.4	Amphibole	Amphibole	
66		Anthophyllite	5.8	0.5	Amphibole	Amphibole	
67	C3	Anthophyllite	9	0.4	Amphibole	Amphibole	
68		Anthophyllite	13.5	1.1	Amphibole	Amphibole	
69		Crocidolite	13	1.8	Amphibole	Amphibole	
70		Crocidolite	5.1	0.3	Amphibole	Amphibole	
71		Anthophyllite	11.2	0.5	Amphibole	Amphibole	
72		Anthophyllite	7	1	Amphibole	Amphibole	
73		Anthophyllite	7	1.1	Amphibole	Amphibole	
74		Anthophyllite	7.5	1.1	Amphibole	Amphibole	
75	D8	Anthophyllite	6.3	0.3	Amphibole	Amphibole	
76		Anthophyllite	30.6	1	Amphibole	Amphibole	
77		Anthophyllite	10.8	0.8	Amphibole	Amphibole	
78		Anthophyllite	6.5	0.8	Amphibole	Amphibole	
79		Anthophyllite	18.6	0.5	Amphibole	Amphibole	
80		Crocidolite	14.8	0.8	Amphibole	Amphibole	
81	F2	Crocidolite	6.9	0.3	Amphibole	Amphibole	
82		Anthophyllite	9	1	Amphibole	Amphibole	

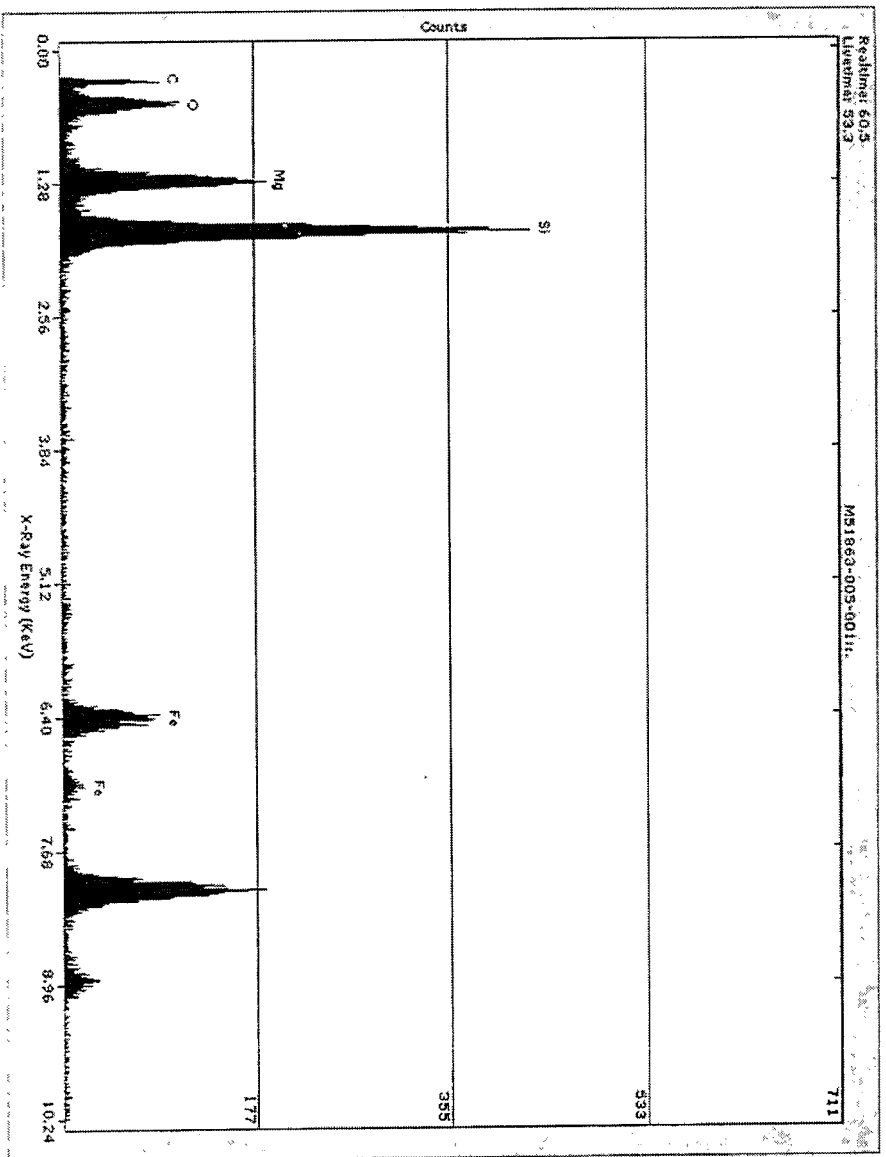
83		Anthophyllite	6.7	0.8	Amphibole	Amphibole	
84		Anthophyllite	10.6	0.8	Amphibole	Amphibole	
85	A7-D6	Anthophyllite	29.3	1	Amphibole	Amphibole	
86		Anthophyllite	22.6	0.6	Amphibole	Amphibole	
87		Crocidolite	7.5	0.3	Amphibole	Amphibole	
88		Anthophyllite	10.3	0.8	Amphibole	Amphibole	
89		Crocidolite	16.1	0.4	Amphibole	Amphibole	
90		Anthophyllite	18	1	Amphibole	Amphibole	
91		Anthophyllite	6.5	1.1	Amphibole	Amphibole	
92		Anthophyllite	6.8	0.3	Amphibole	Amphibole	
93		Anthophyllite	7	0.3	Amphibole	Amphibole	
94	F7	Anthophyllite	6.9	0.5	Amphibole	Amphibole	
95		Anthophyllite	7.1	1.1	Amphibole	Amphibole	
96		Crocidolite	13	0.4	Amphibole	Amphibole	
97		Anthophyllite	9.3	0.4	Amphibole	Amphibole	
98		Crocidolite	9	0.3	Amphibole	Amphibole	
99		Crocidolite	72	1.8	Amphibole	Amphibole	
100		Anthophyllite	13.8	0.4	Amphibole	Amphibole	
101		Crocidolite	8.5	0.4	Amphibole	Amphibole	
102		Crocidolite	17.1	0.3	Amphibole	Amphibole	

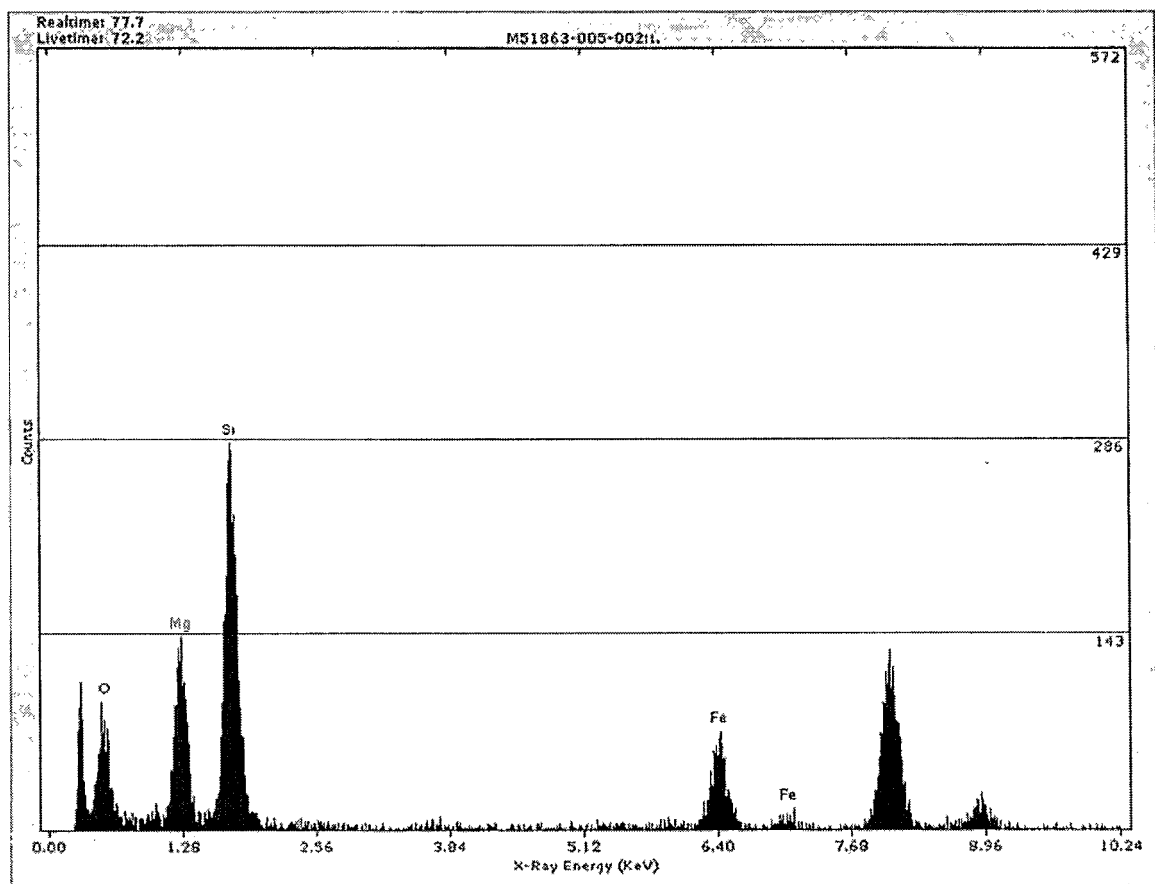
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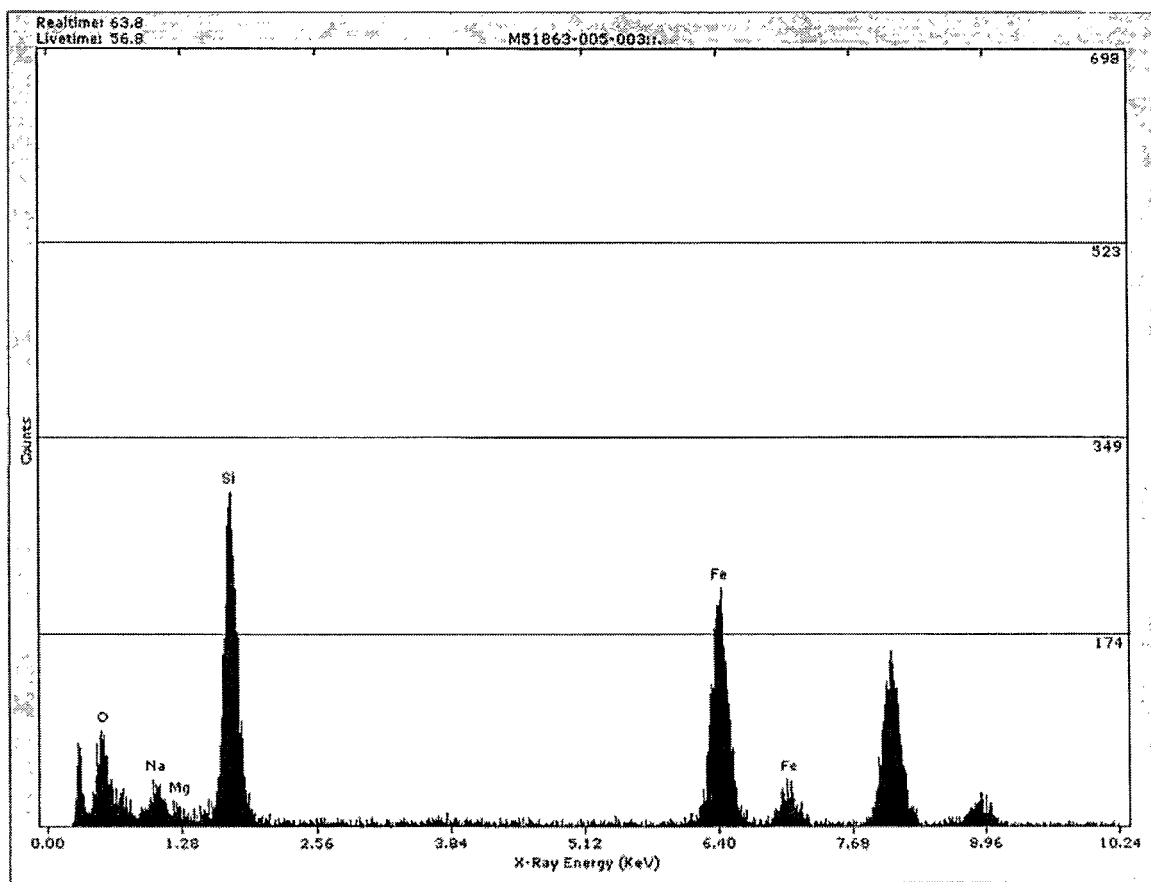
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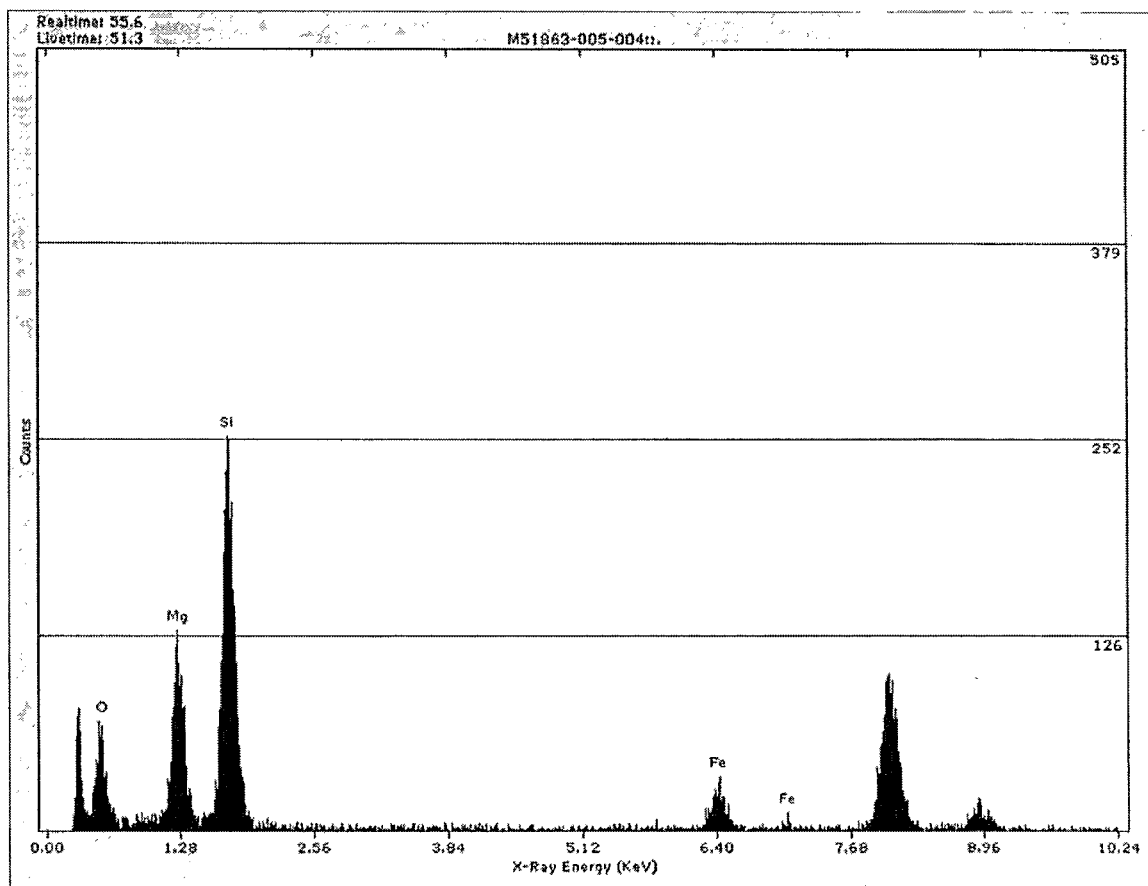
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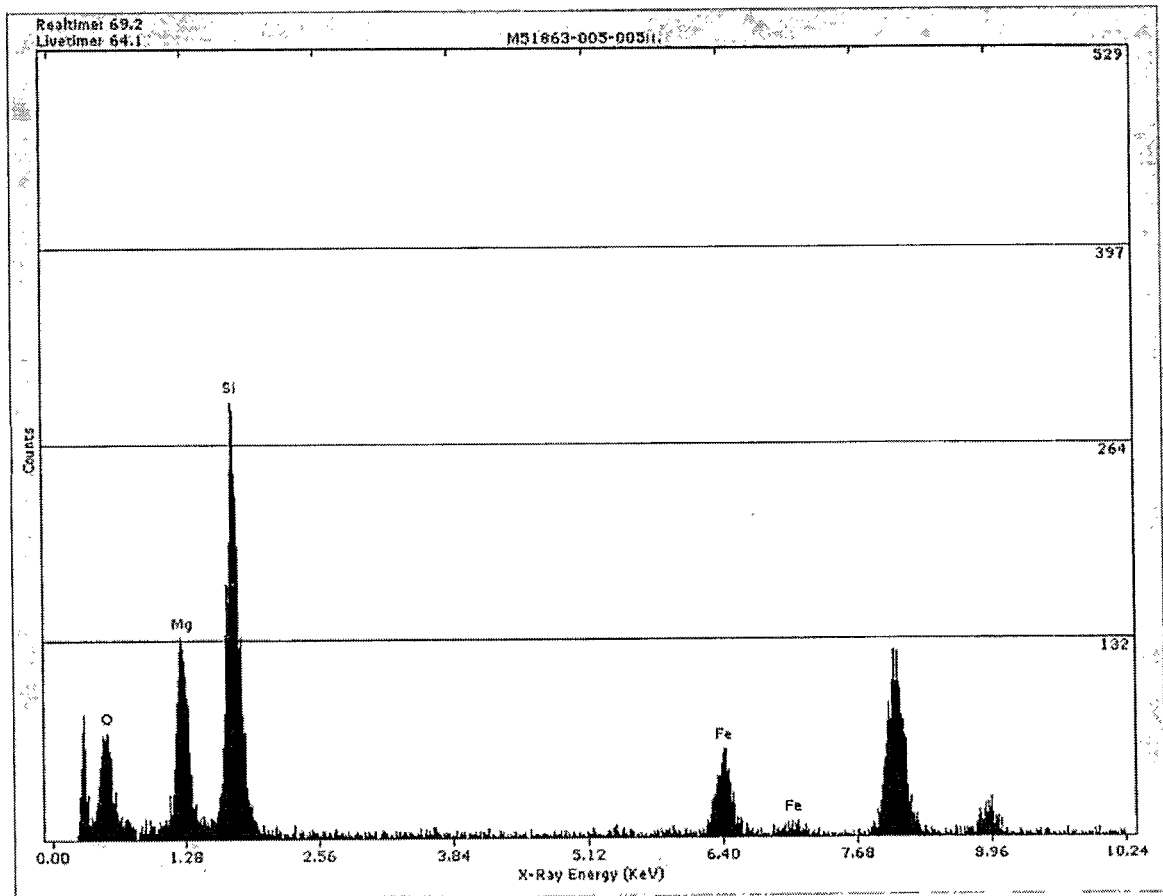
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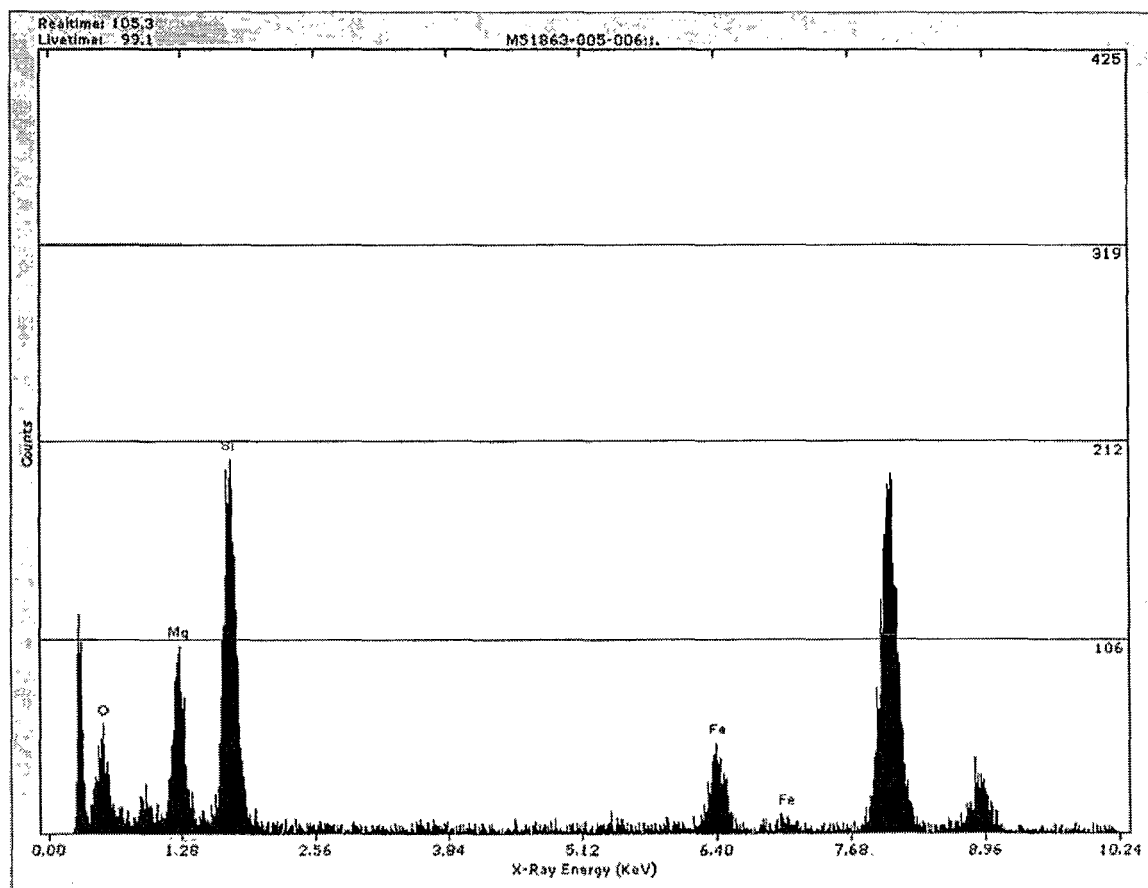


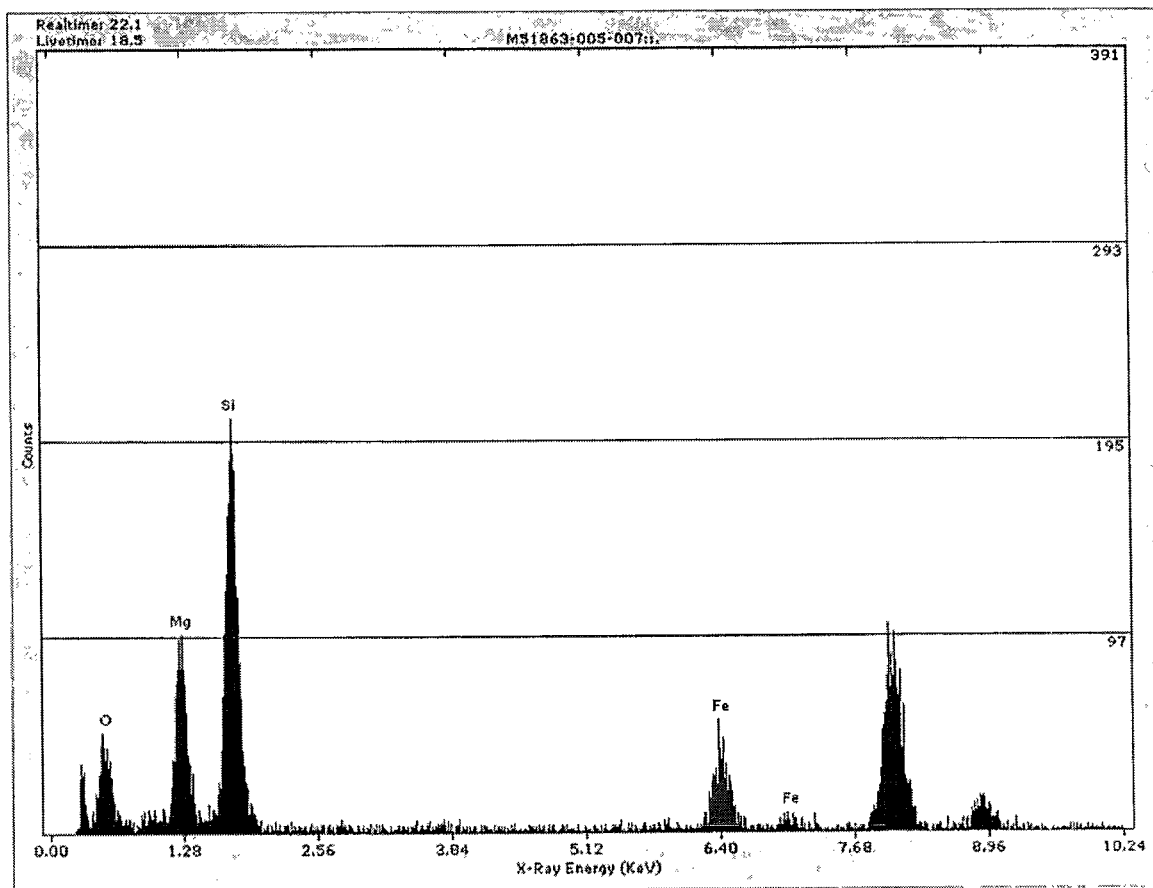


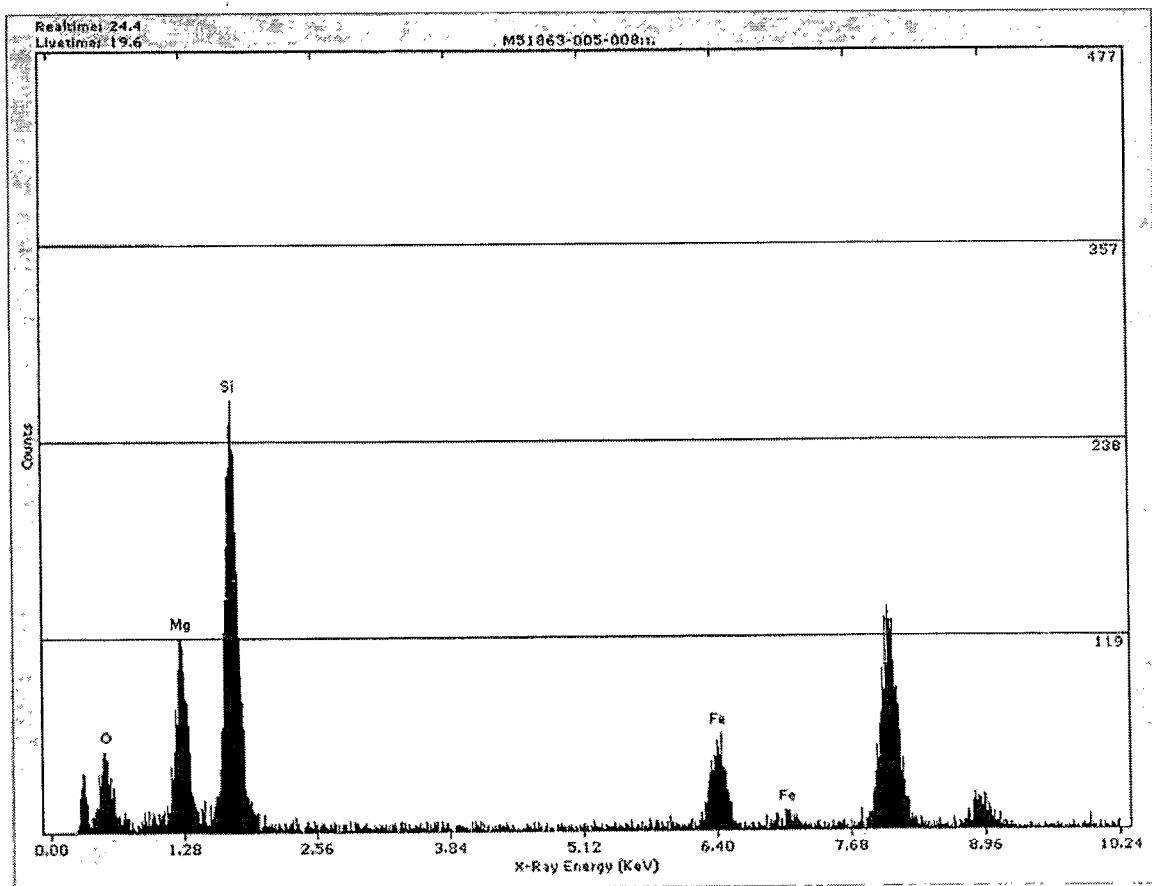


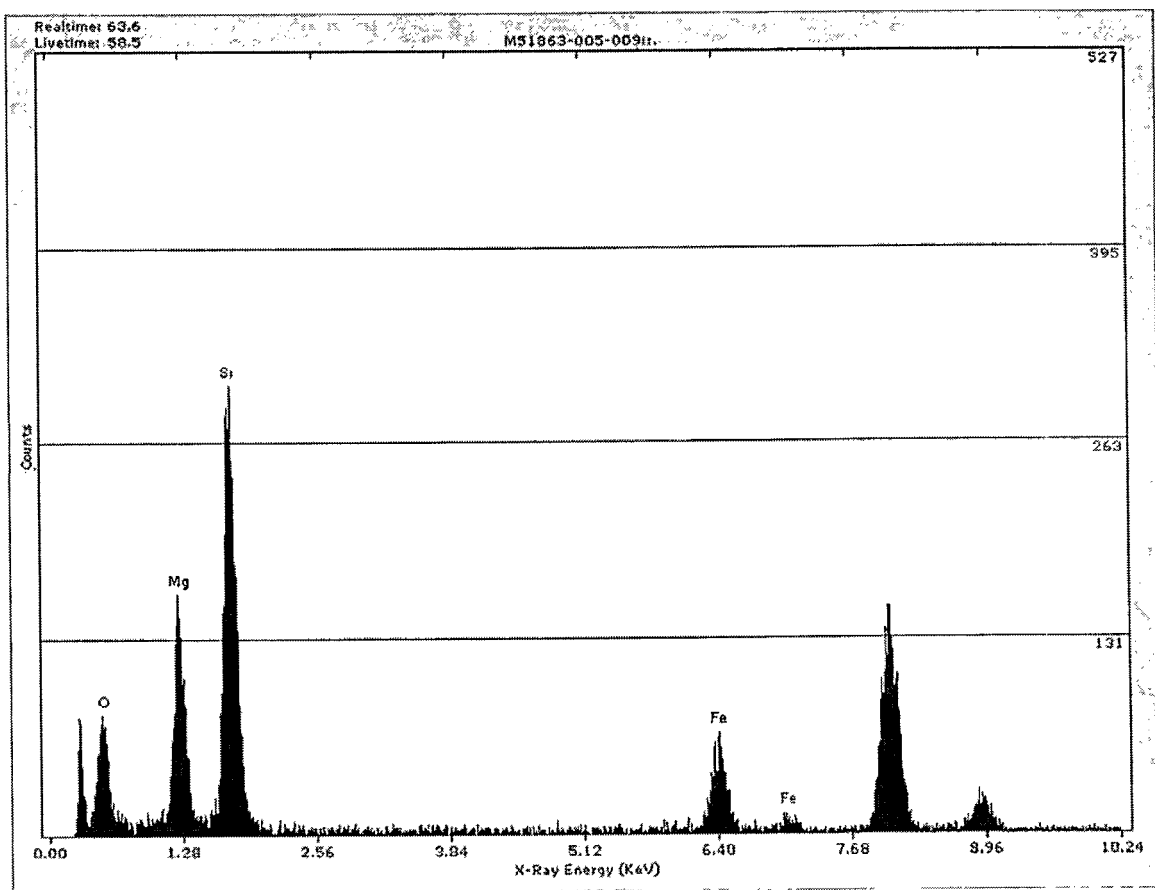


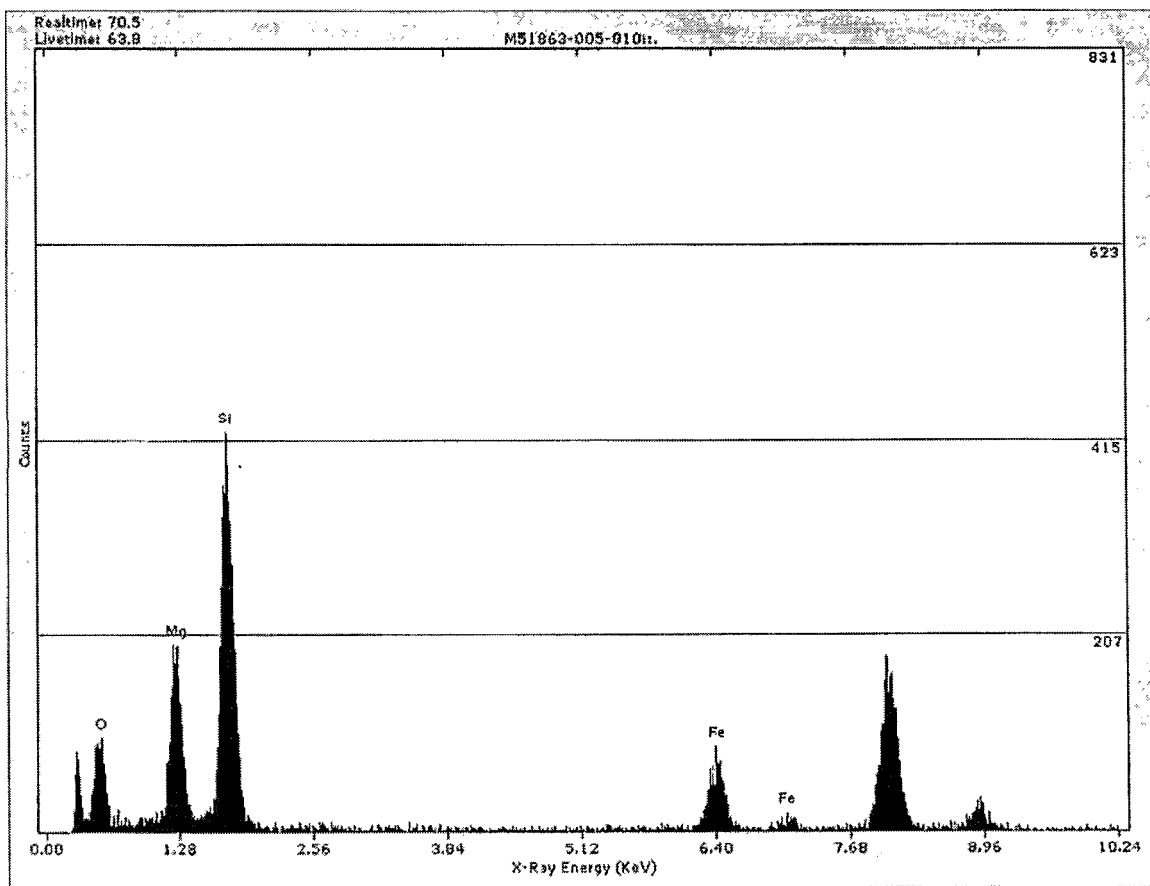


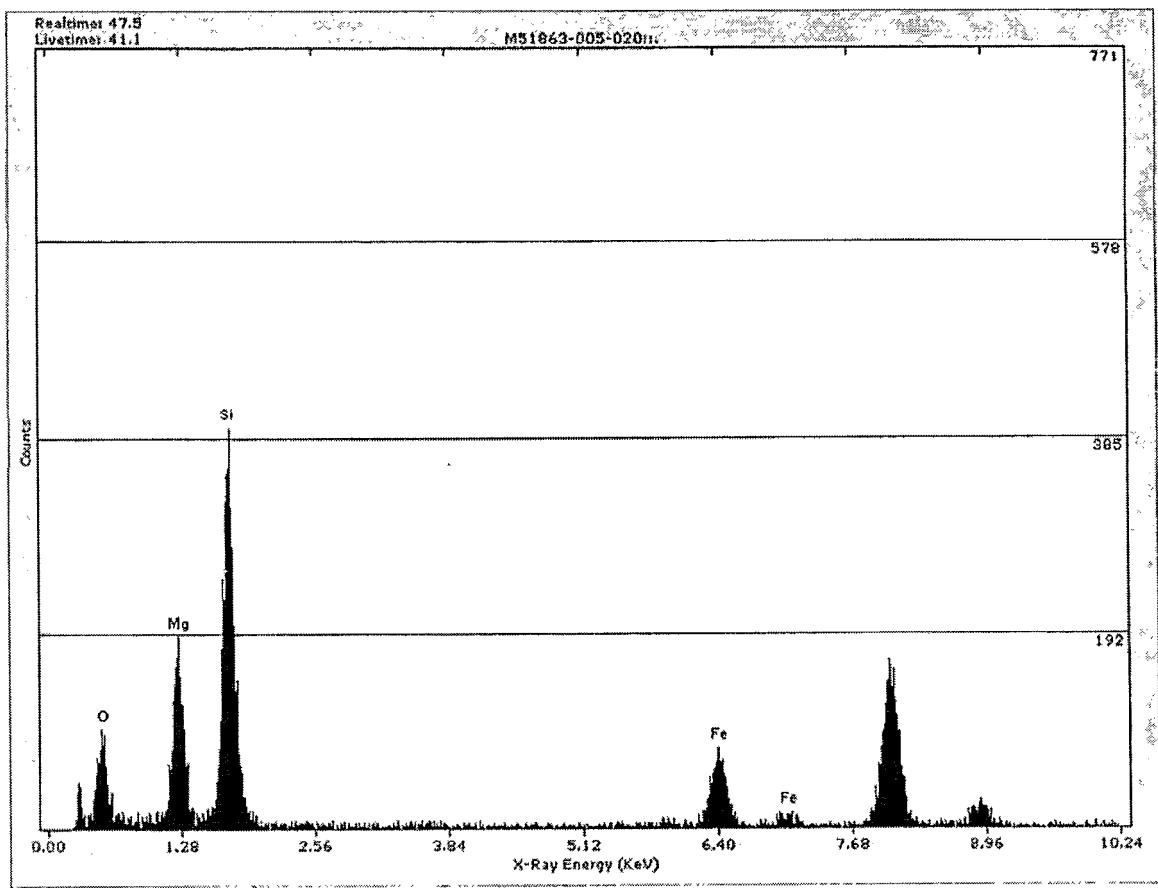


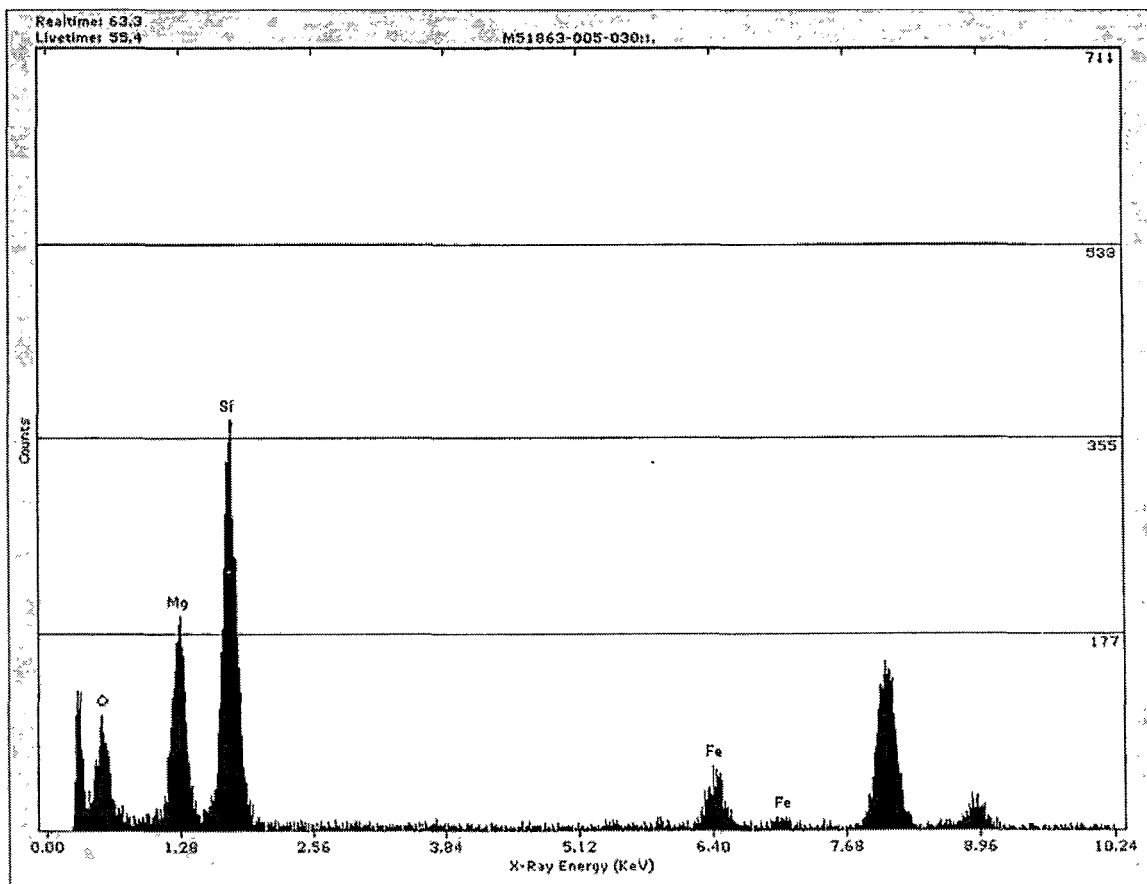


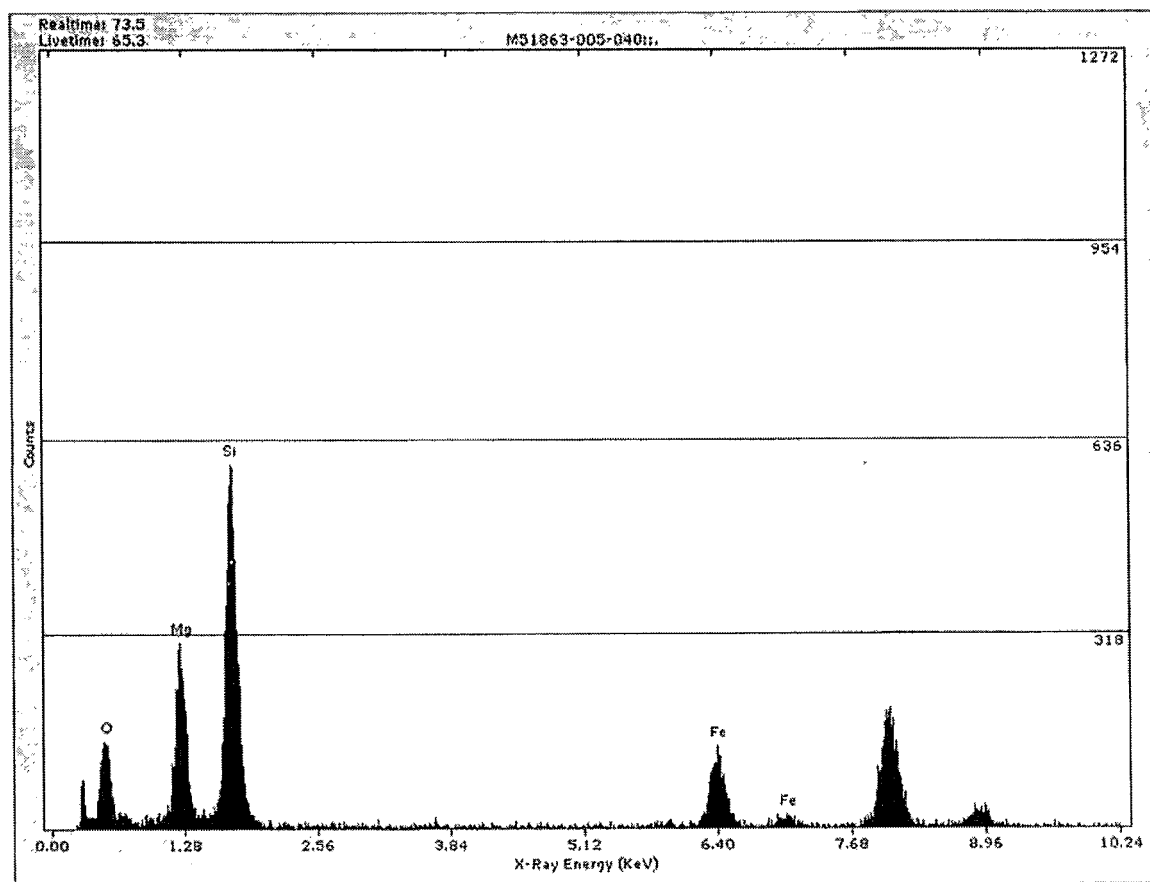


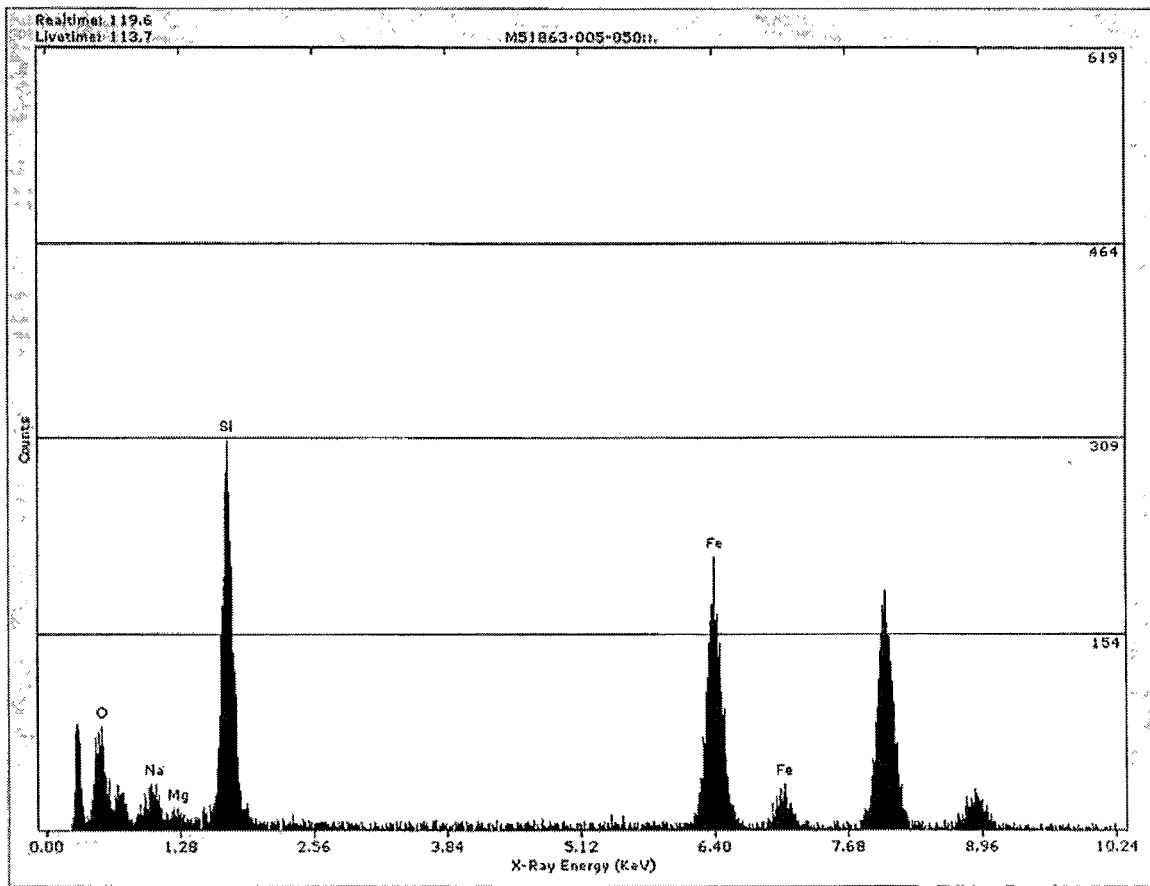


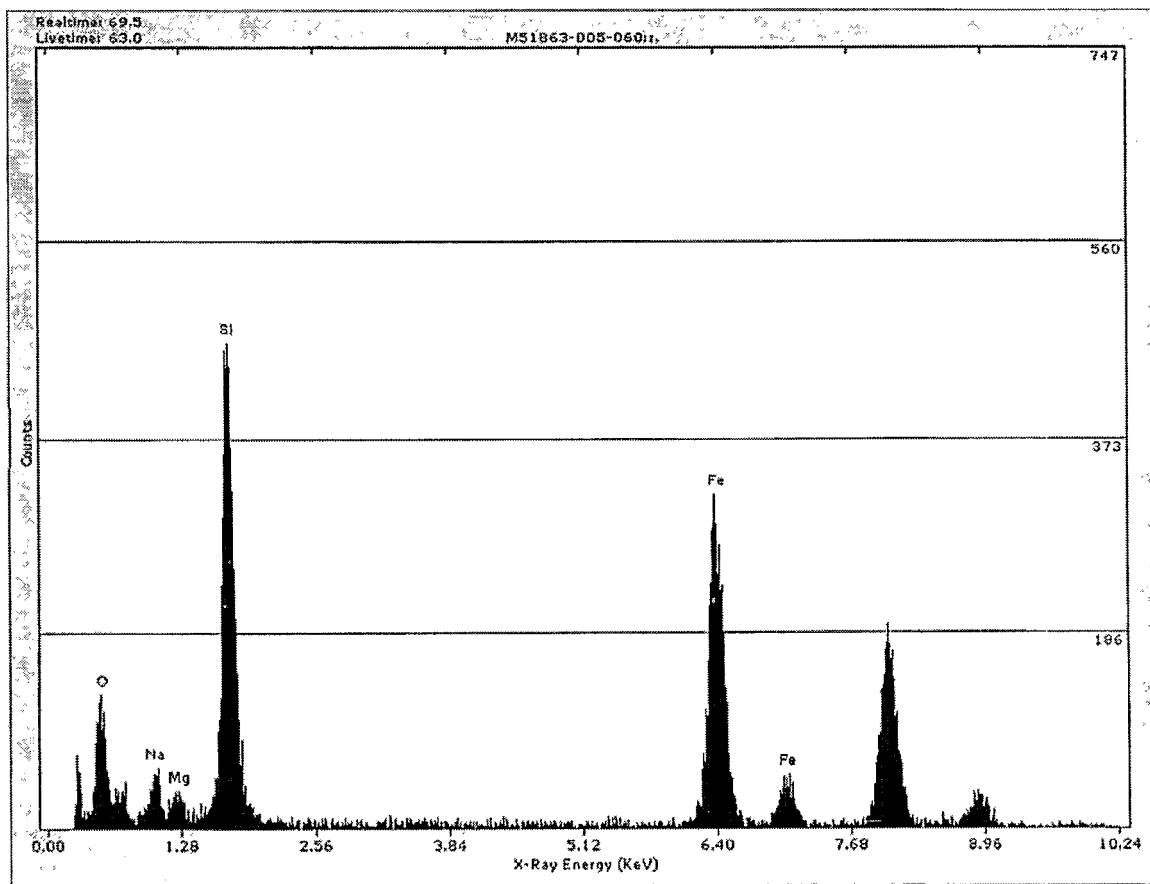


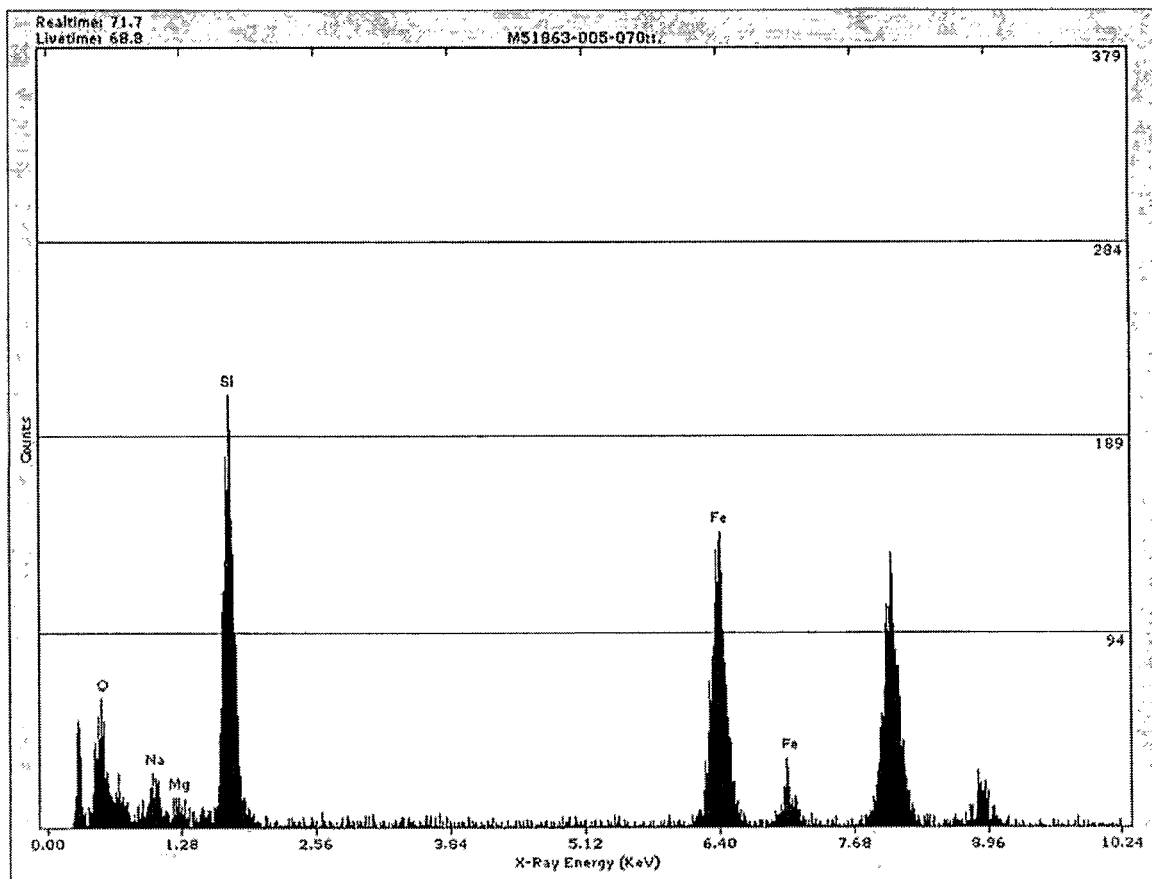


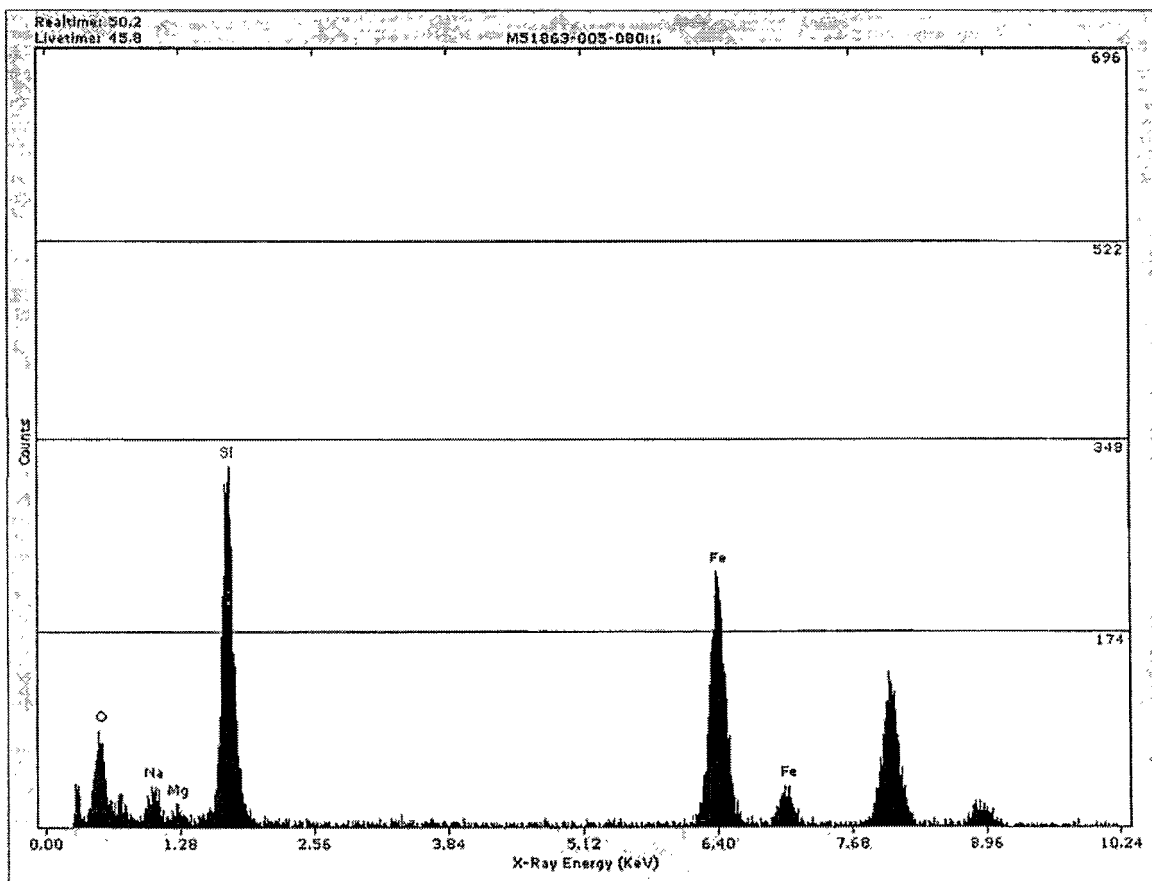


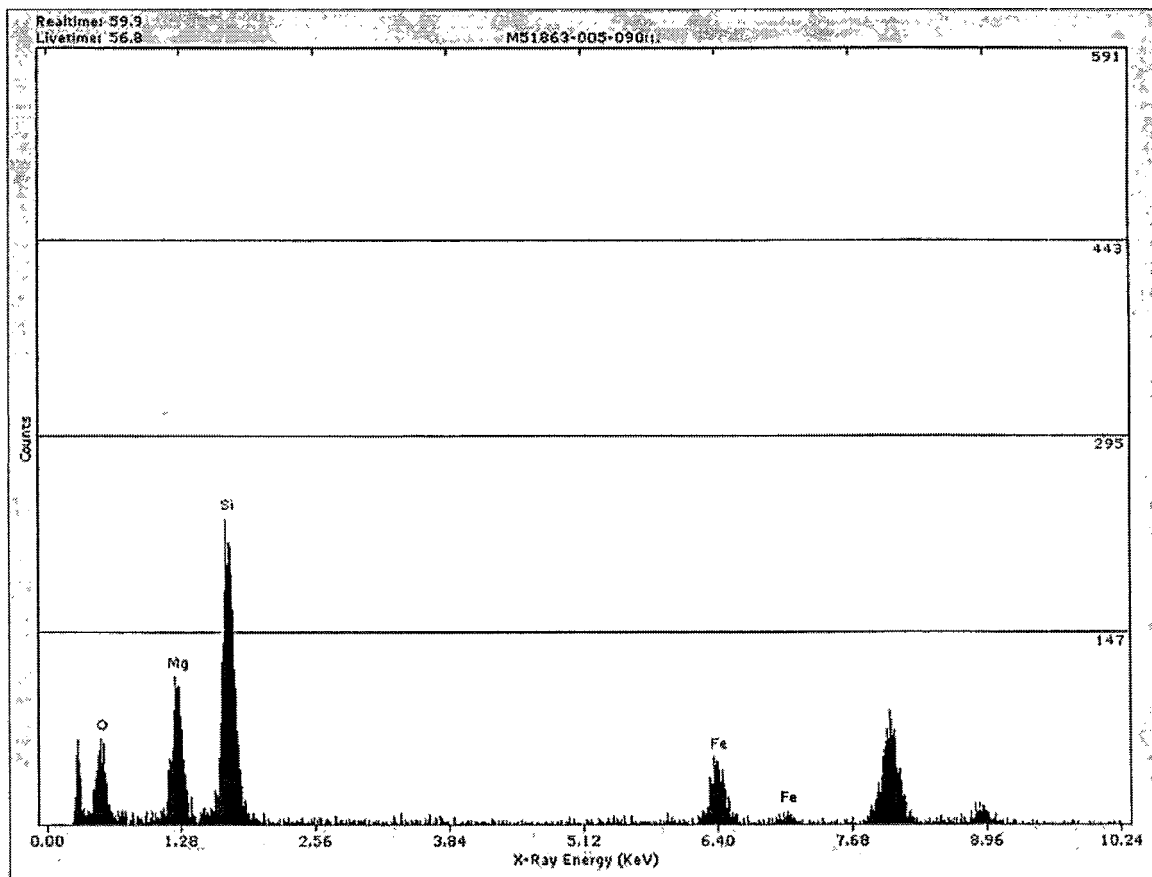


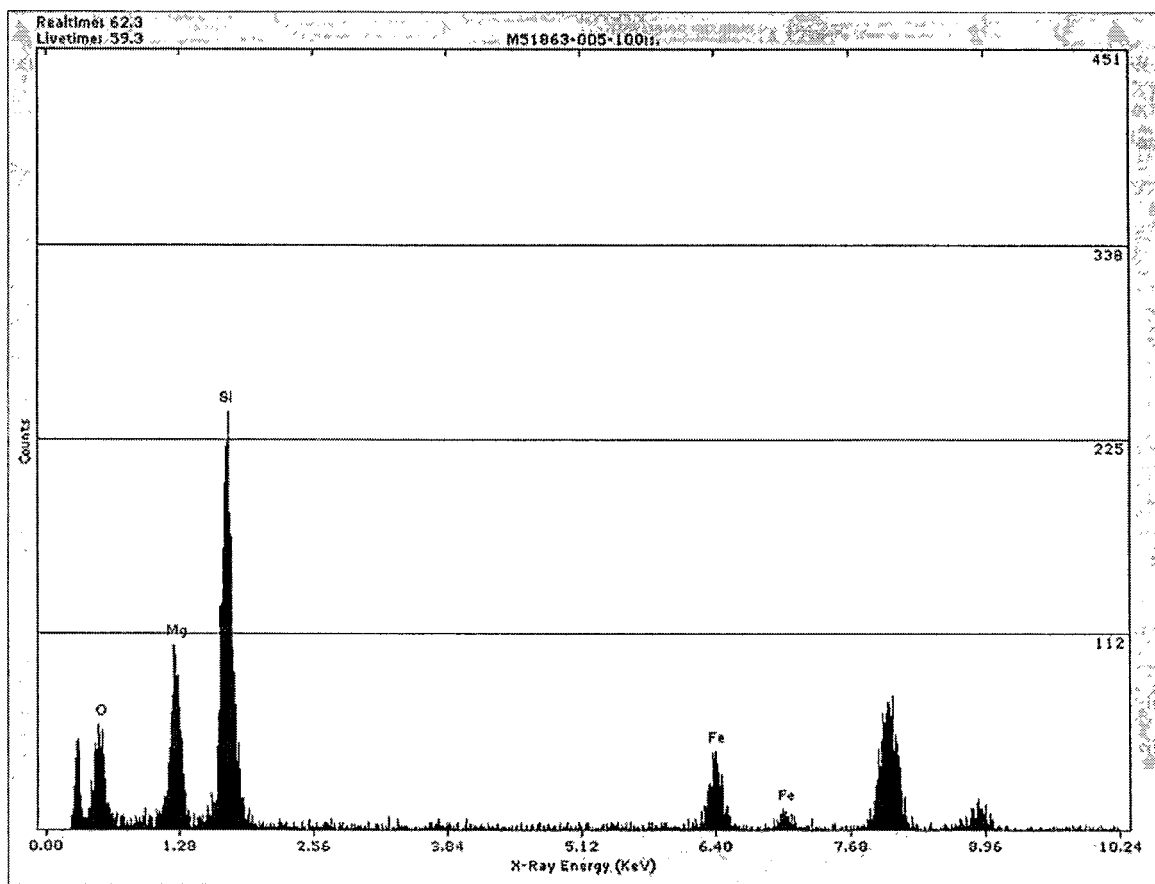


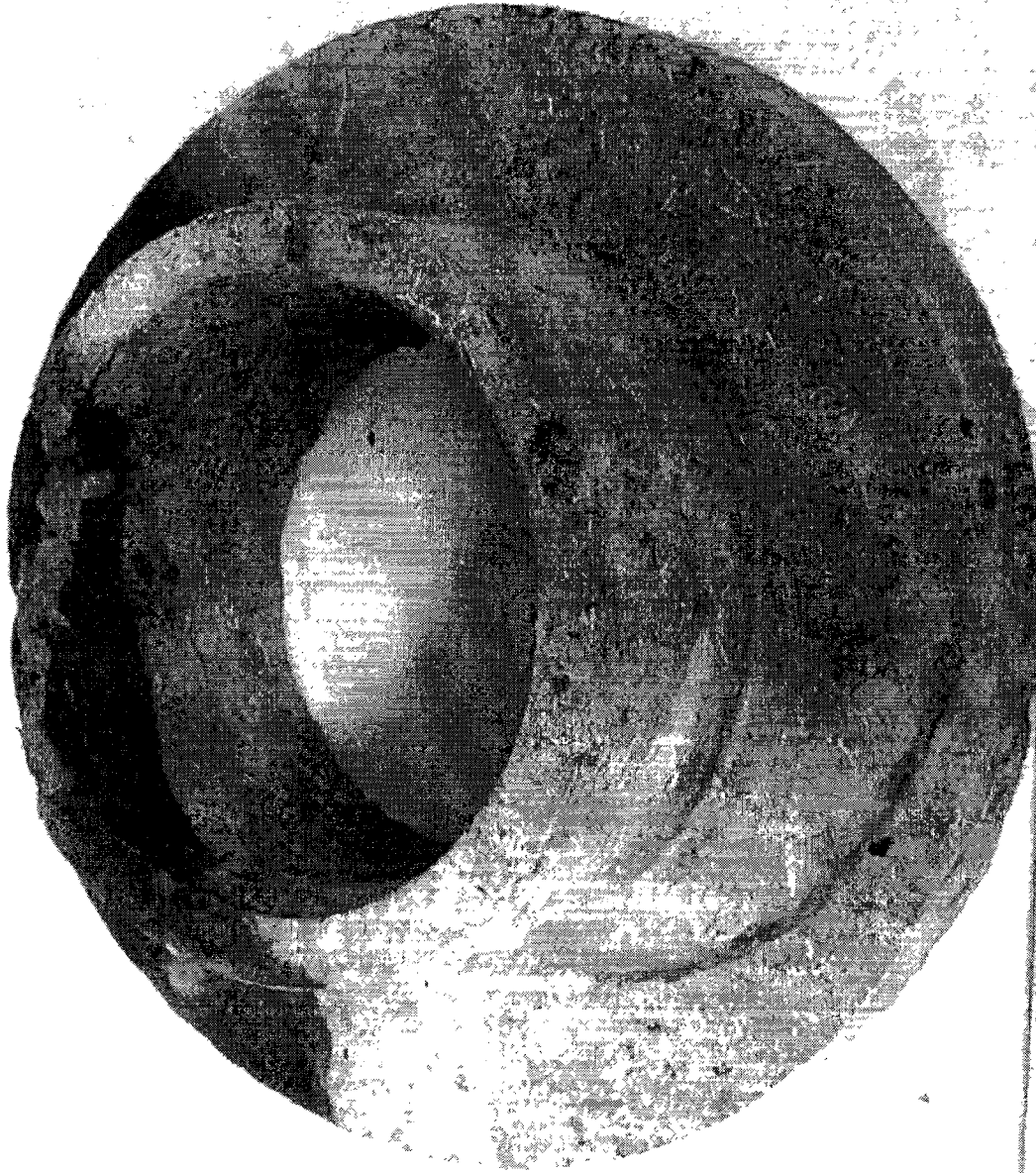


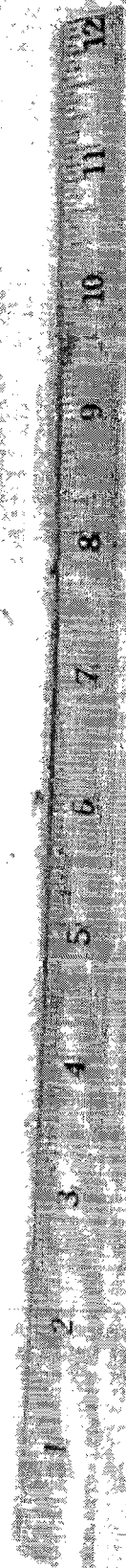
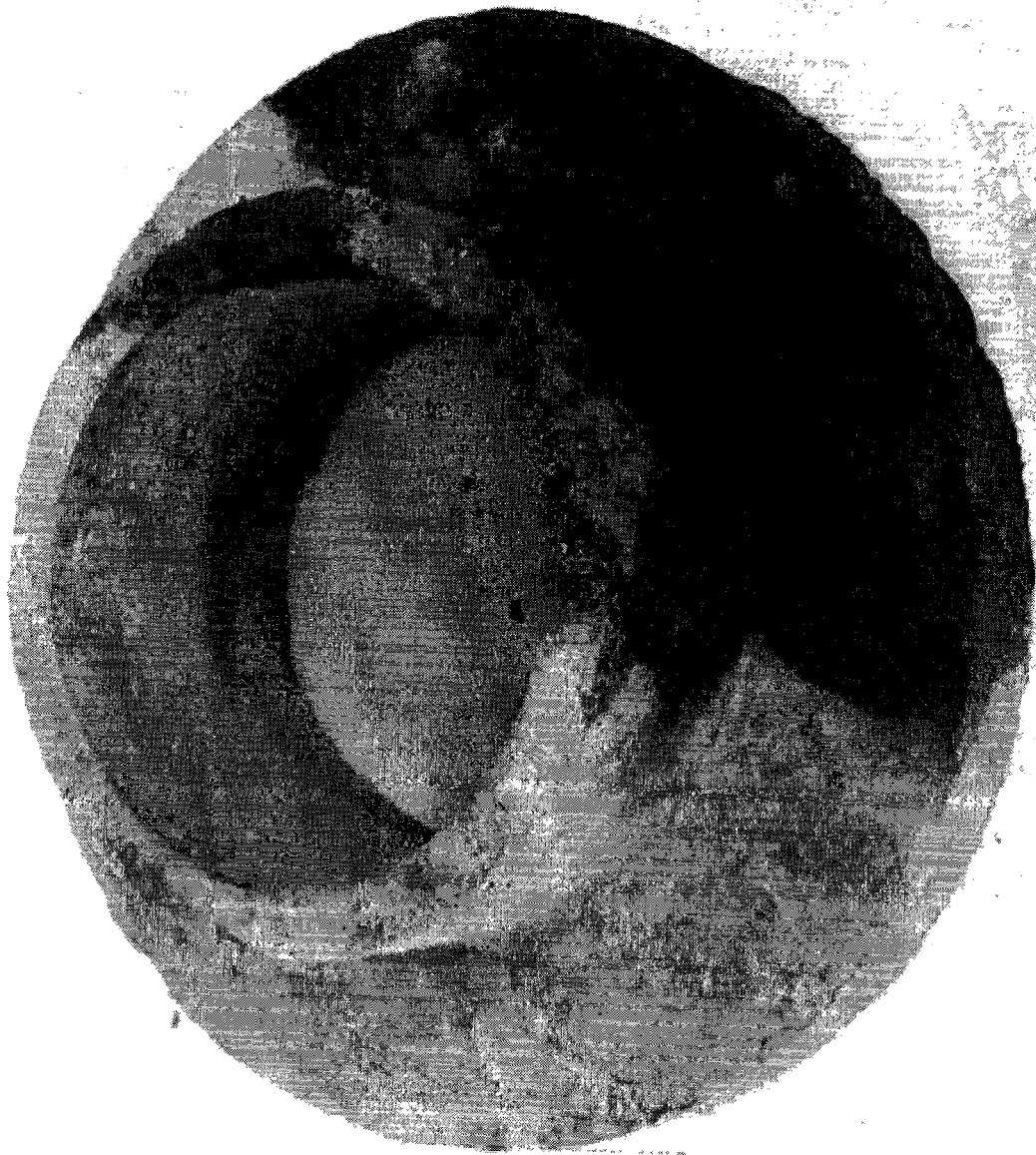


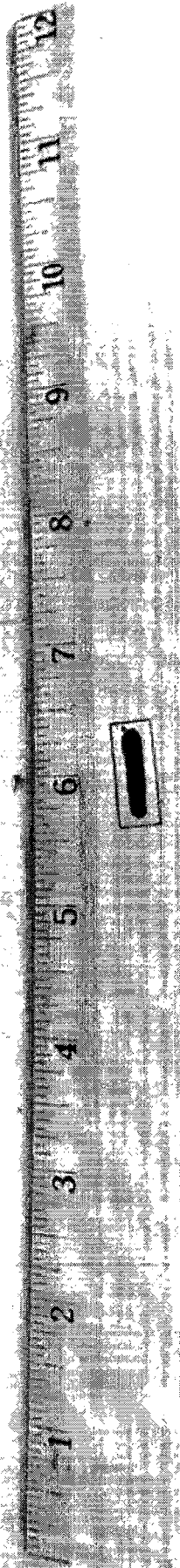
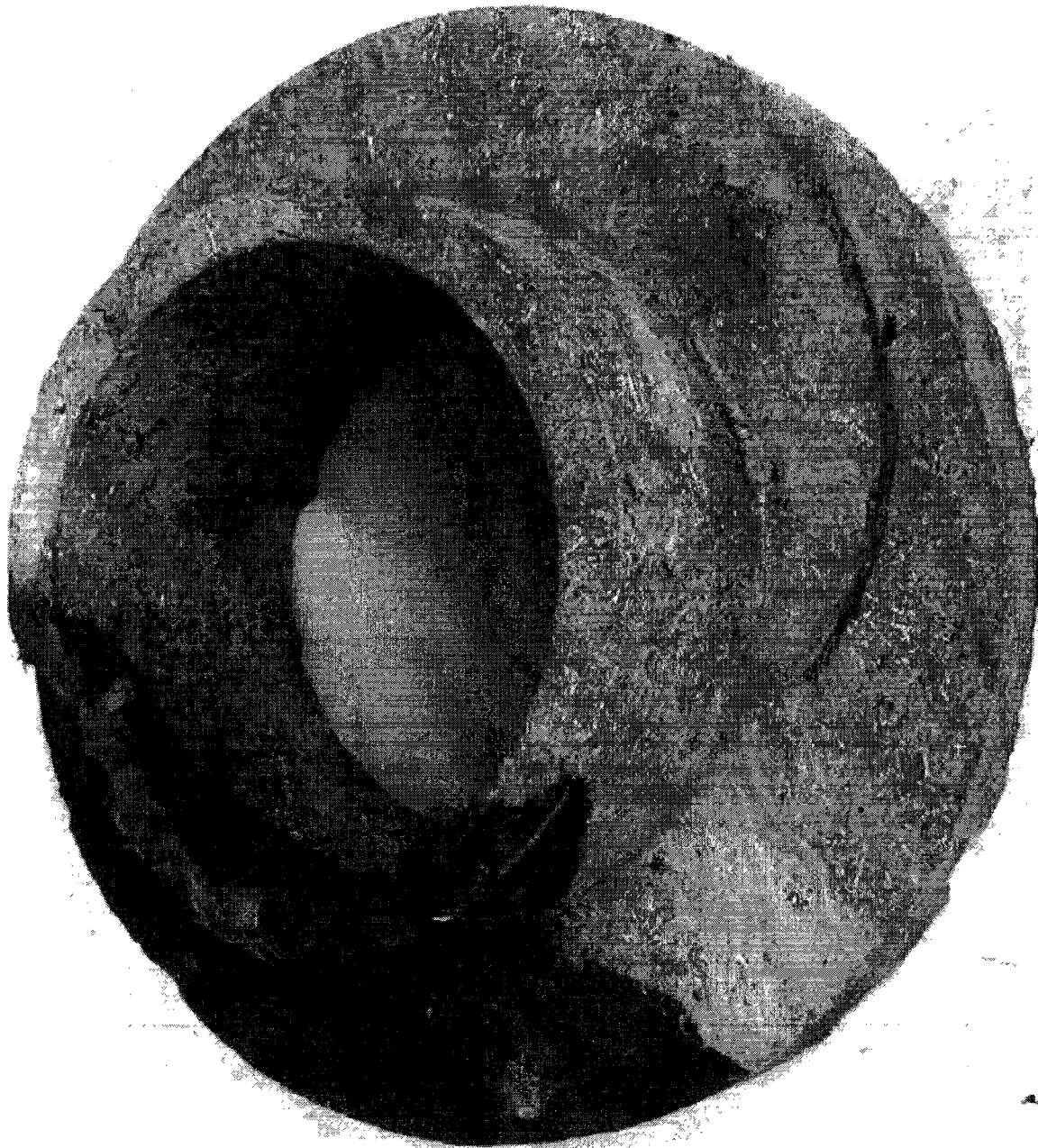






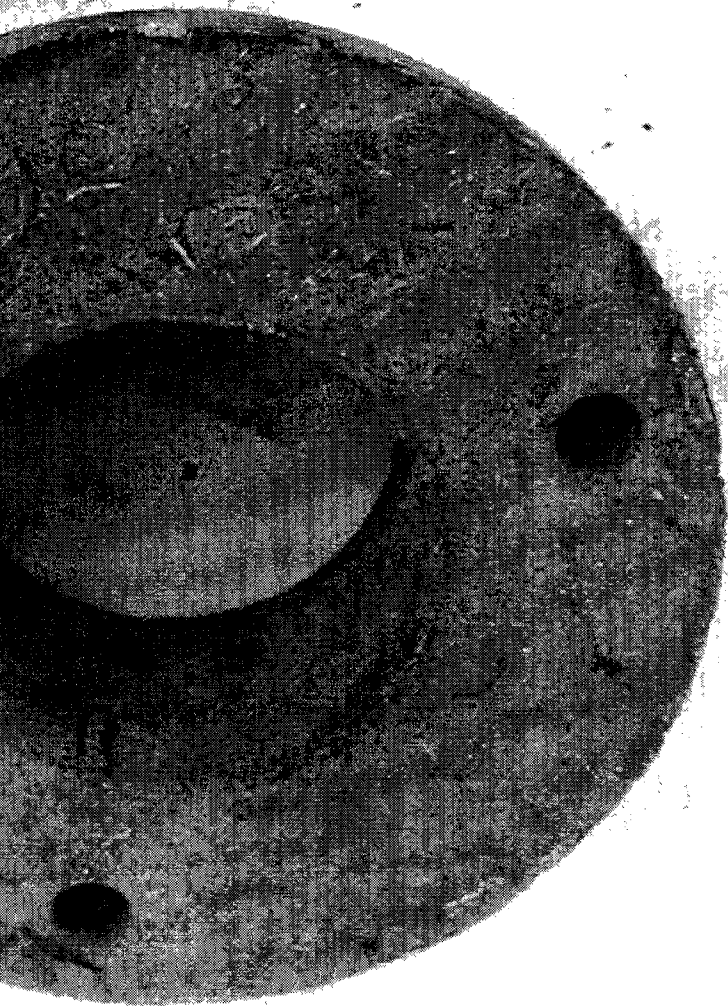
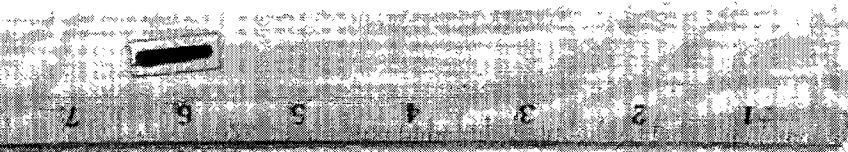




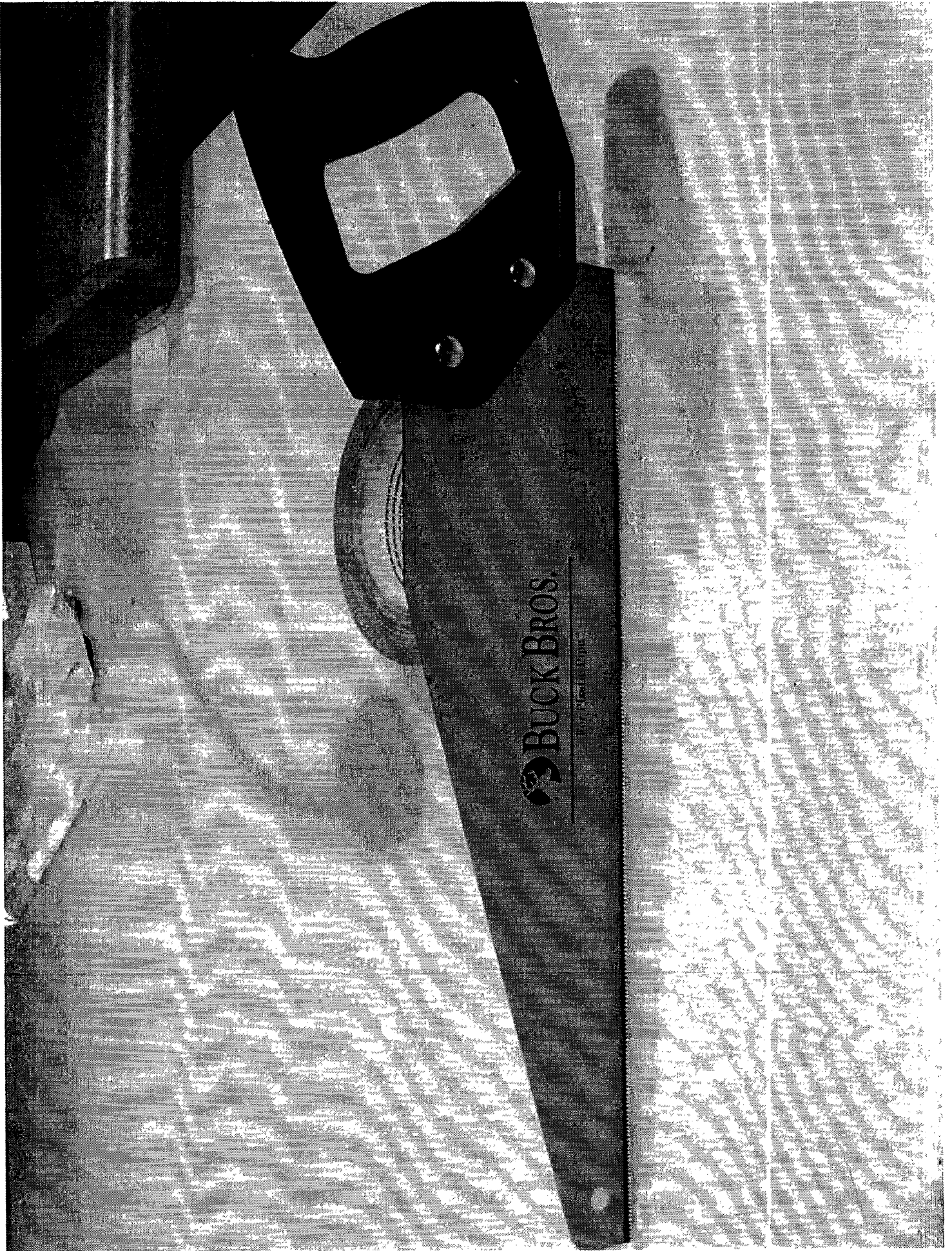


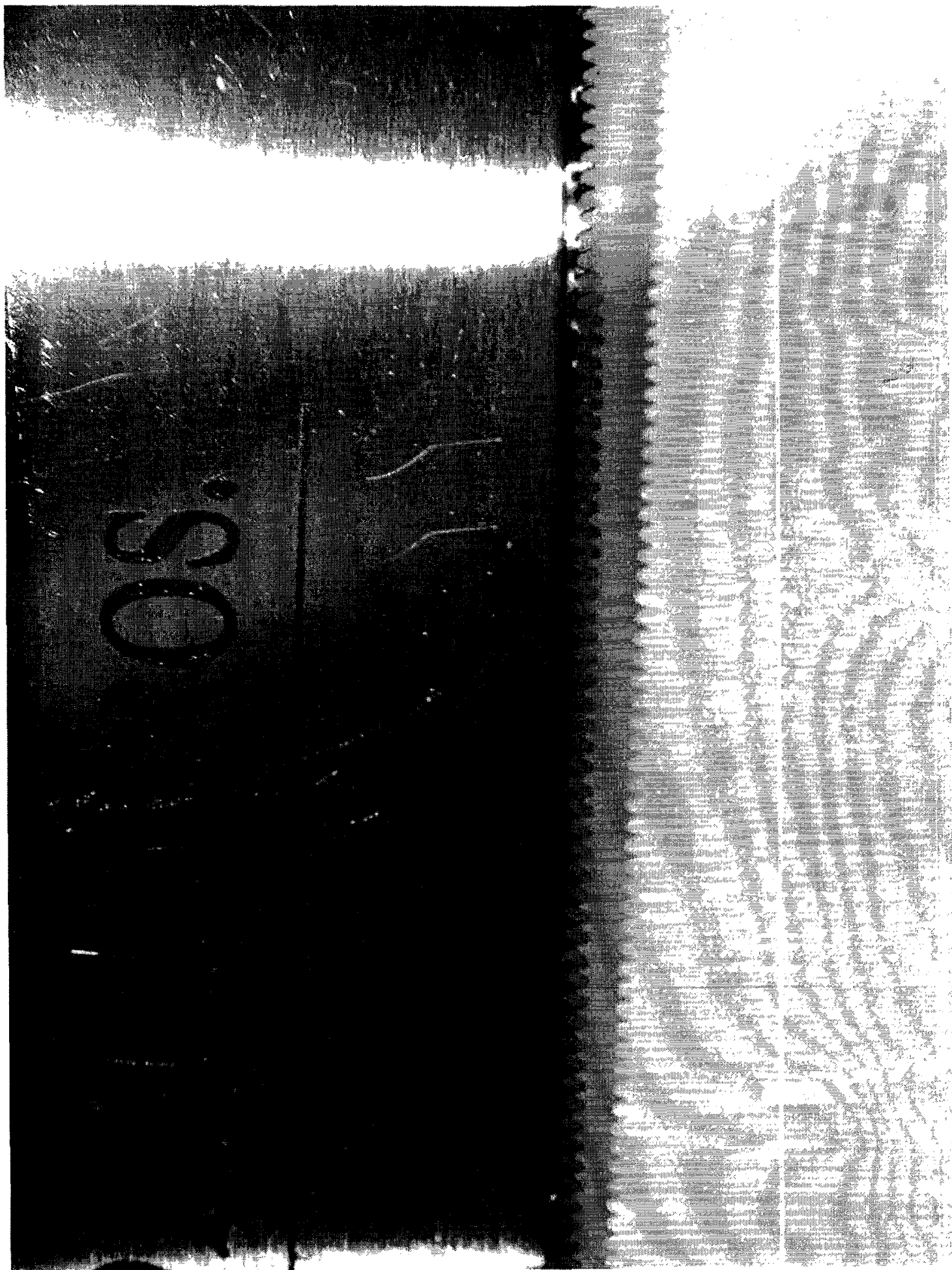
8 9 10 11 12











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5585-01
FOI25585A4



2.4HP SKILSAW

Max Motor
(Max. Motor)
(Motor Max.)

7-1/4 in. CIRCULAR SAW
SIERRA CIRCULAR DE
7-1/4 pulgadas (18,4 cm)
SCIE CIRCULAIRE DE
7-1/4 po (18,4 cm)

Patented anti-snag lower guard
Rear view depth adjustment
Accu-Sight™

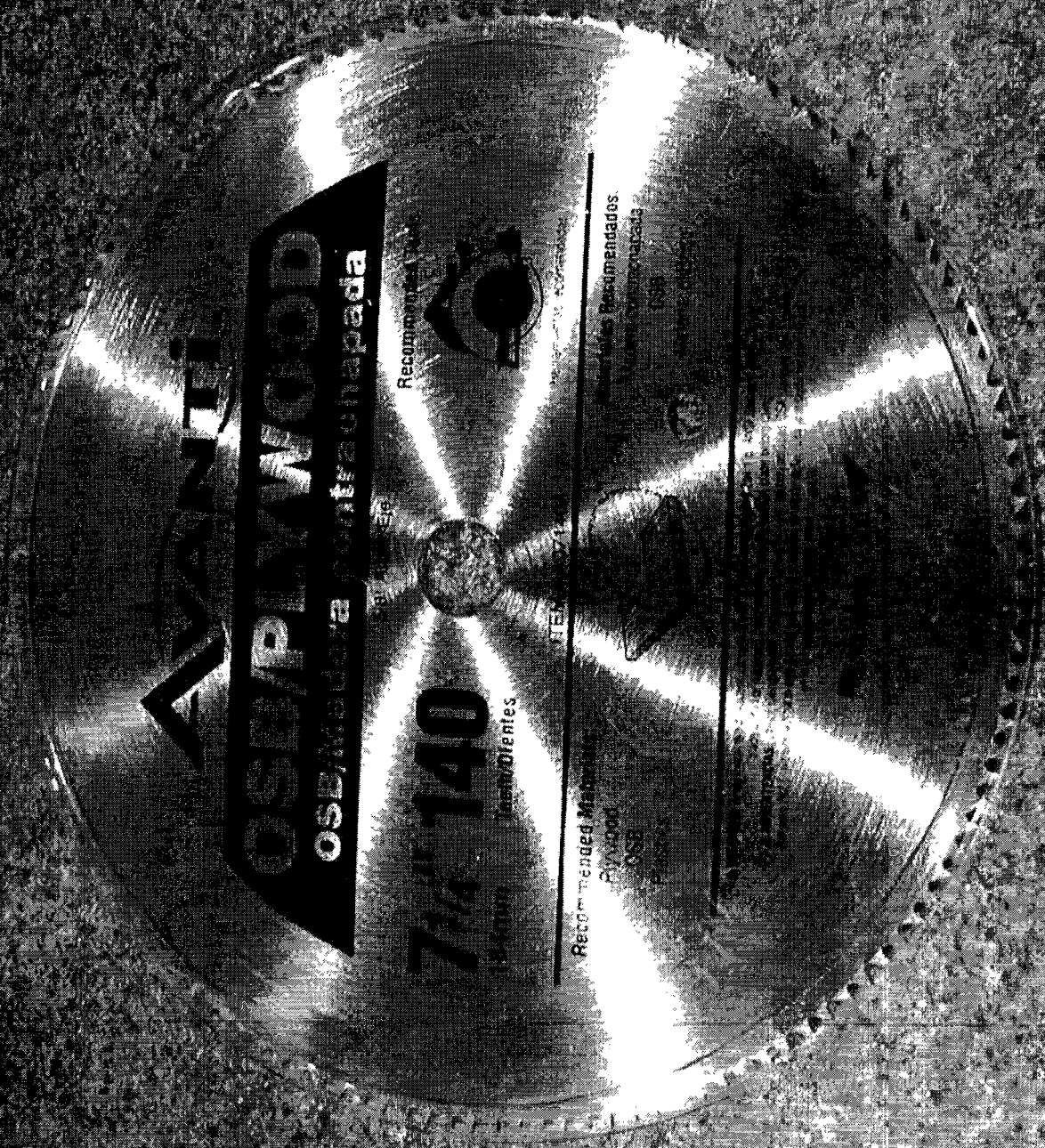
Protector inferior
antienganches patentado
Ajuste de profundidad
de vista posterior
Accu-Sight™

Garde inférieur
breveté de protection
contre les ébarbures
Réglage de la
profondeur
à rétrovision
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7
Advanced features
Características avanzadas
Fonctionnalités avancées







Avanti

OSB/PLYWOOD
OSB/Madera contrachapada

7 1/4" 140

Teeth/Dientes

Recommended Use



Recommended Use

Recommended Materials

Plywood
OSB

Materials Recommended

Materiales Recomendados

OSB

Plywood

Madera contrachapada

OSB

Plywood

Madera contrachapada

OSB

Plywood

Madera contrachapada

OSB

Plywood

Madera contrachapada

OSB

Plywood

Madera contrachapada

OSB

Plywood

Madera contrachapada

OSB



DEWALT

Always use correct safety gear. Always use proper technique. Always use proper safety gear. Always use proper technique.

WARNING

ADVERTENCIA

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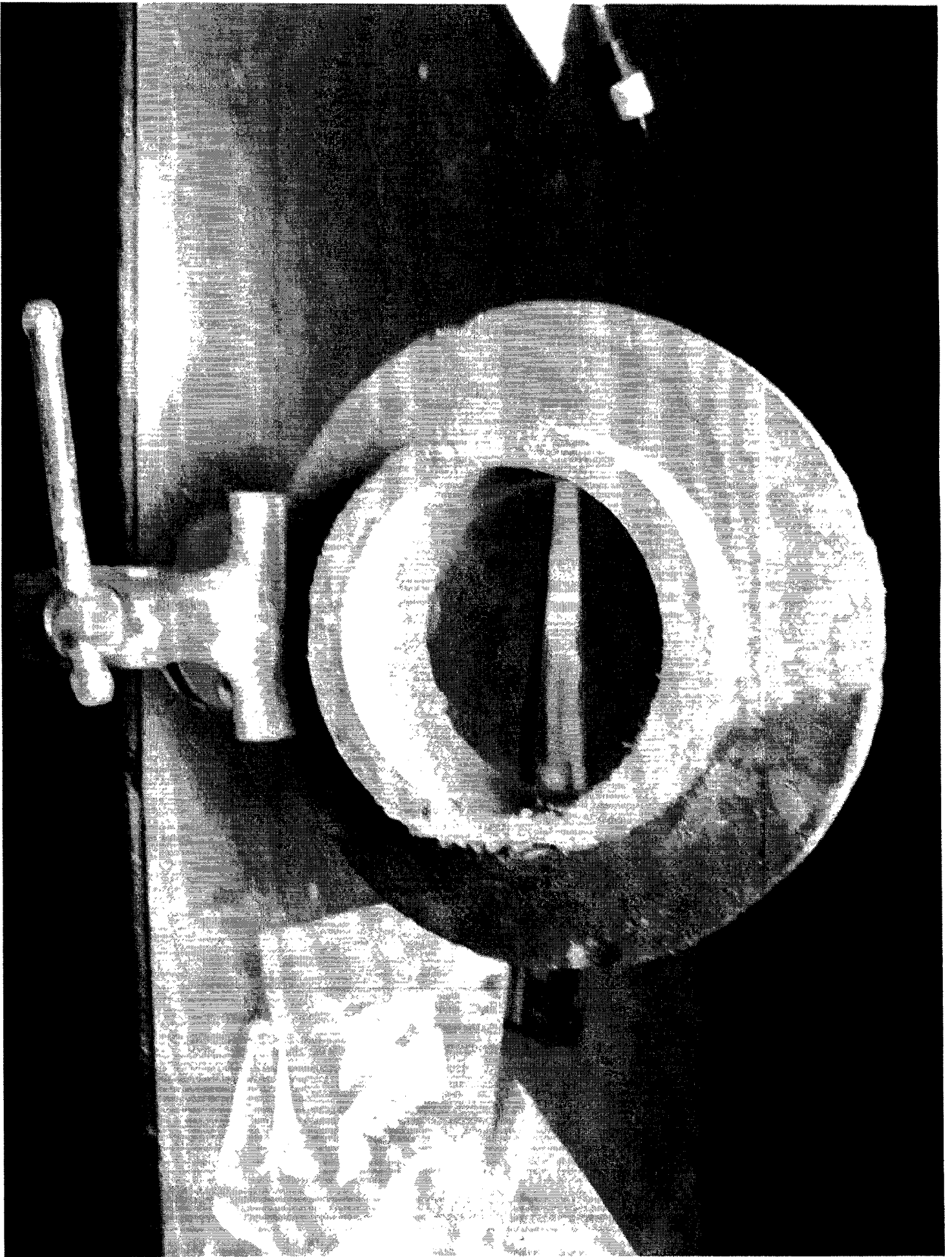
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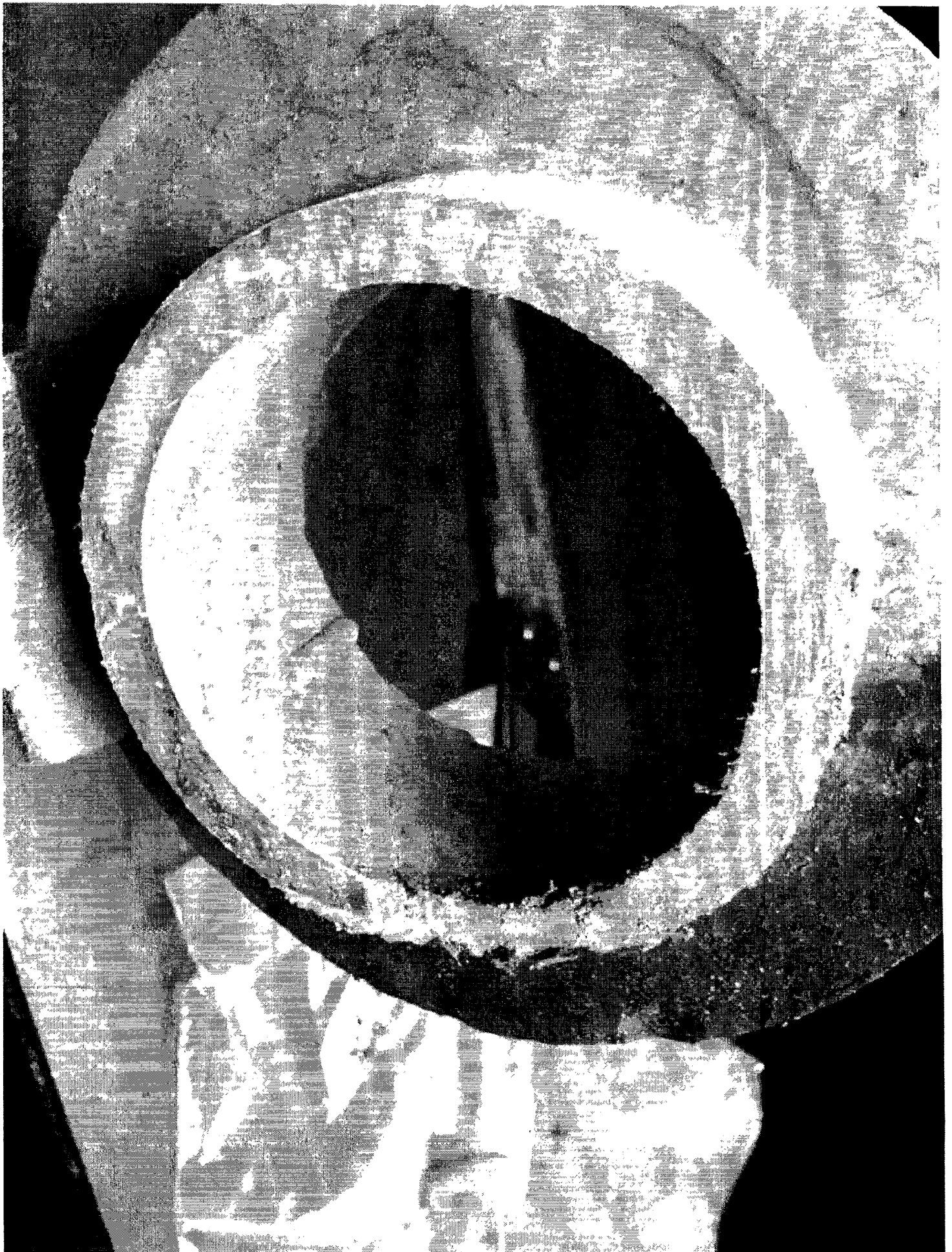
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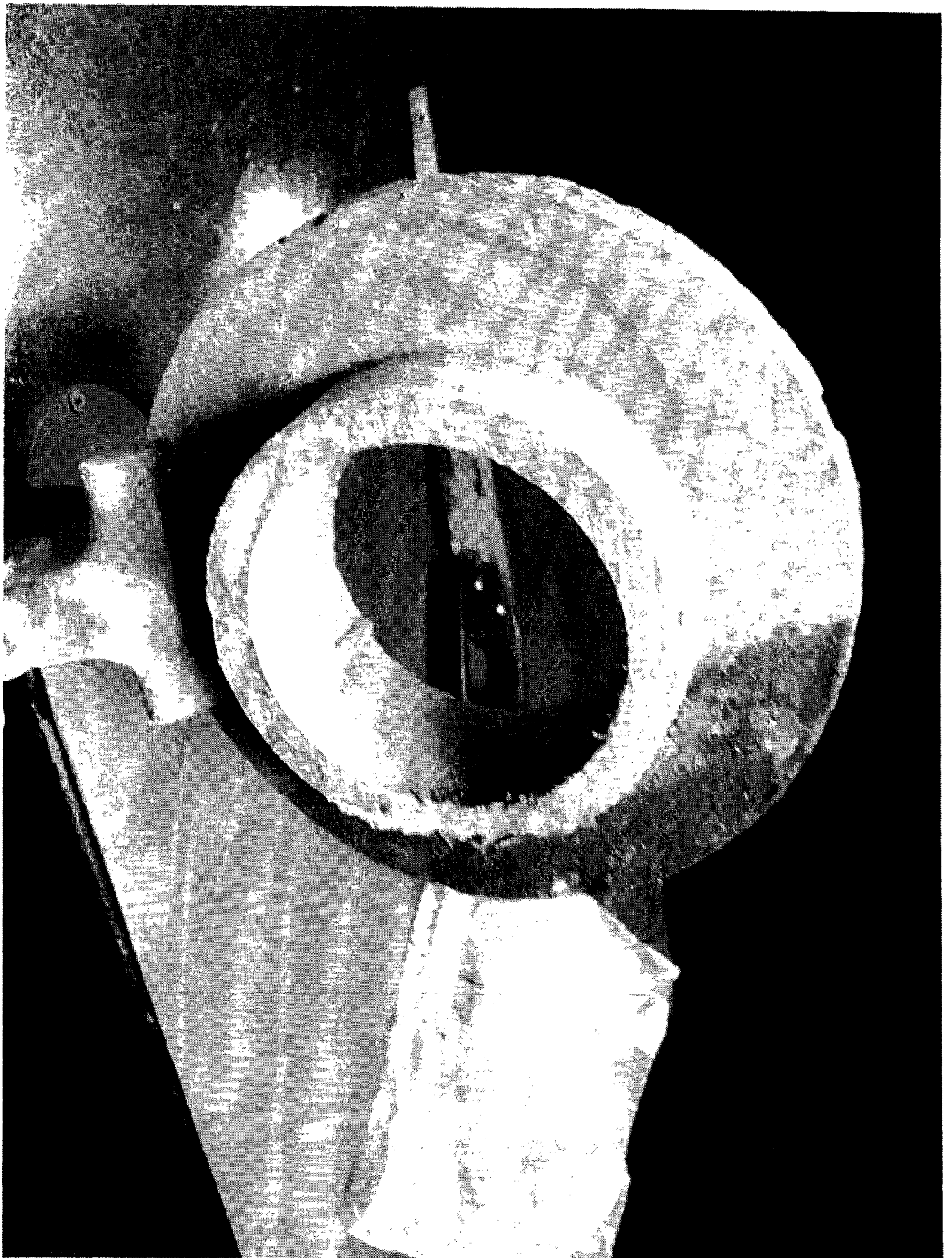
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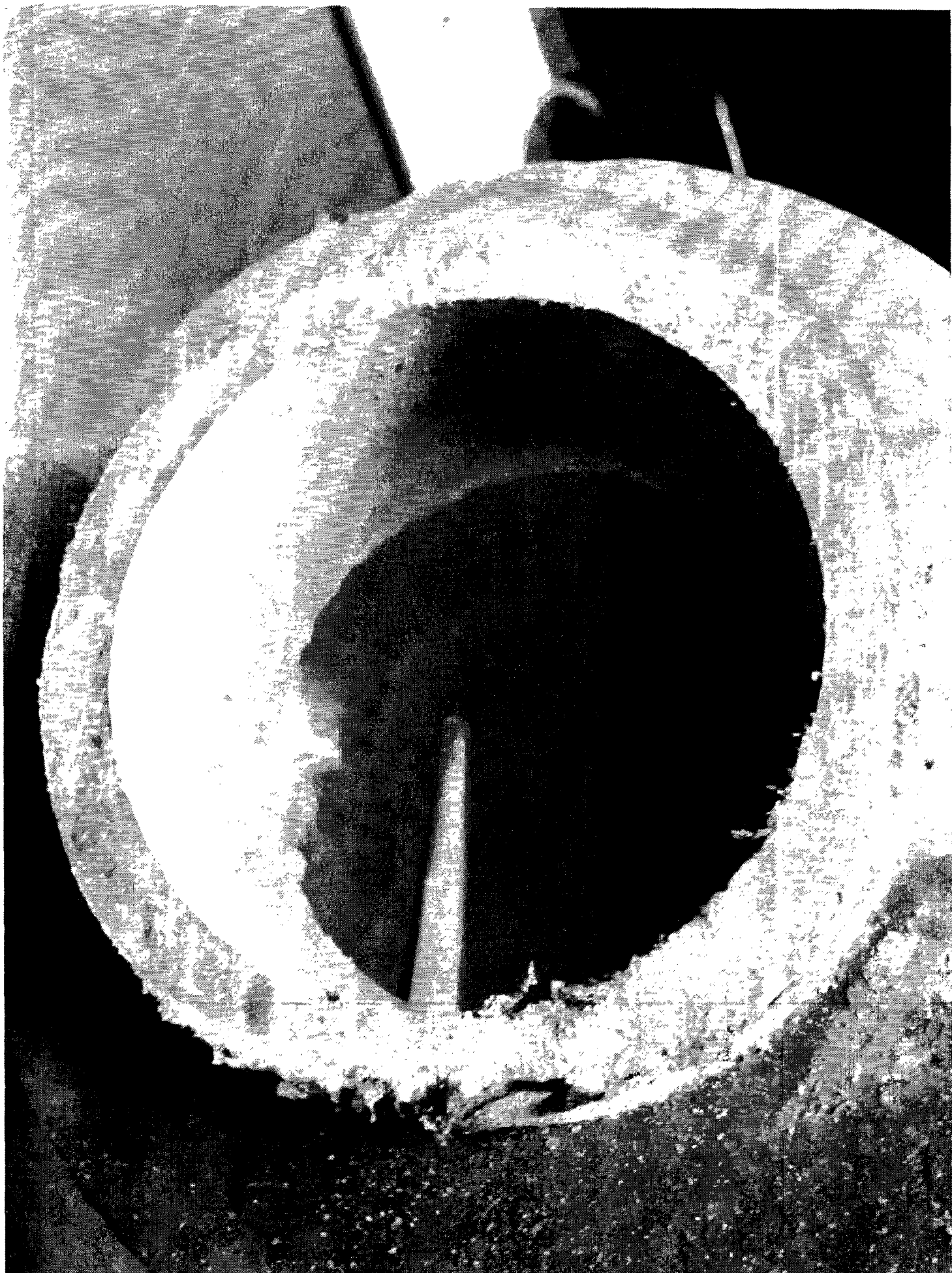


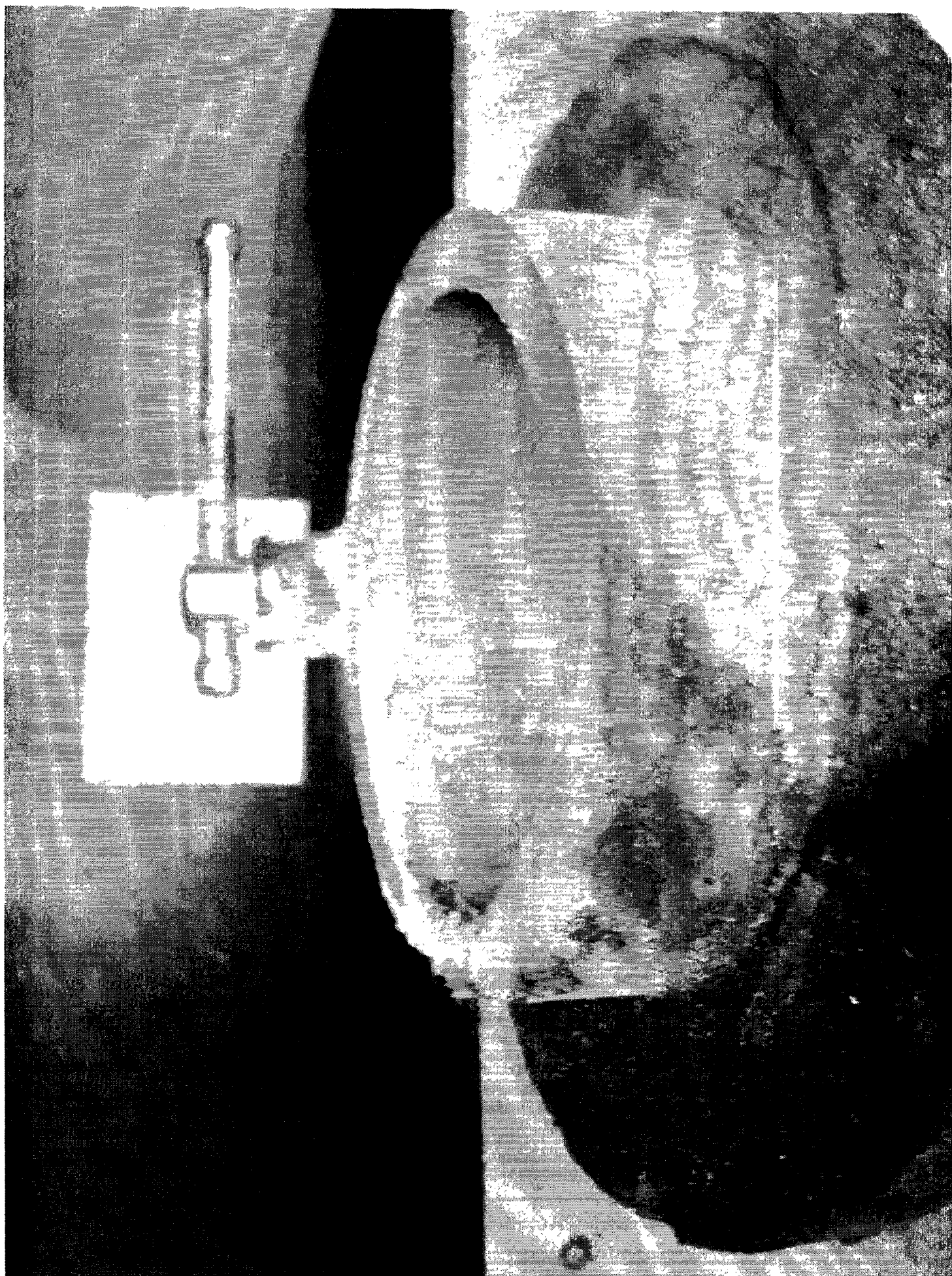


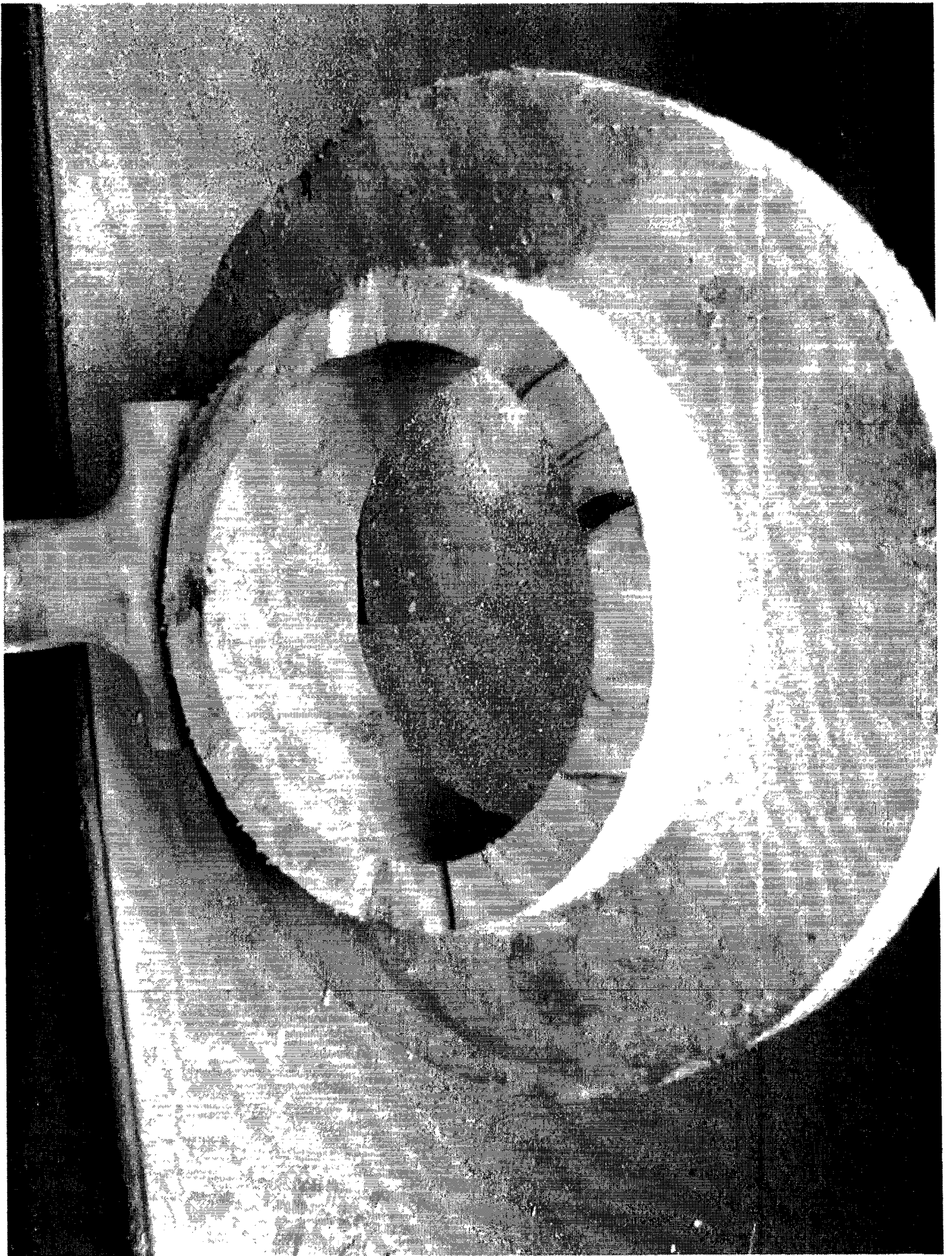




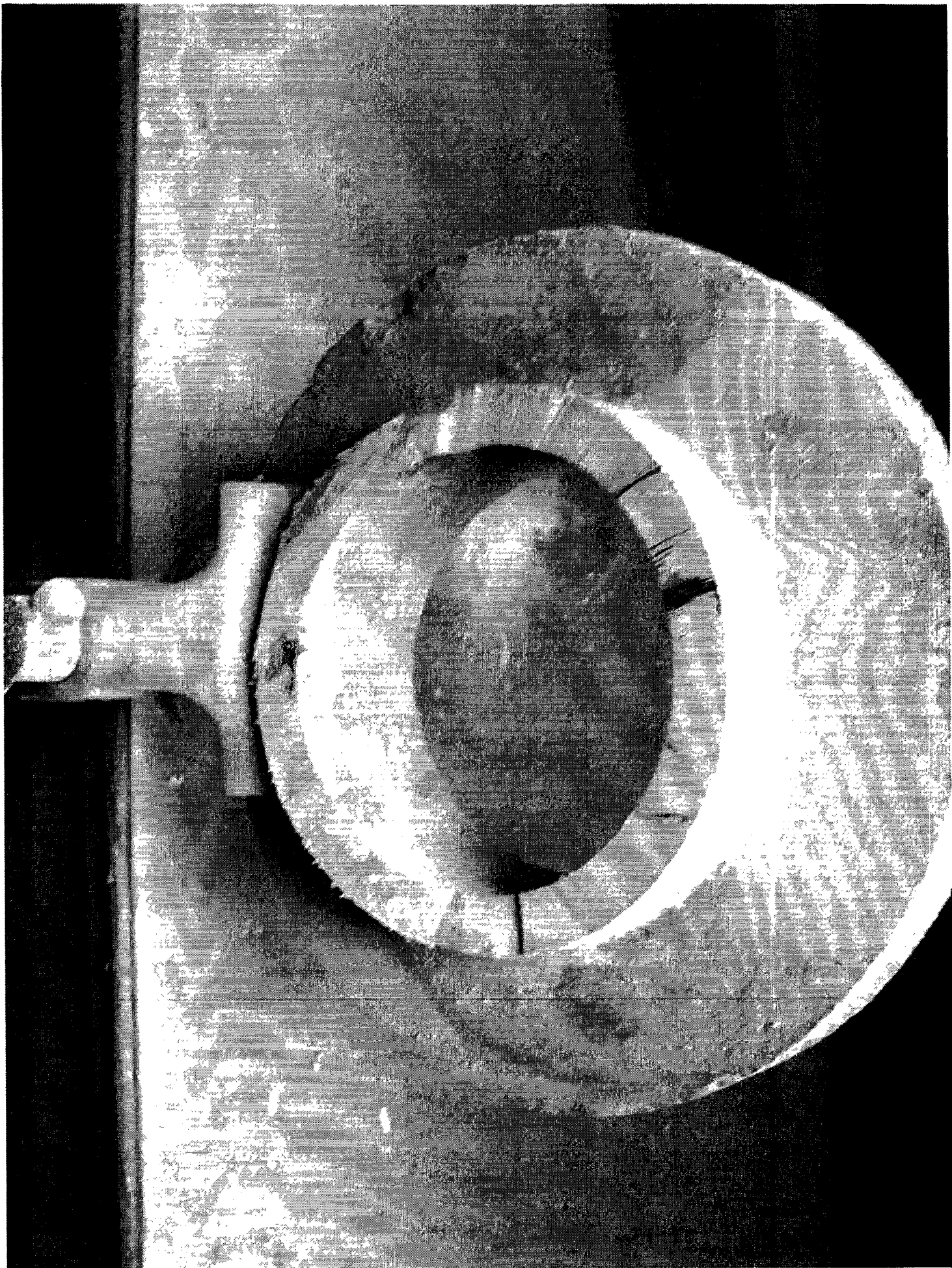






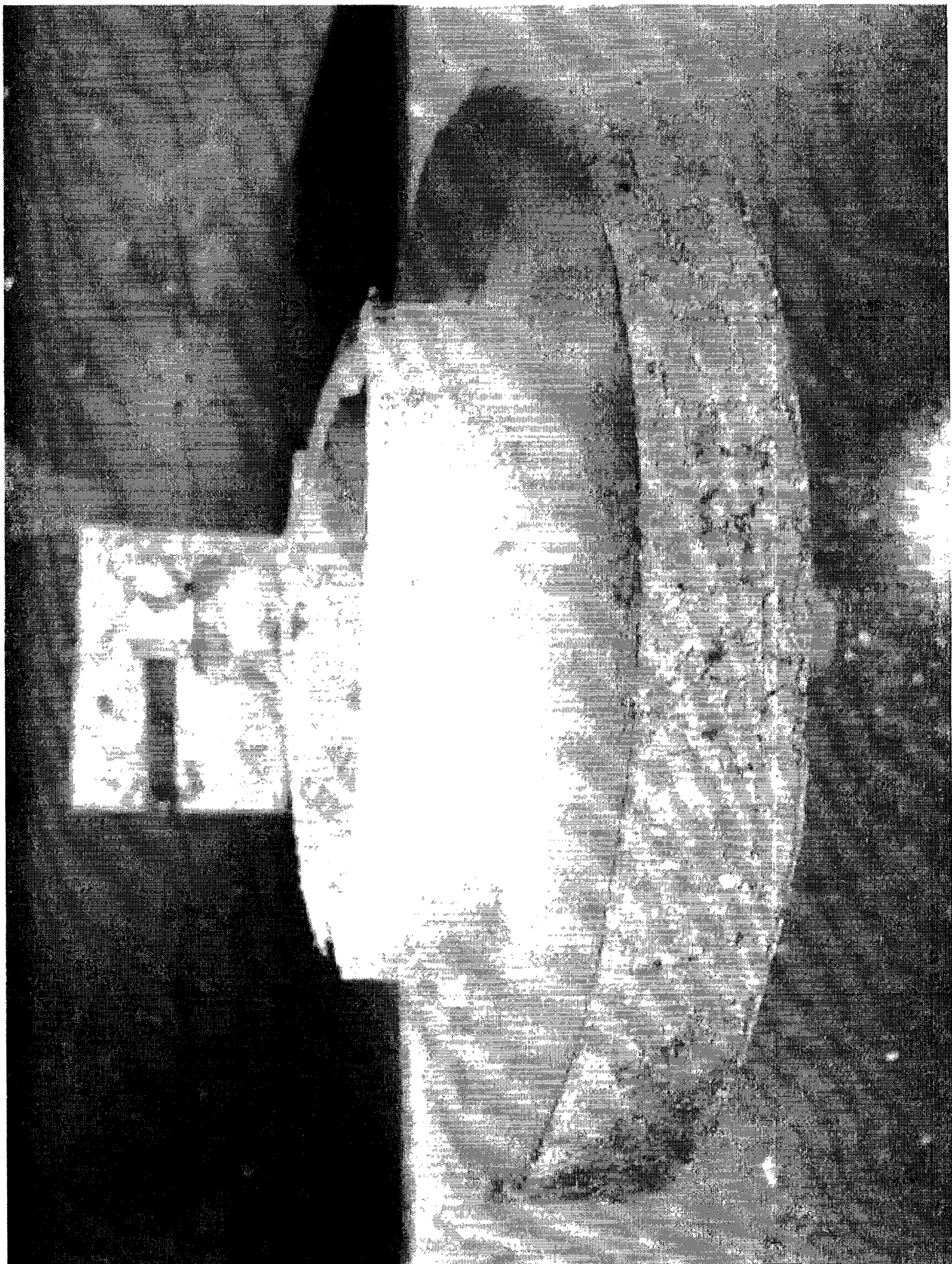


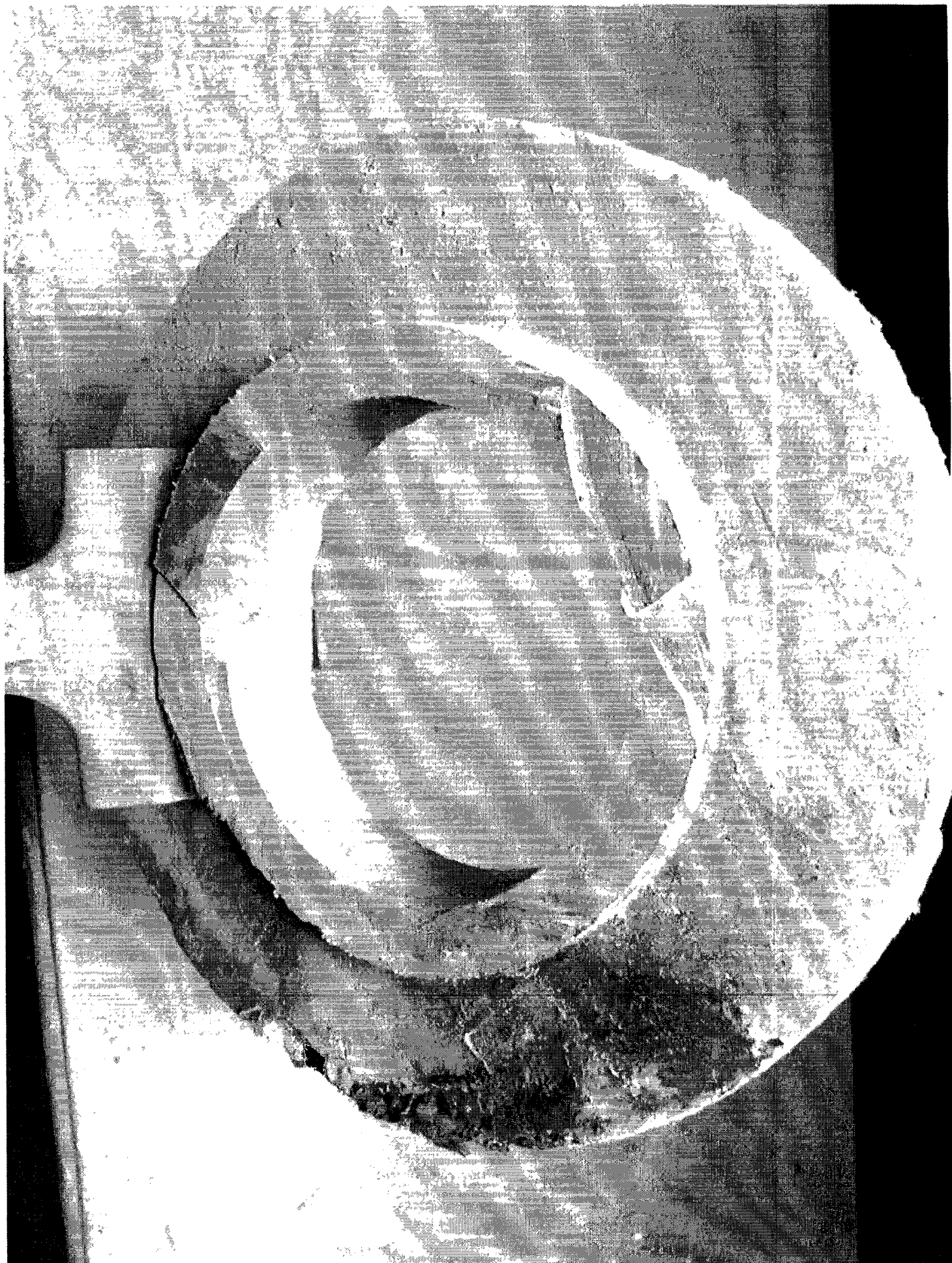


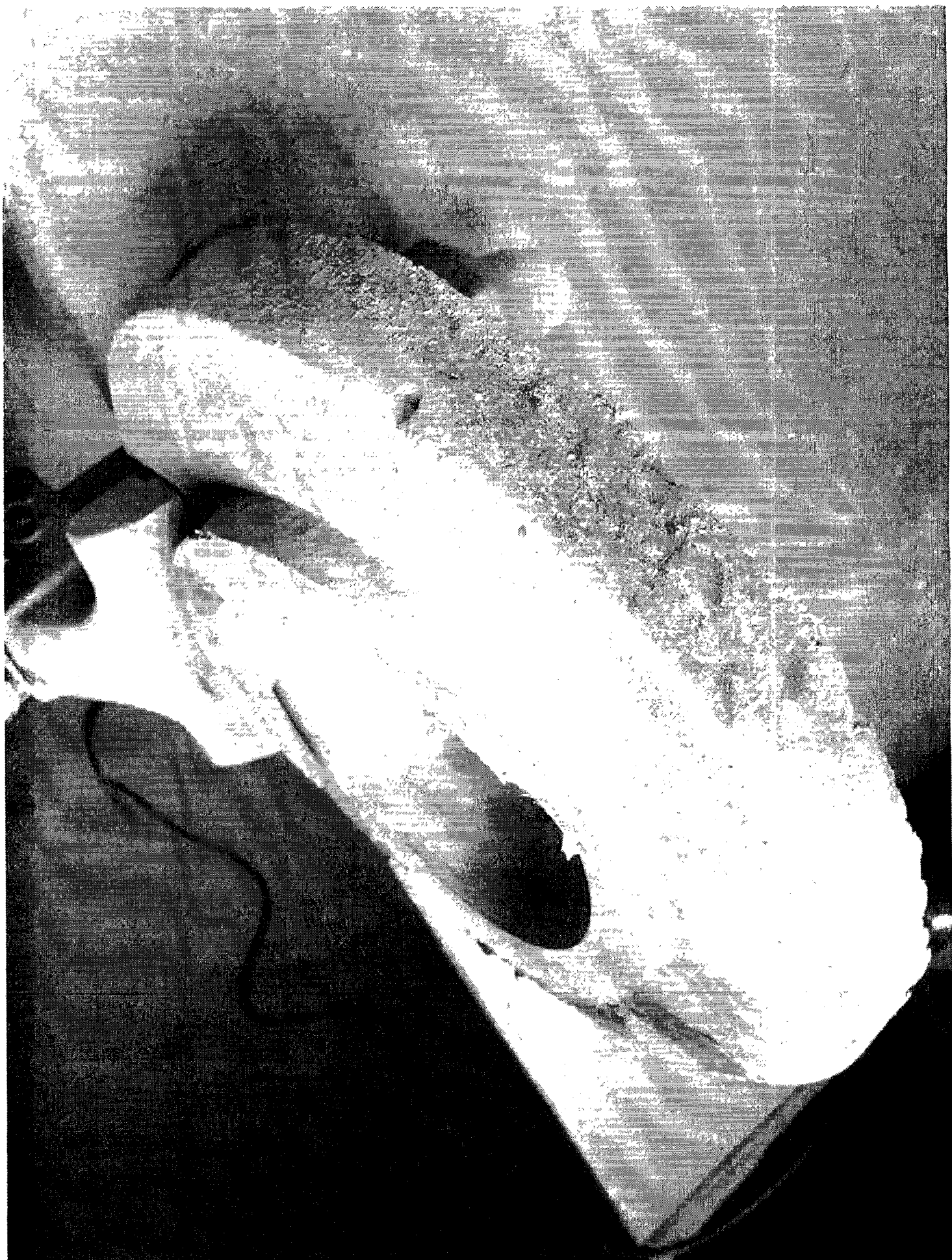


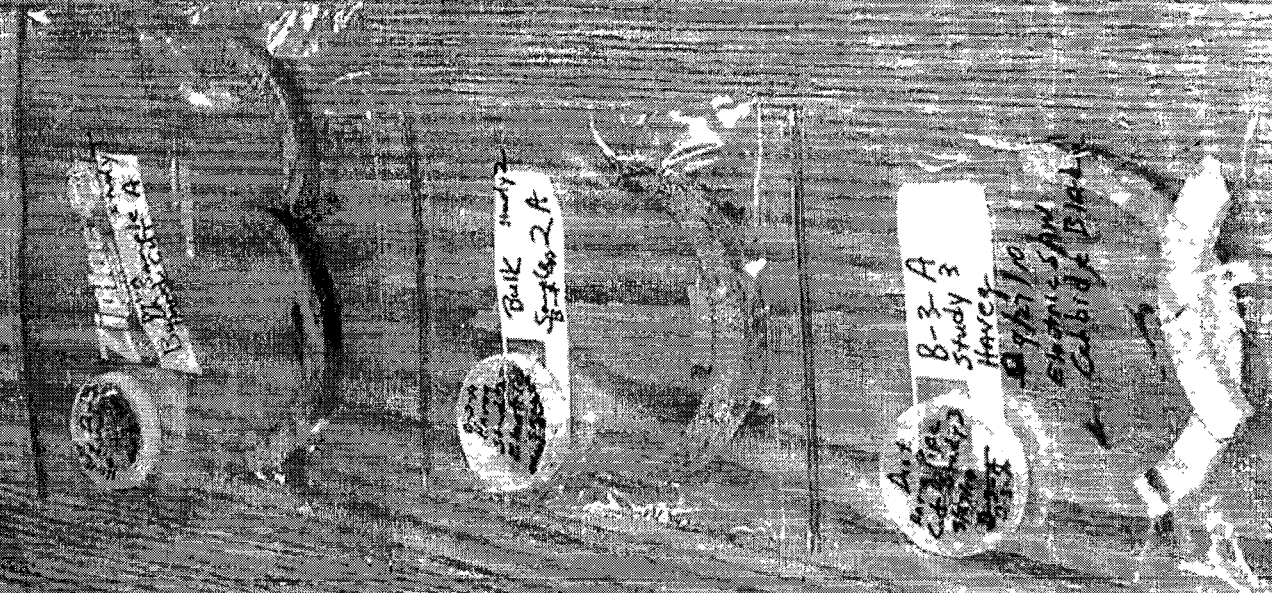












B-3-B
Study 3
HAYEG

Art
C-3-B
Study 3
HAYEG

B-3-A
Study 3
HAYEG

Bulk Study 3
8-16-2 ft

B-3-A
Study 3
HAYEG

Art
C-3-B
Study 3
HAYEG

8-16-2 ft
Study 3
HAYEG



Study 1
Bulk Sample A
Hand Cut



Study 2
Bulk Sample B
Hand Cut



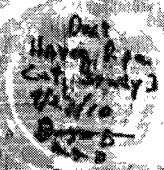
Study 2
Bulk Sample 2A
Hand Cut



Study 2
Bulk Sample B
Hand Cut



Study 3
Bulk Sample A
Hand Cut



Study 3
Bulk Sample B
Hand Cut



Ziploc® Fresh
SHIELD
study

B7-A
Bulk Sample A
Hand Cut

Ziploc®
A FAMILY COMPANY
THE ENTERPRISE FAMILIAL



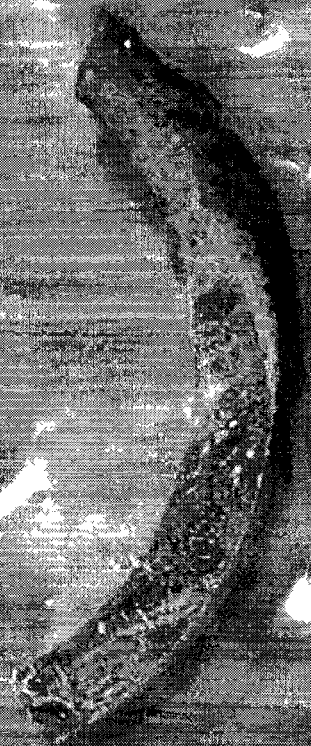
0-2-A
Hwy
Sund
Electric
over 5000

Bulk study 2
Sample 2A



Study 2
Electric
Steel Blade

Study 2
B-2-B
Heavy Pipe Cut
Electric Saw
Steel Blade



Arch
Analog Pipe
Cable
7/20/10
0-5-11

B-3-A
Study 3
Haveg

9/27/10

Electric Saw
Cabbidie B

B-3-B
Study 3
HAE G

Cy-bride Saw

Duct
HAE G
Cy-bride
7/2/70
B-3-B

