Apéndice I

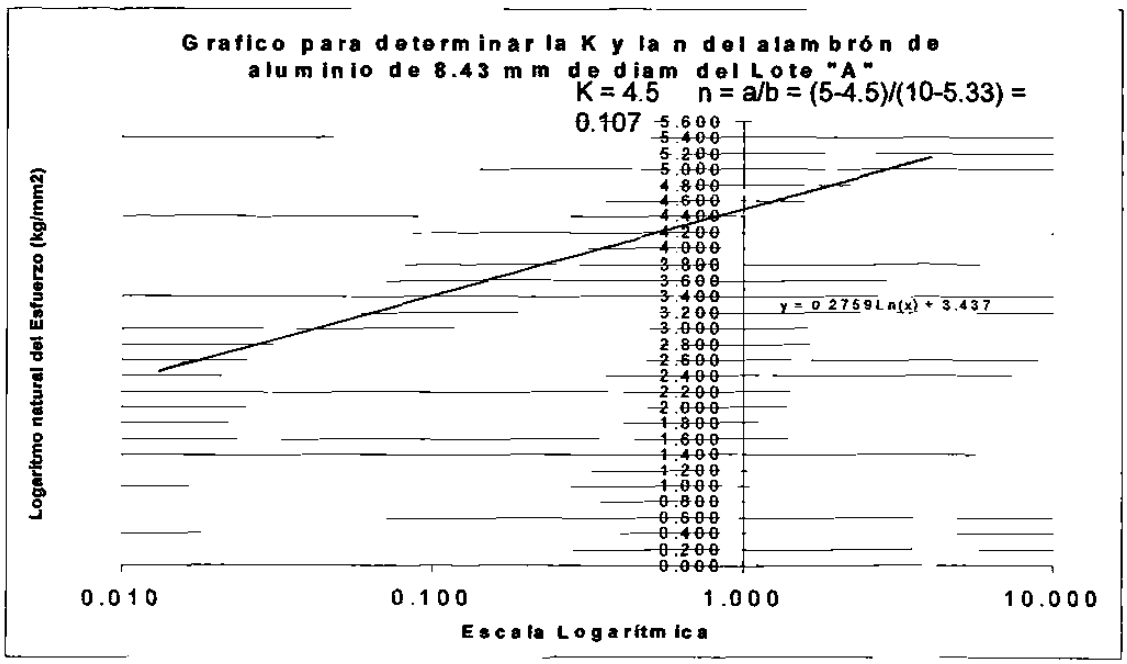


Gráfico AI-1) Determinación del valor de K y n para alambre de 8.43 mm.

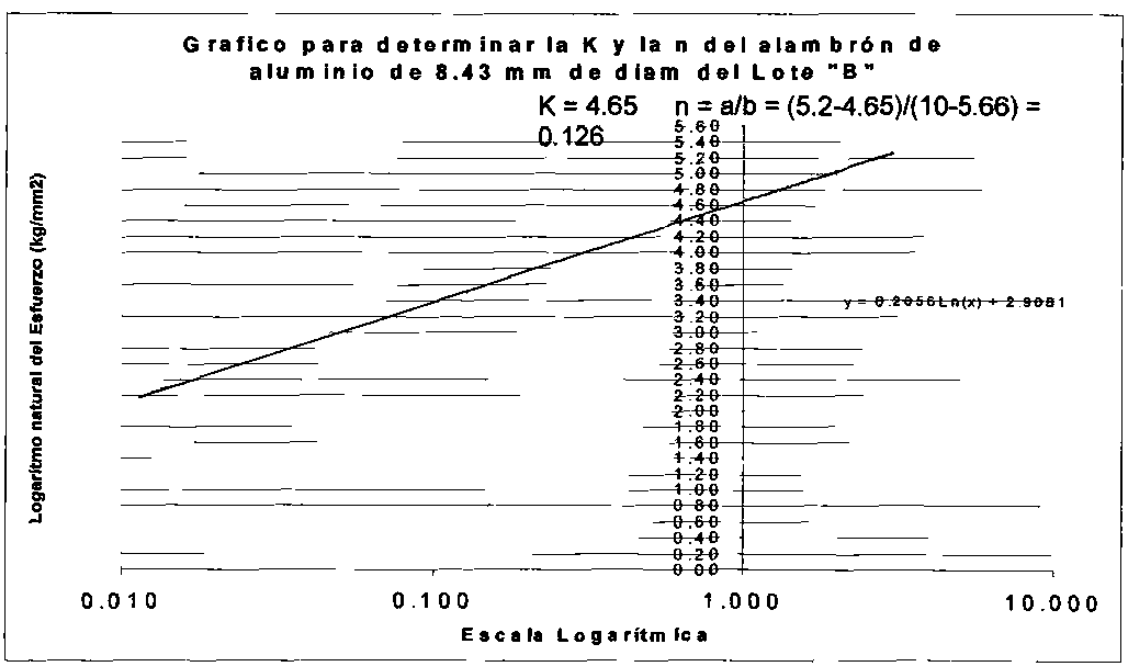


Gráfico AI-2) Determinación del valor de K y n para alambre de 8.43 mm.

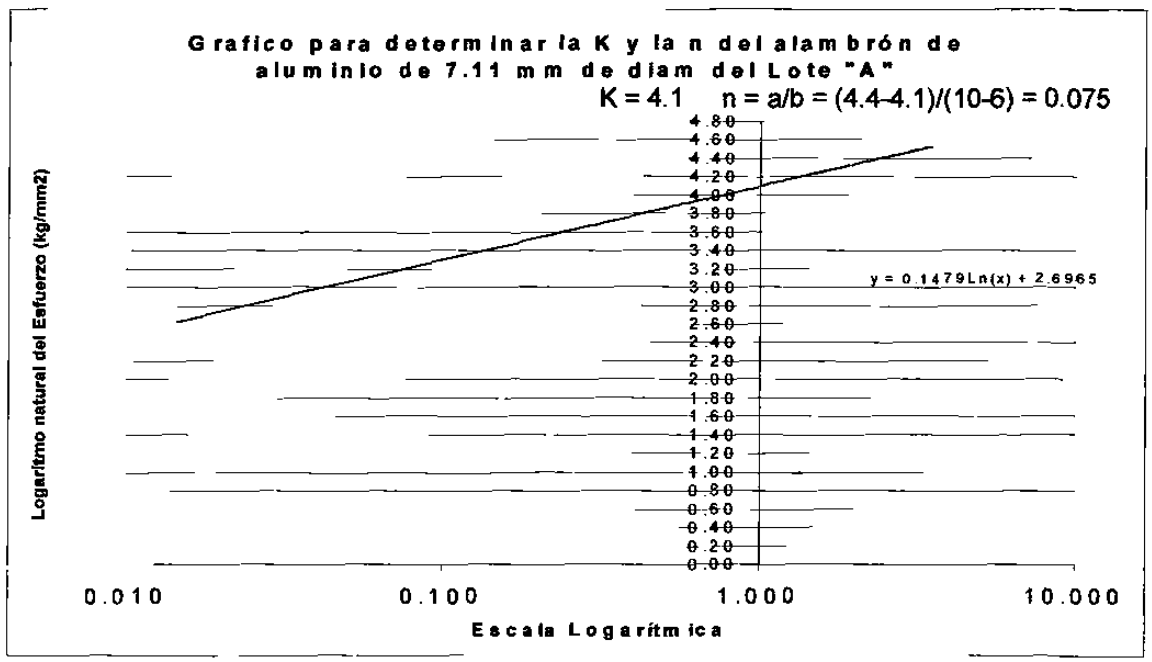


Gráfico AI-3) Determinación del valor de K y n para alambre de 7.11 mm.

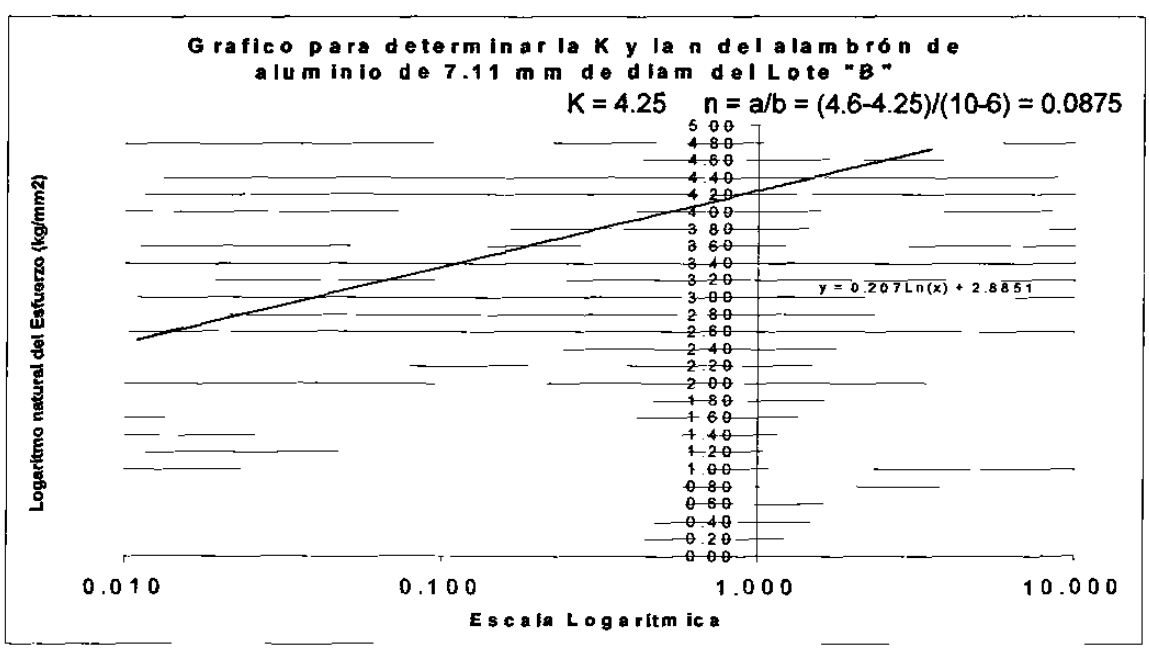


Gráfico AI-4) Determinación del valor de K y n para alambre de 7.11 mm

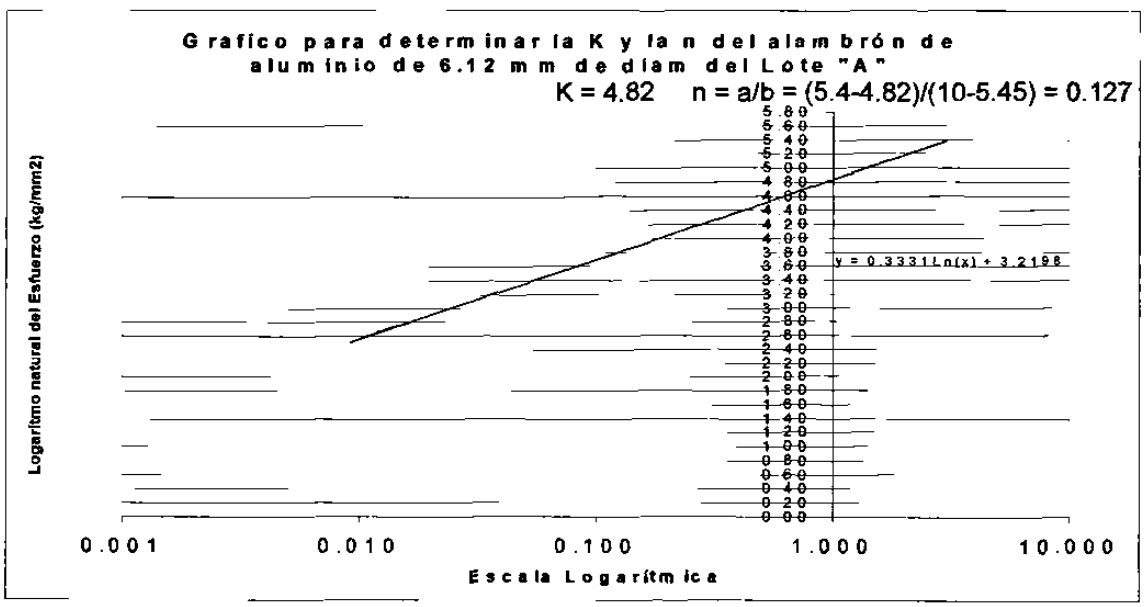


Gráfico AI-5) Determinación del valor de K y n para alambre de 6.12 mm

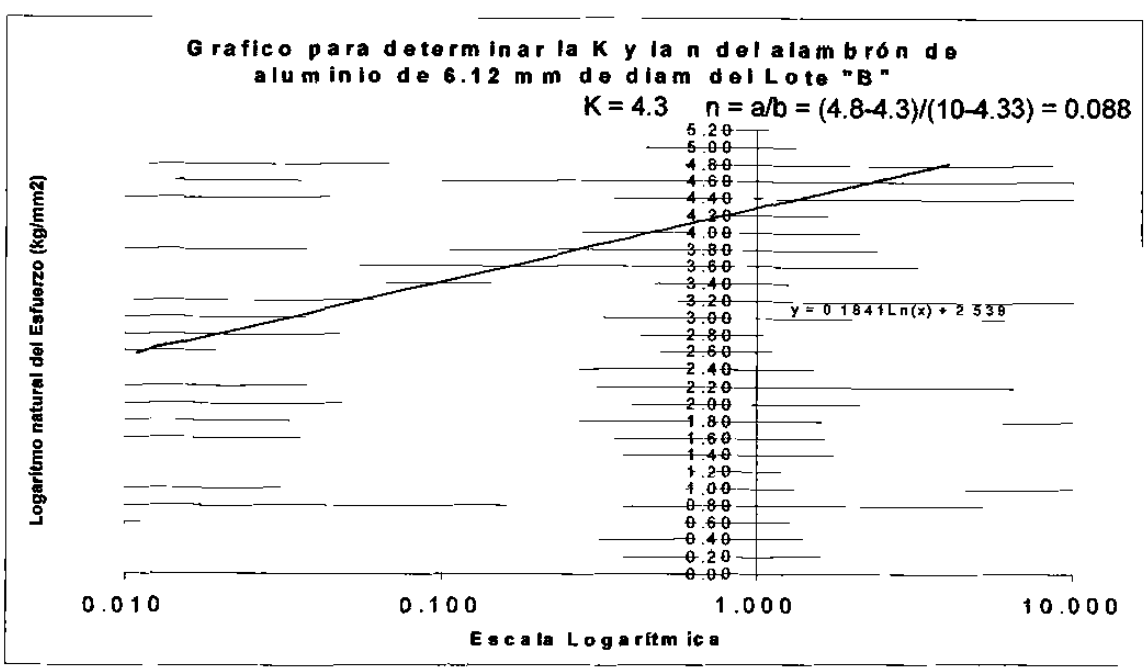


Gráfico AI-6) Determinación del valor de K y n para alambre de 6.12 mm

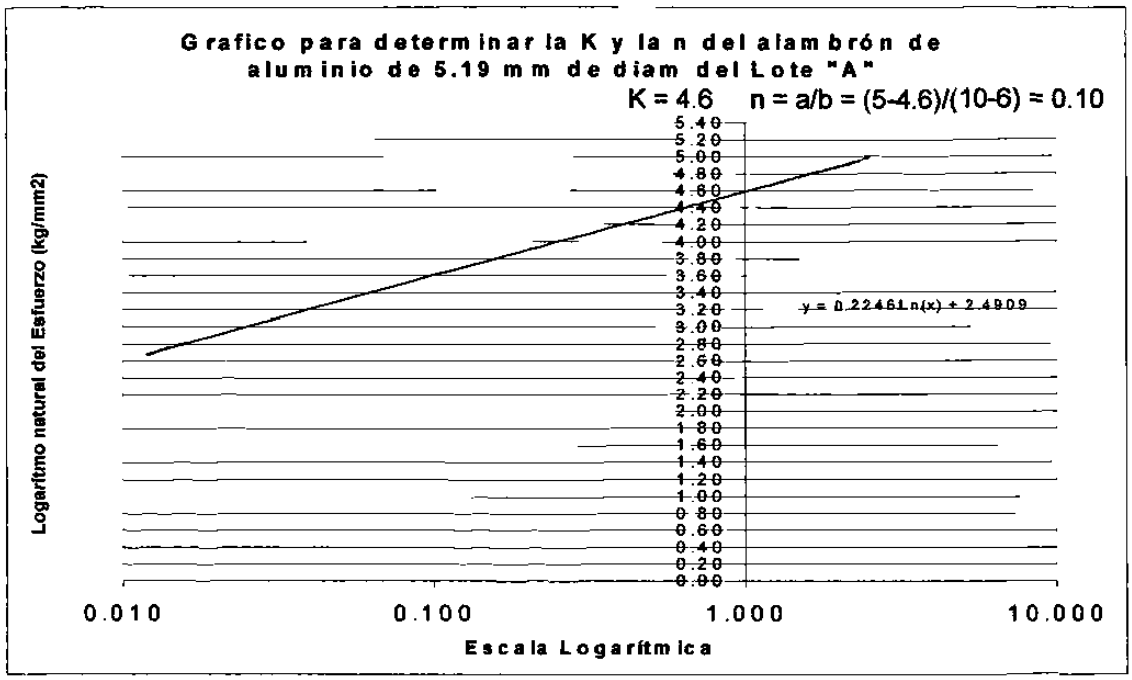


Gráfico AI-7) Determinación del valor de K y n para alambre de 5.19 mm

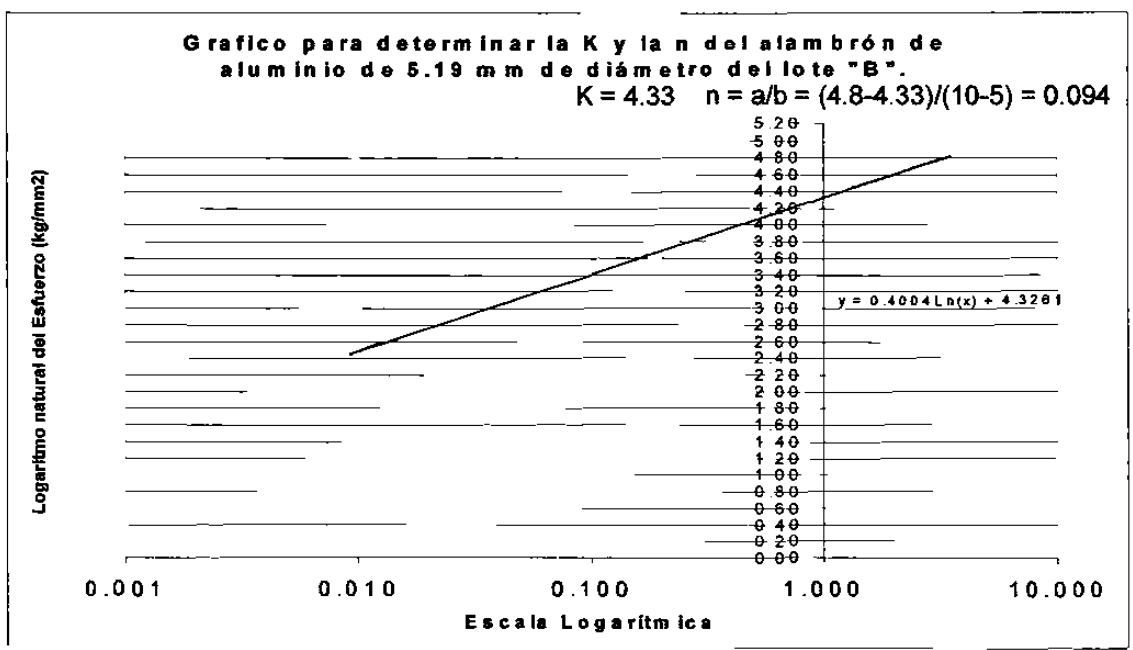


Gráfico AI-8) Determinación del valor de K y n para alambre de 5.19 mm

Apéndice II

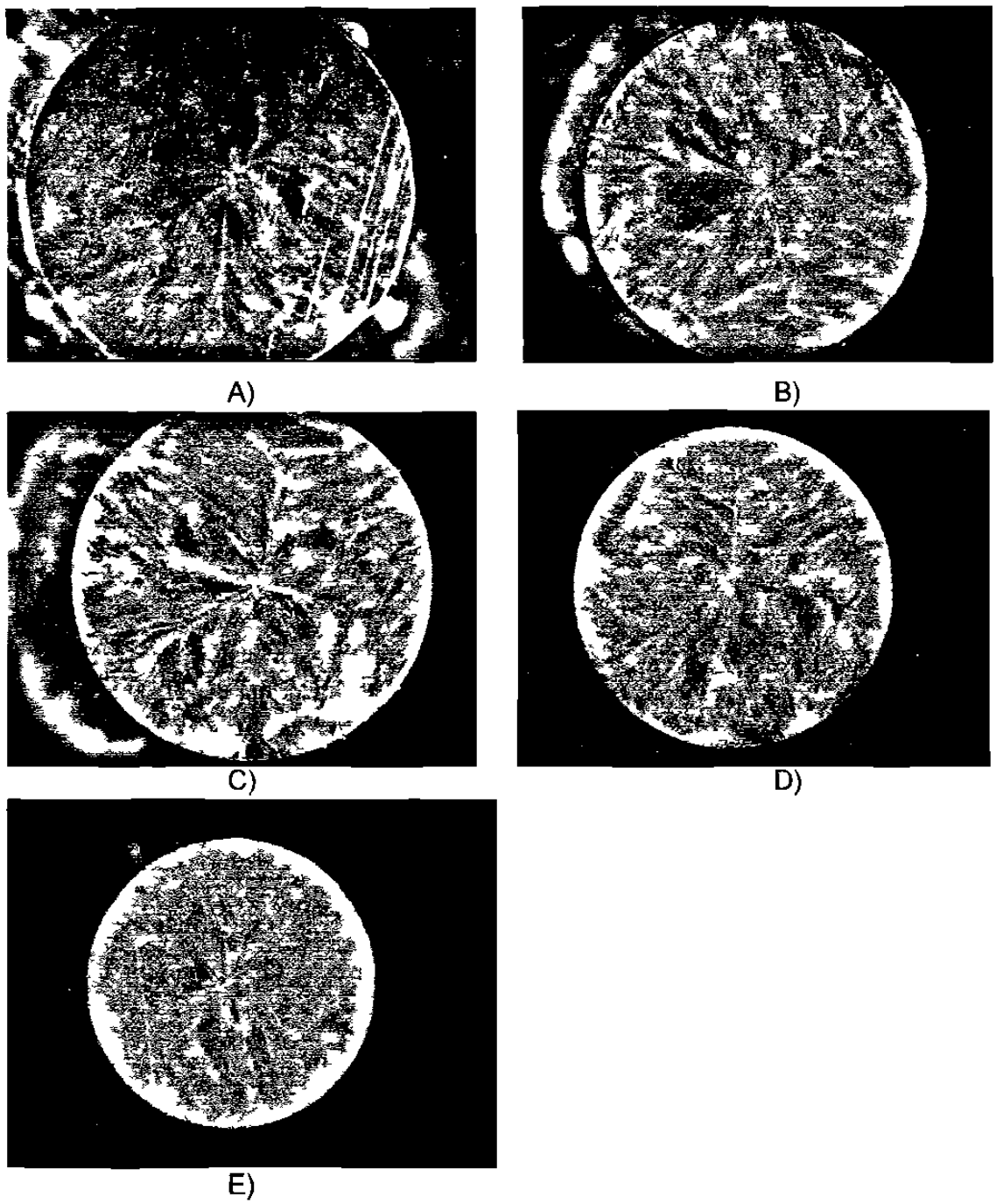
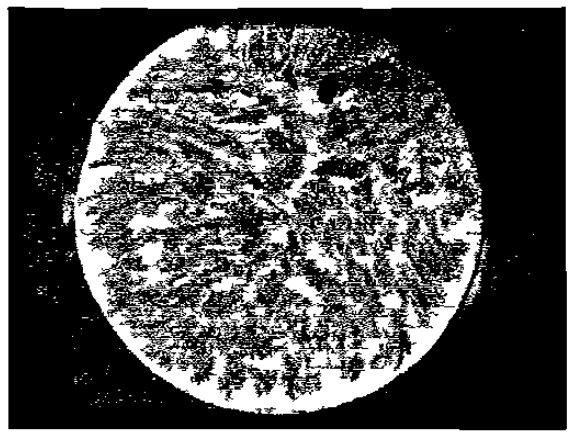
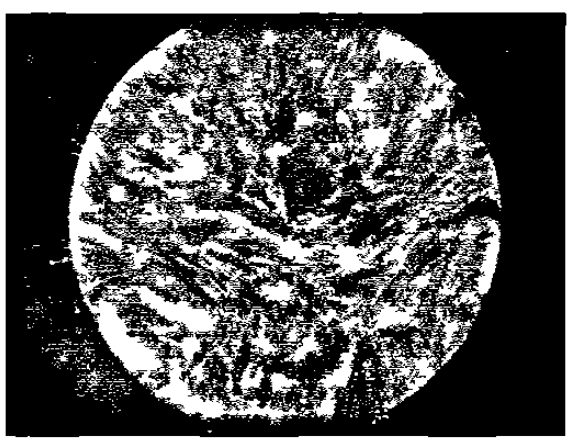


Figura AII-1 Alambres del lote A, A) Alambre de 9.525 mm de diámetro, B) Alambre de 8.43 mm de diámetro, C) Alambre de 7.11 mm de diámetro, D) Alambre de 6.12 mm de diámetro, E) Alambre de 5.19 mm de diámetro.

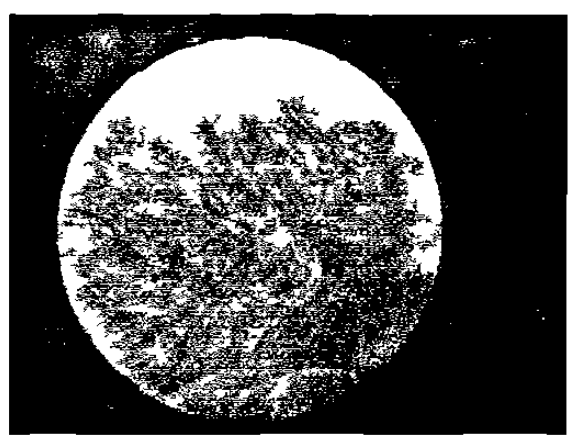
A)



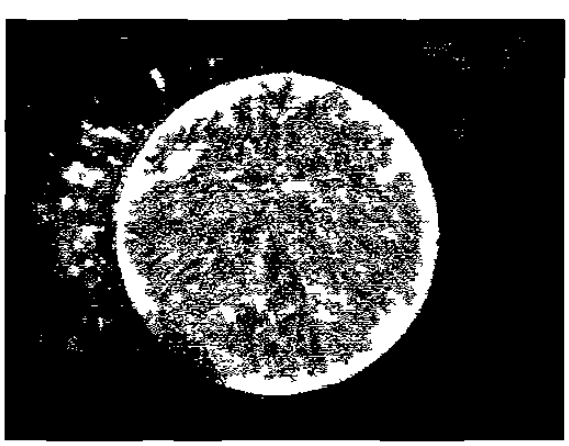
B)



C)



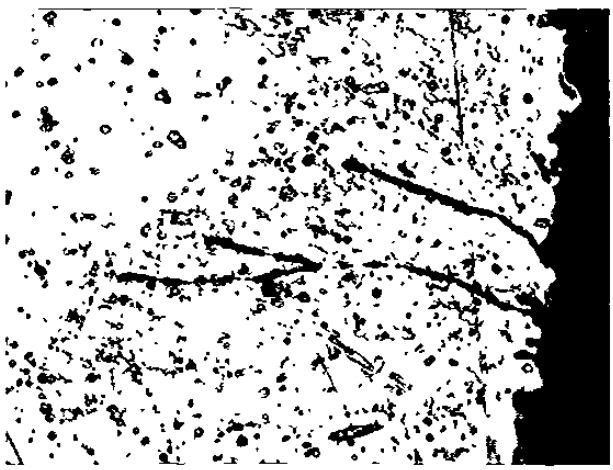
D)



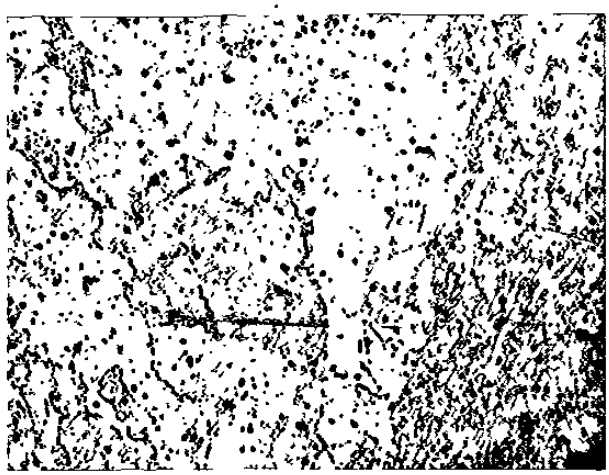
E)

Figura AII-2 Alambres del lote B, A) Alambre de 9.525 mm de diámetro, B) Alambre de 8.43 mm de diámetro, C) Alambre de 7.11 mm de diámetro, D) Alambre de 6.12 mm de diámetro, E) Alambre de 5.19 mm de diámetro.

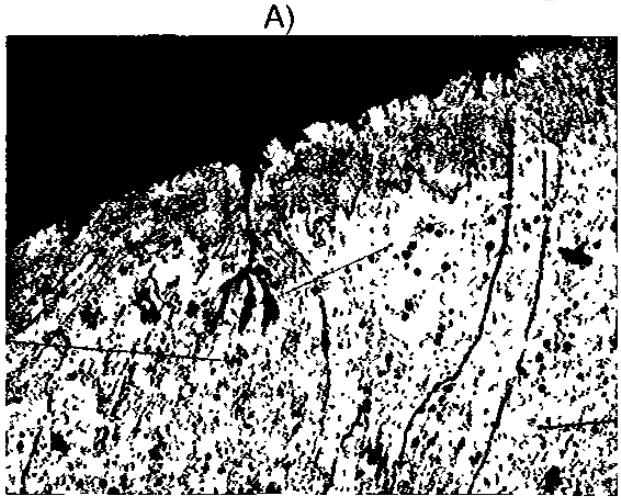
Apéndice III



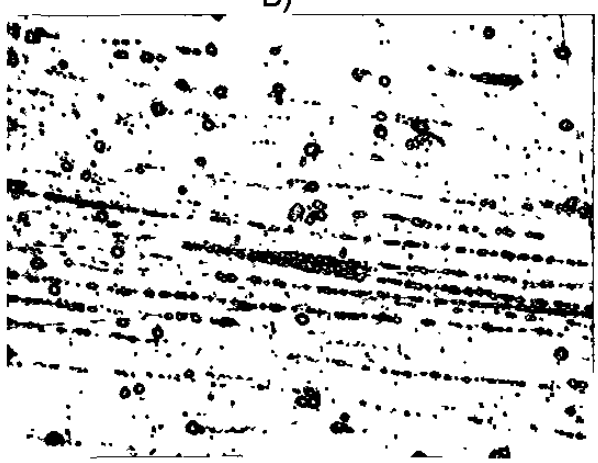
A)



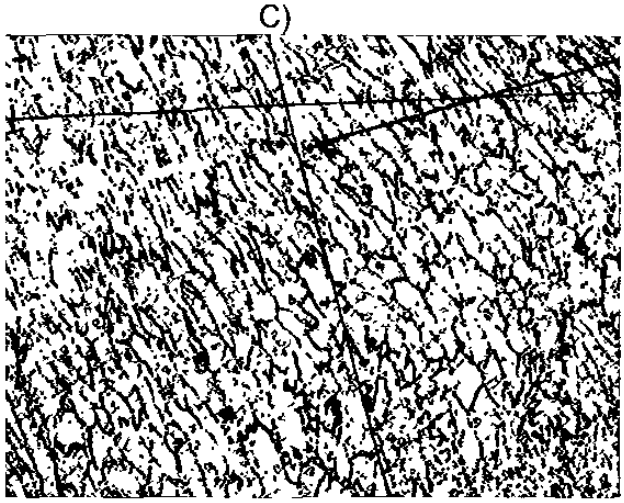
B)



C)



D)



E)

Figura AIII-1 Lote B 9.525 mm de diámetro A)500X transversal, B)200x transversal. C)200X transversal. E)200x transversal, D)500x longitudinal.

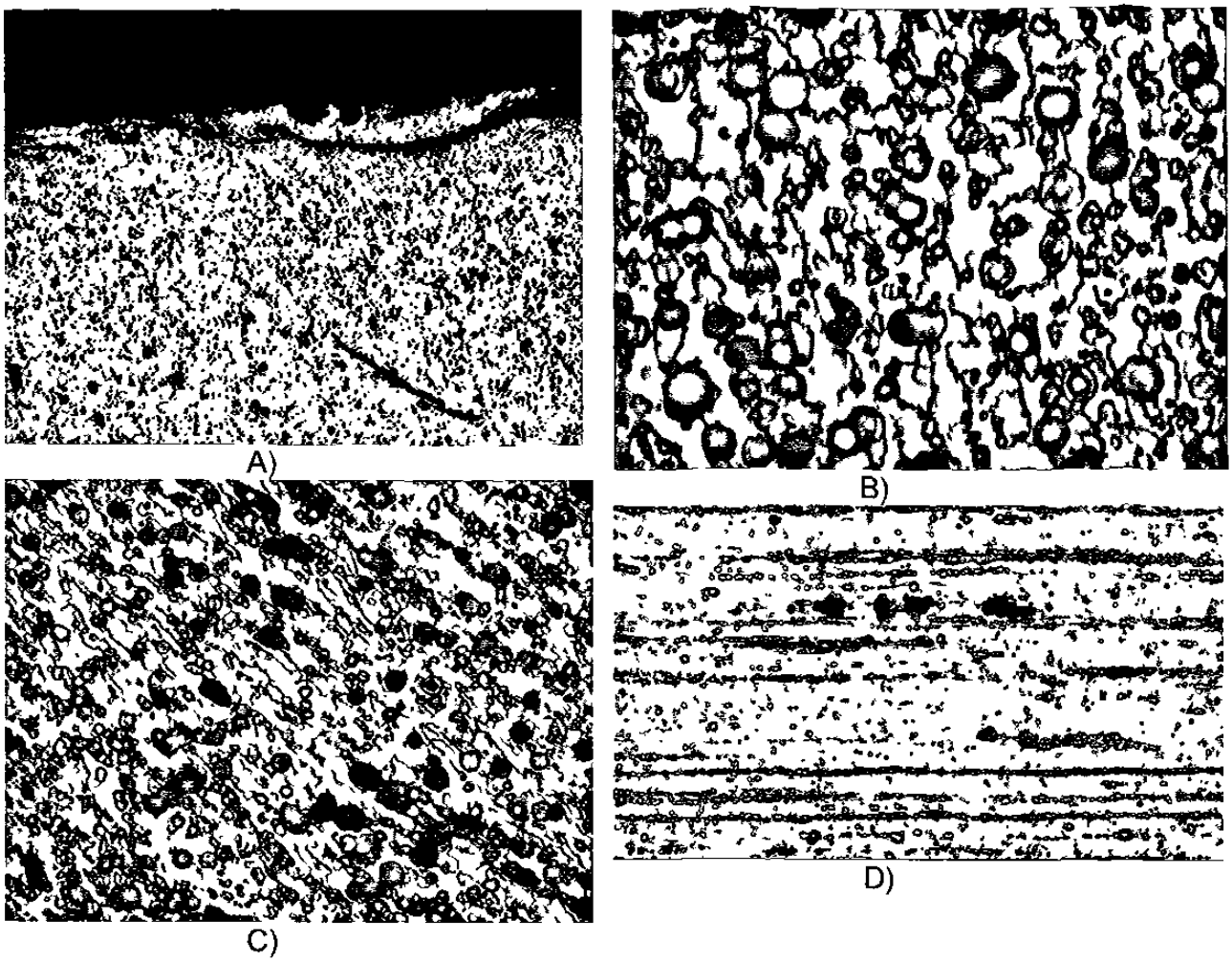


Figura AIII-2 Lote B diámetro de 8.43 mm, A) 200x transversal, B) 1000x transversal, C) 500x transversal, 500x longitudinal.

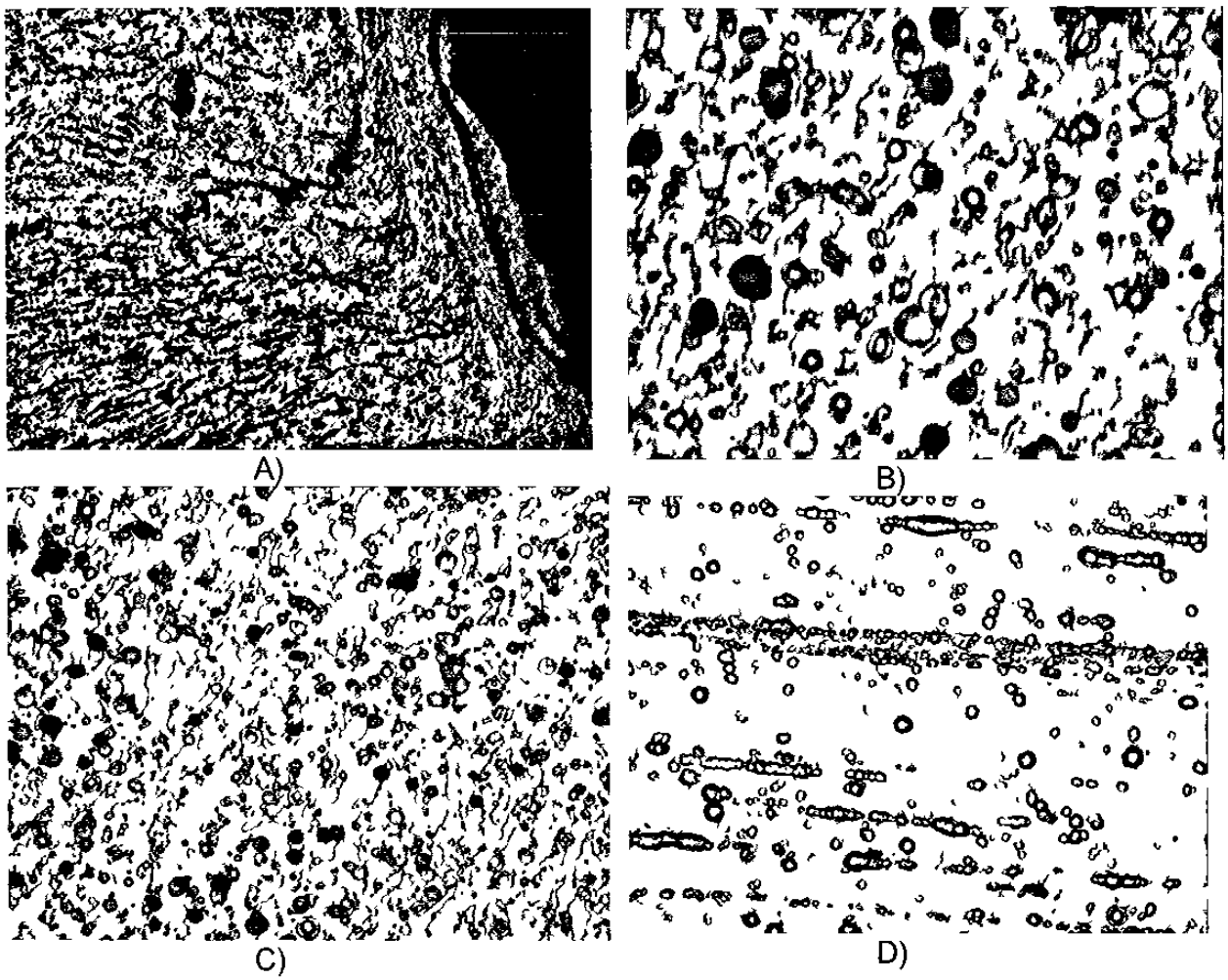


Figura AIII-3 Lote B diámetro de 7.11 mm, A) 200x transversal, B) 1000x transversal, C) 500x transversal, 500x longitudinal.

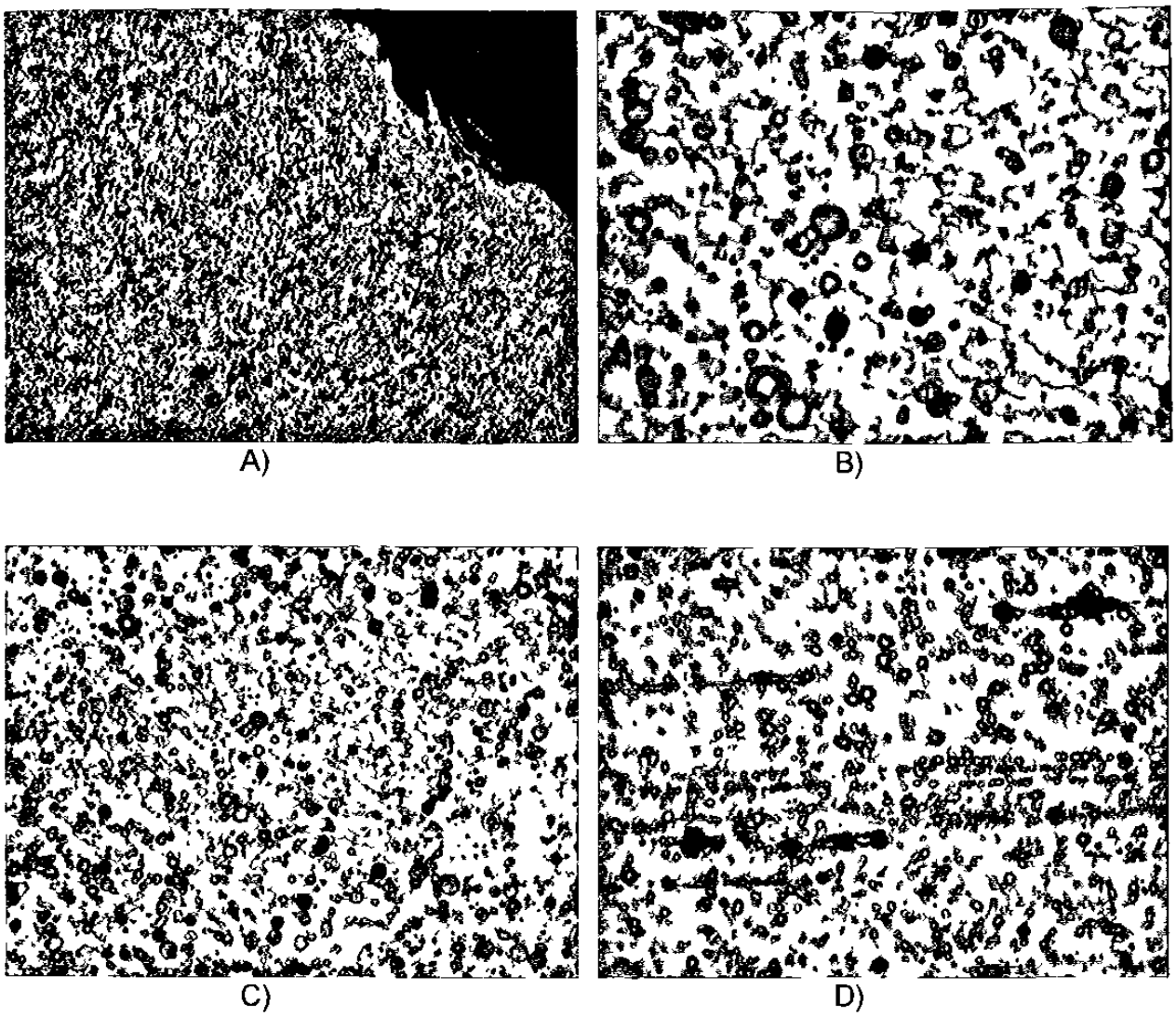
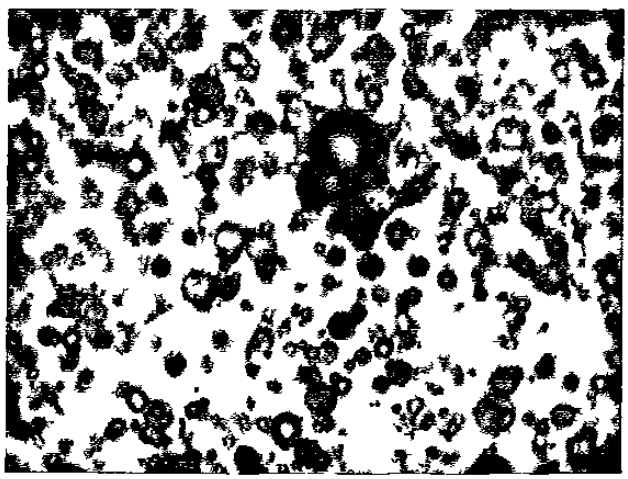
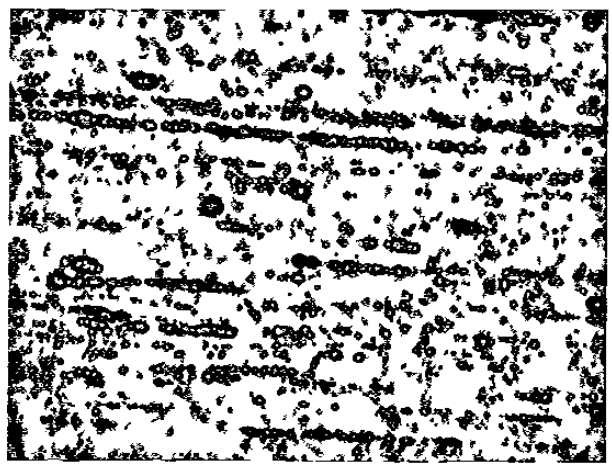


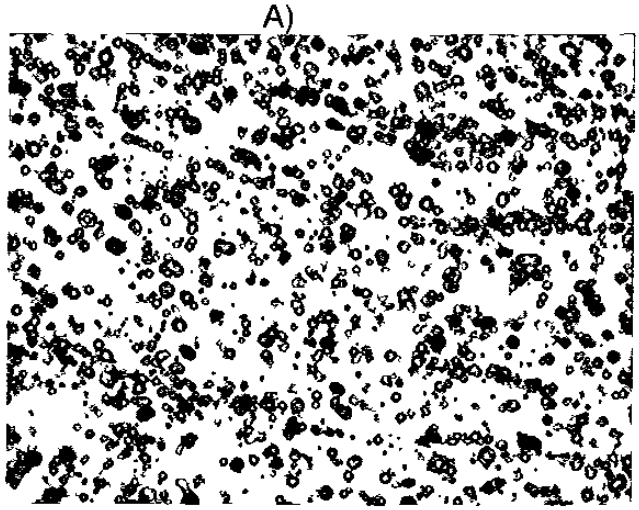
Figura AIII-4 Lote B diámetro de 6.12 mm, A) 200x transversal, B) 1000x transversal, C) 500x transversal, 500x longitudinal.



A)

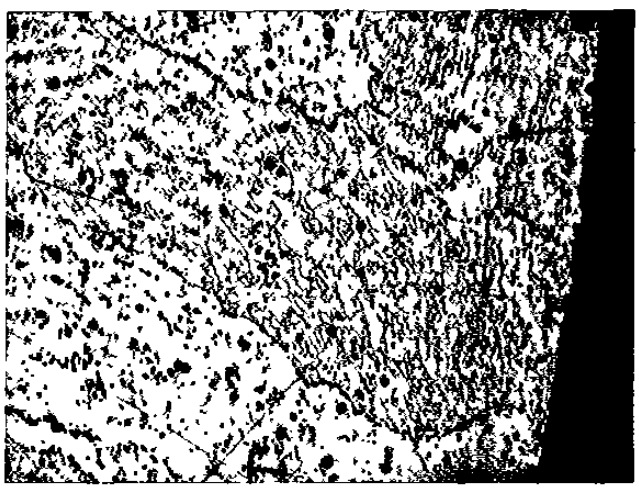


B)

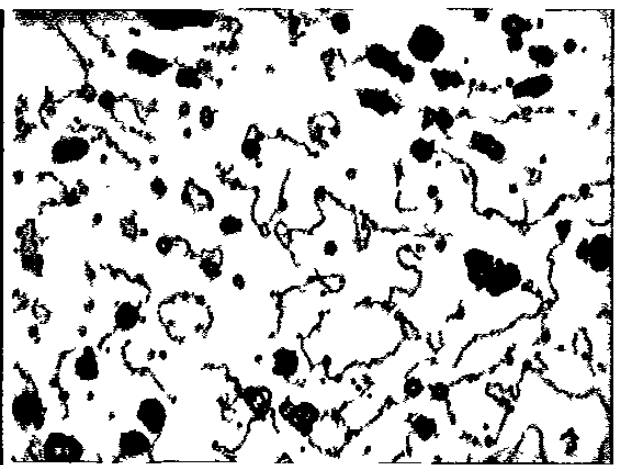


C)

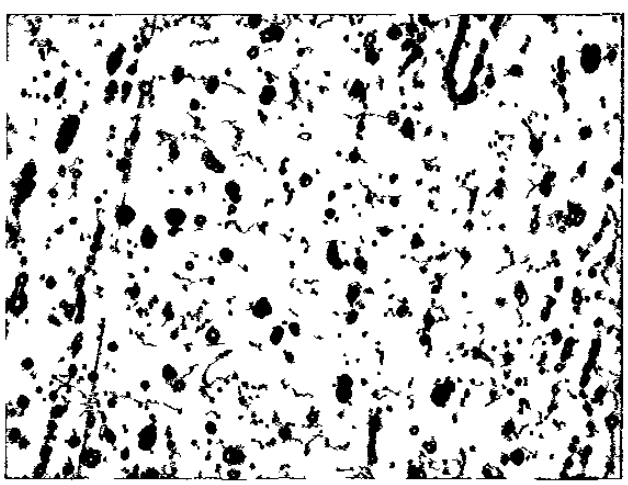
Figura AIII-5 Lote B diámetro de 5.19 mm, A) 1000x transversal, B) 500x longitudinal C) 500x transversal,.



A)



B)



C)

Figura AIII-6 Lote A diámetro de 9.525 mm, A) 200x transversal, B) 1000x transversal C) 500x transversal,.

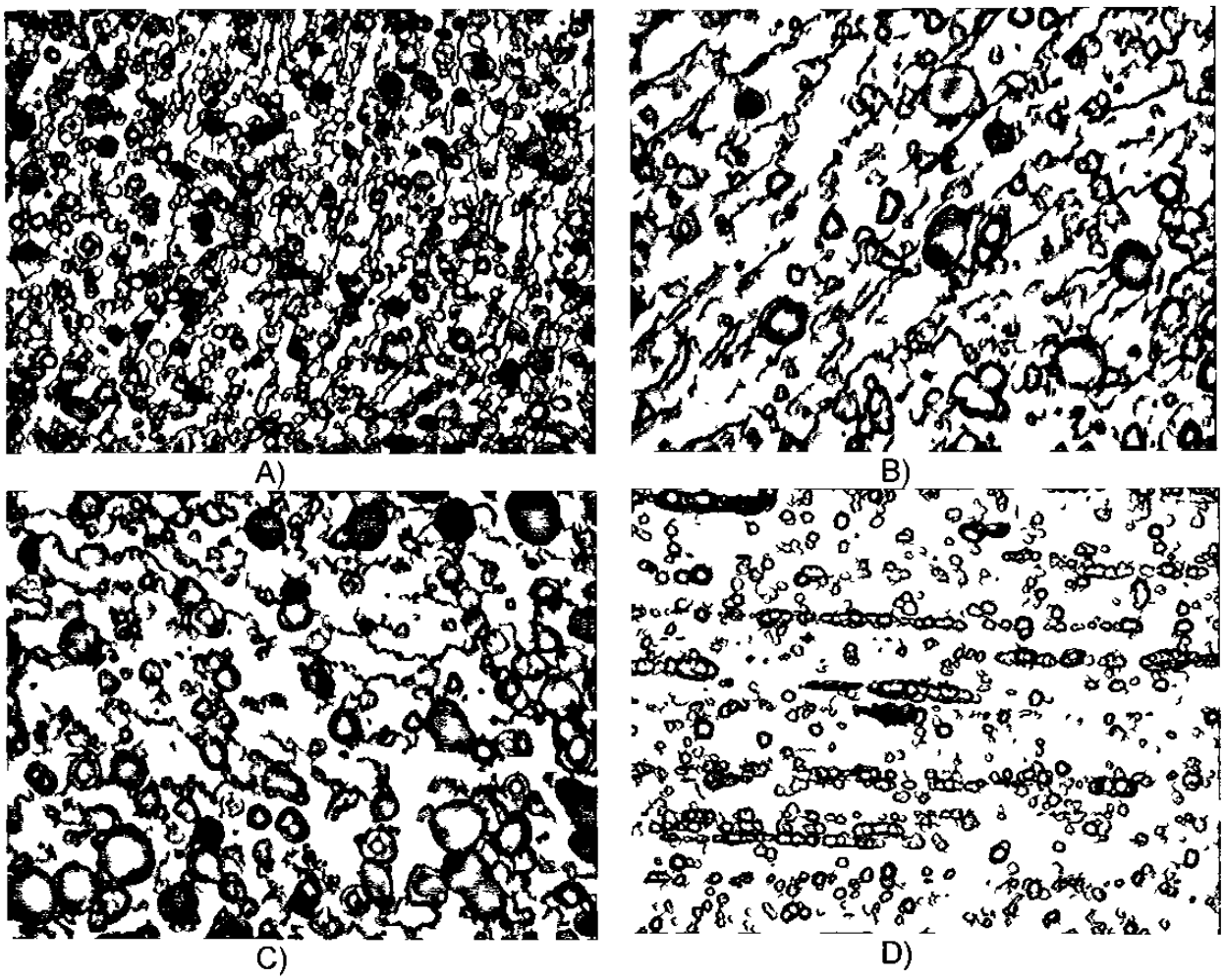


Figura AIII-7 Lote A diámetro de 8.43 mm, A) 500x transversal, B) 1000x transversal C) 1000x transversal, D) 500x longitudinal.

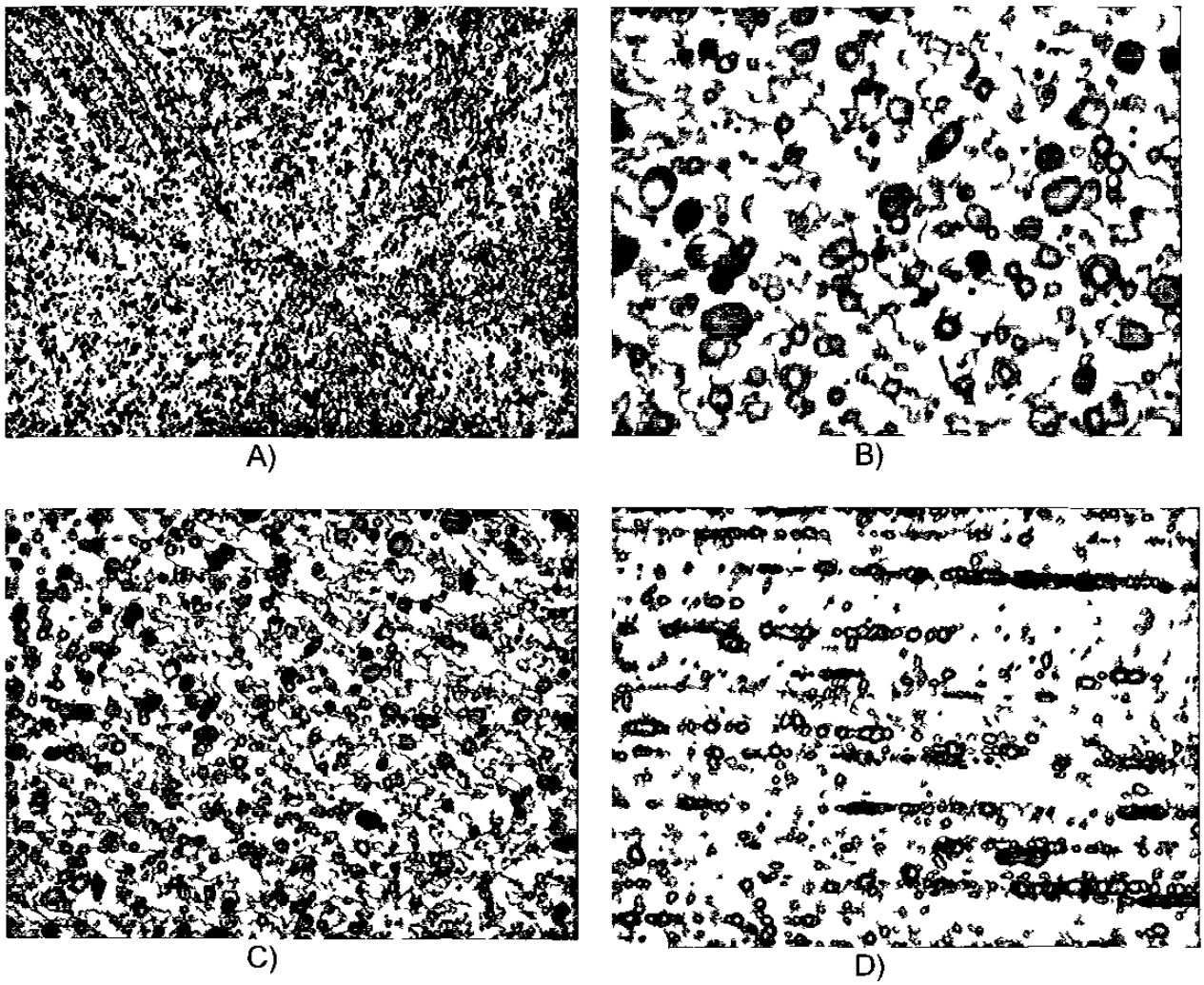


Figura AIII-8 Lote A diámetro de 7.11 mm, A) 200x transversal, B) 1000x transversal C) 500x transversal, D) 500x longitudinal.

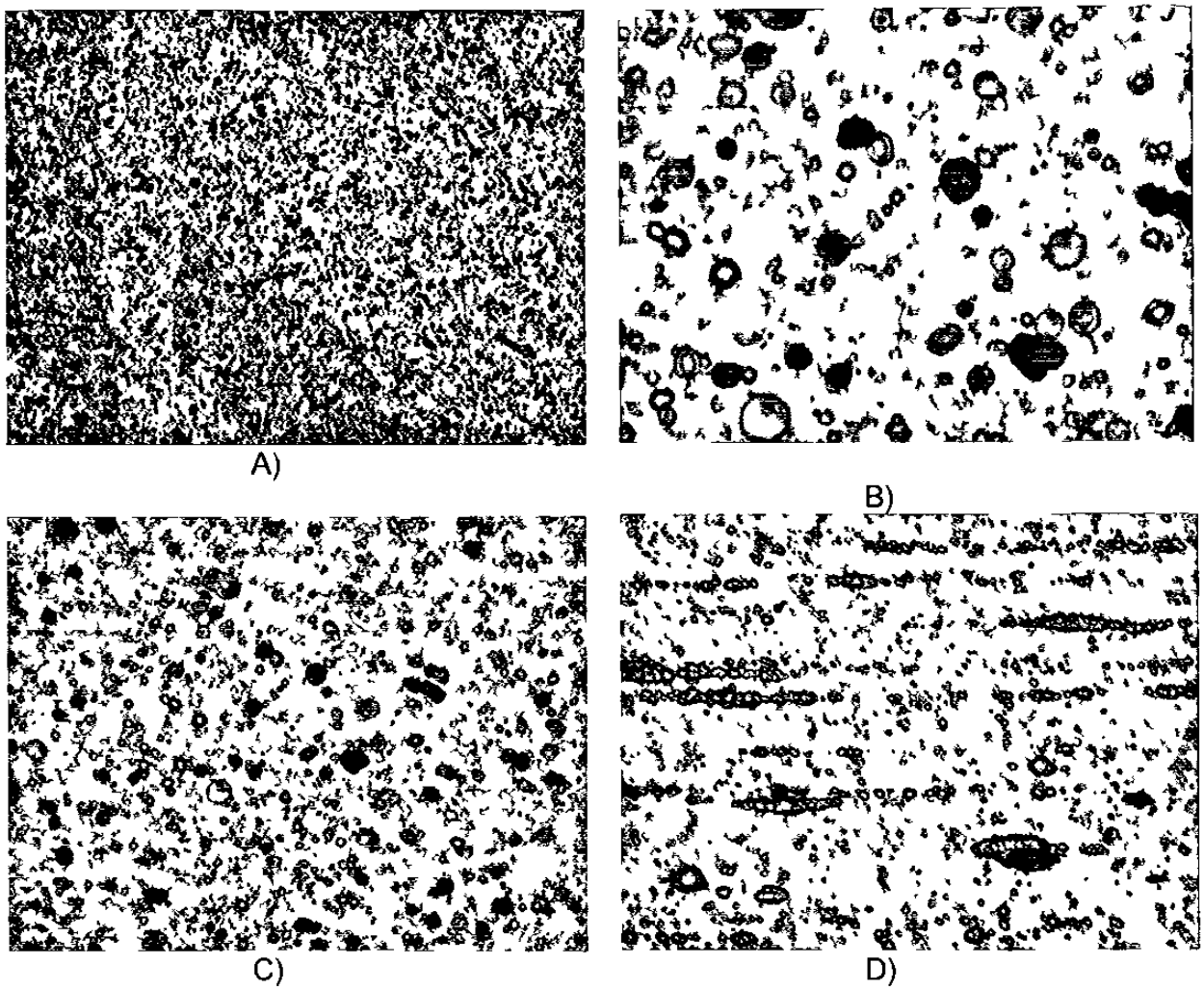
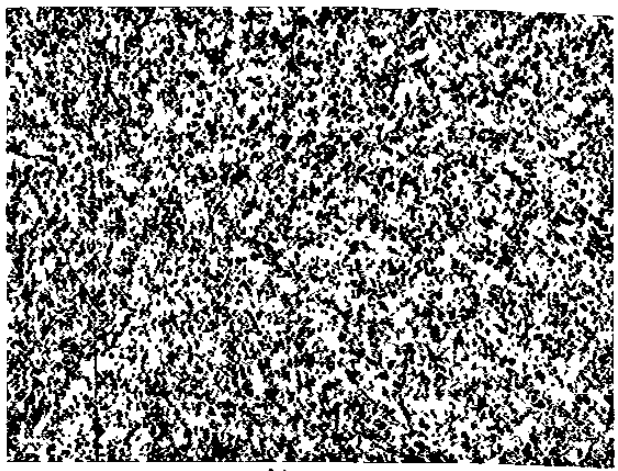
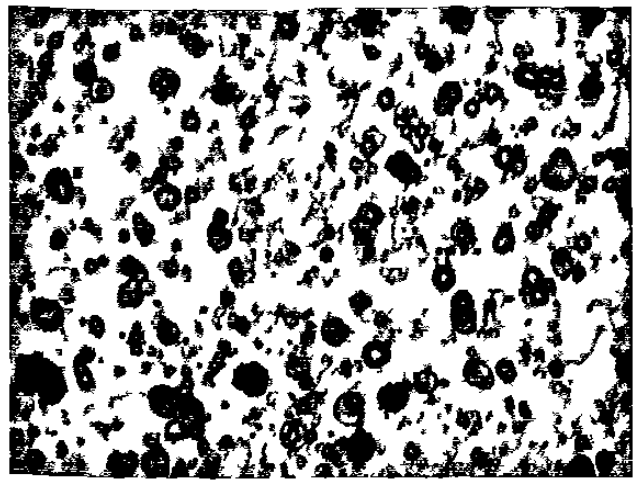


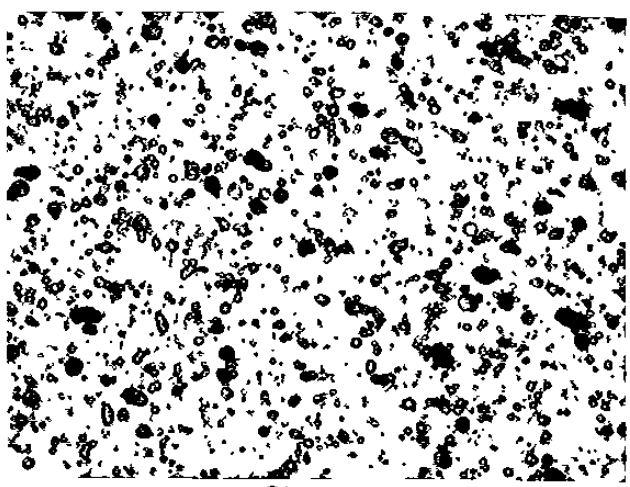
Figura AIII-9 Lote A diámetro de 6.12 mm, A) 200x transversal, B) 1000x transversal C) 500x transversal, D) 500x longitudinal.



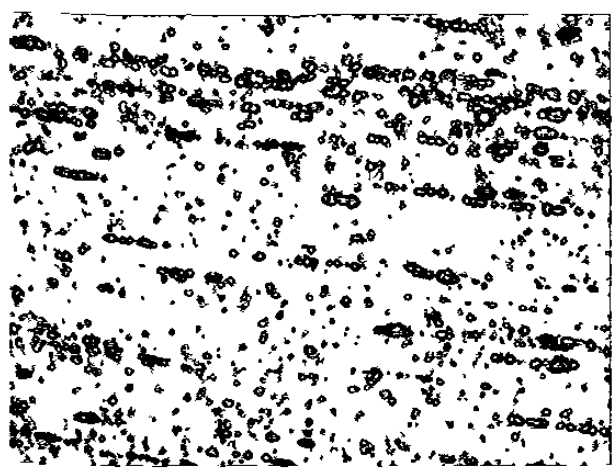
A)



B)



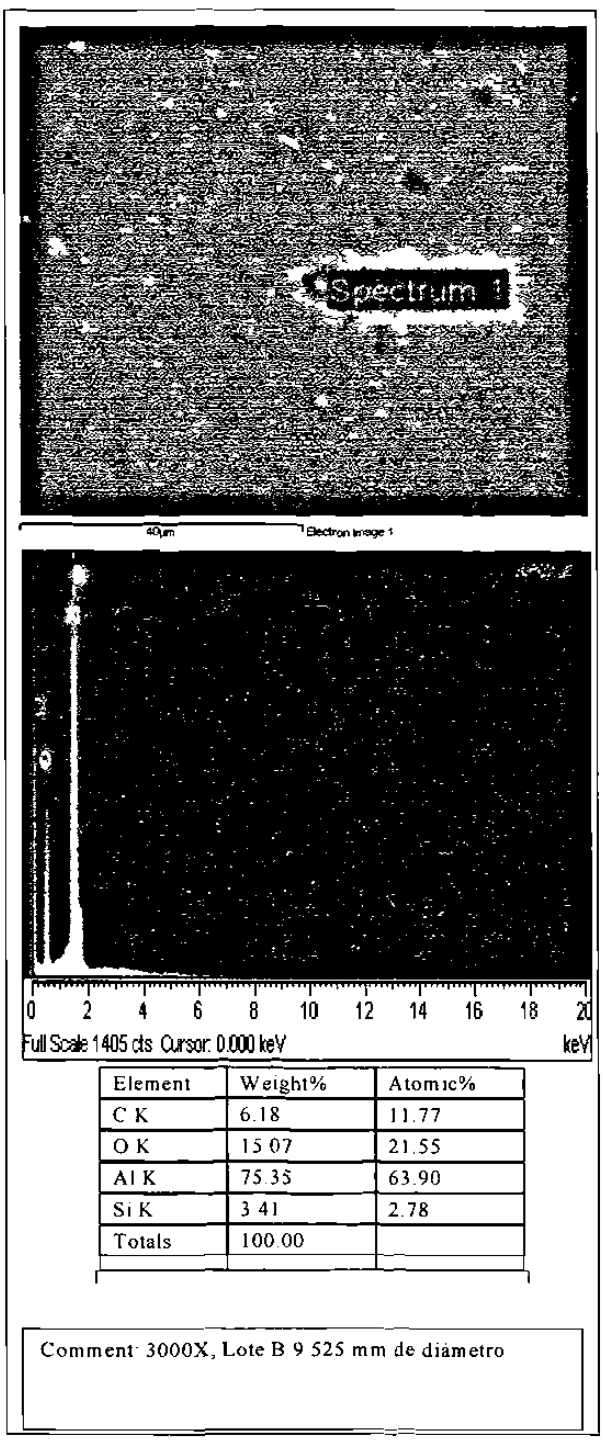
C)



D)

Figura AIII-10 Lote A diámetro de 5.19 mm, A) 200x transversal, B) 1000x transversal C) 500x transversal, D) 500x longitudinal.

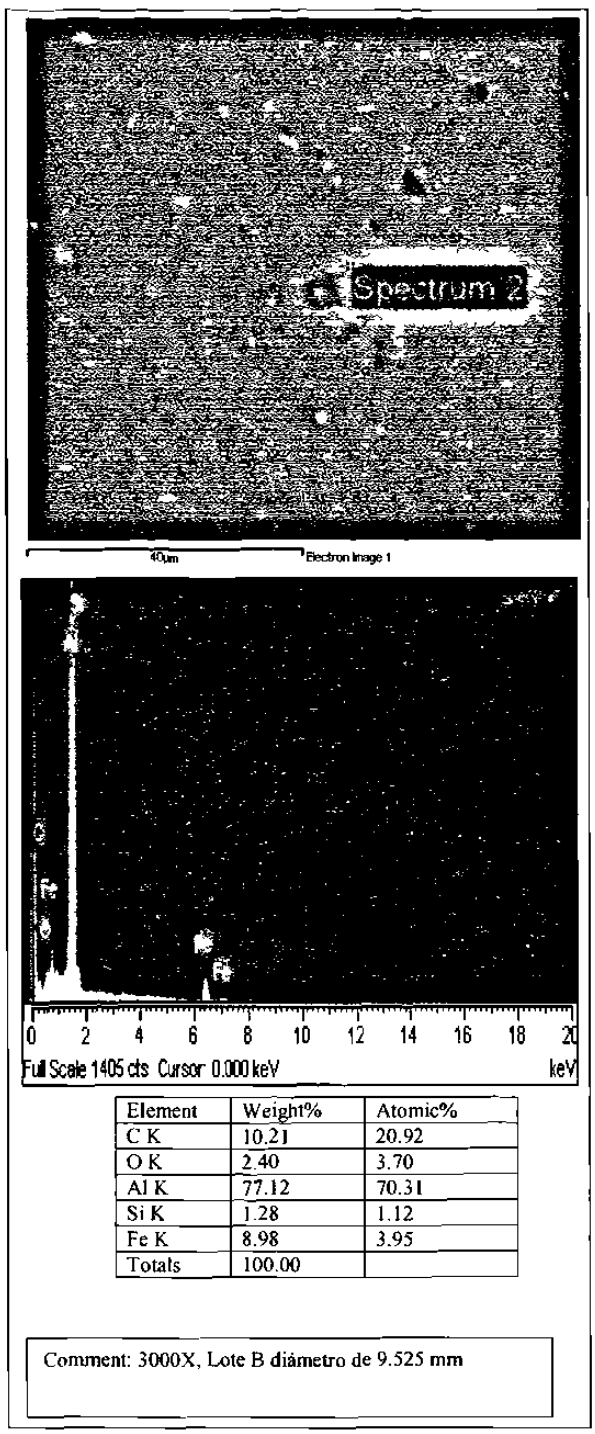
Apéndice IV



Element	Weight%	Atomic%
C K	6.18	11.77
O K	15.07	21.55
Al K	75.35	63.90
Si K	3.41	2.78
Totals	100.00	

Comment: 3000X, Lote B 9.525 mm de diámetro

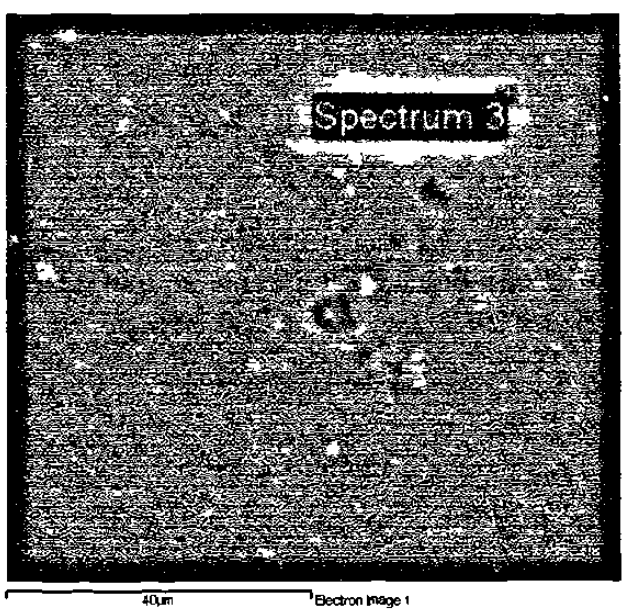
A)

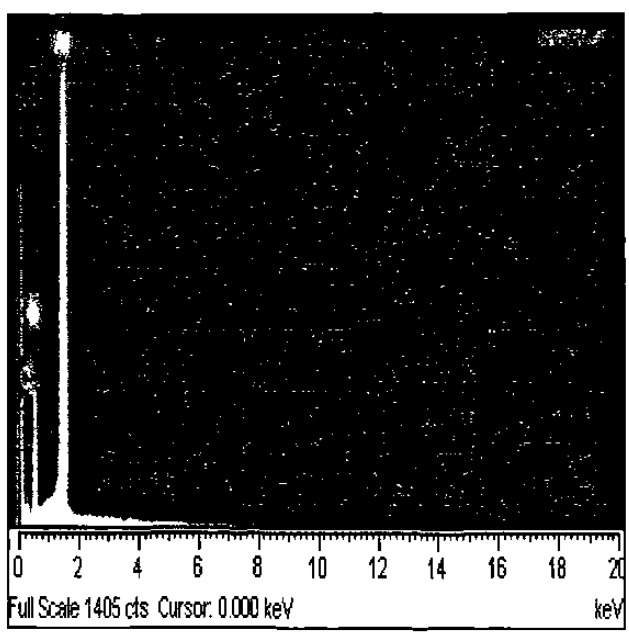


Element	Weight%	Atomic%
C K	10.21	20.92
O K	2.40	3.70
Al K	77.12	70.31
Si K	1.28	1.12
Fe K	8.98	3.95
Totals	100.00	

Comment: 3000X, Lote B diámetro de 9.525 mm

B)

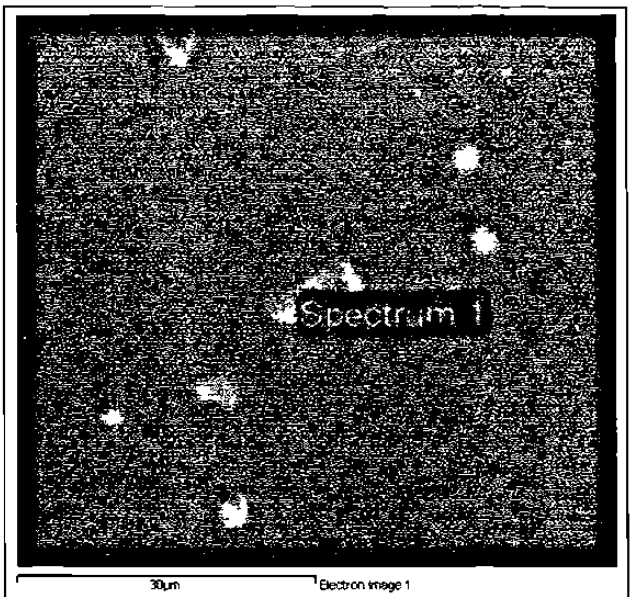


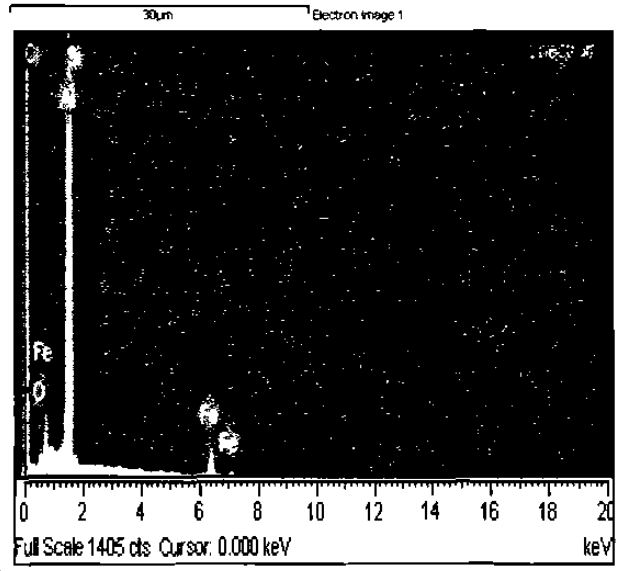


Element	Weight%	Atomic%
C K	8.52	16.13
O K	11.67	16.59
Al K	79.82	67.28
Totals	100.00	

Comment: 3000X, Lote B 5.5.25 mm de diámetro

C)

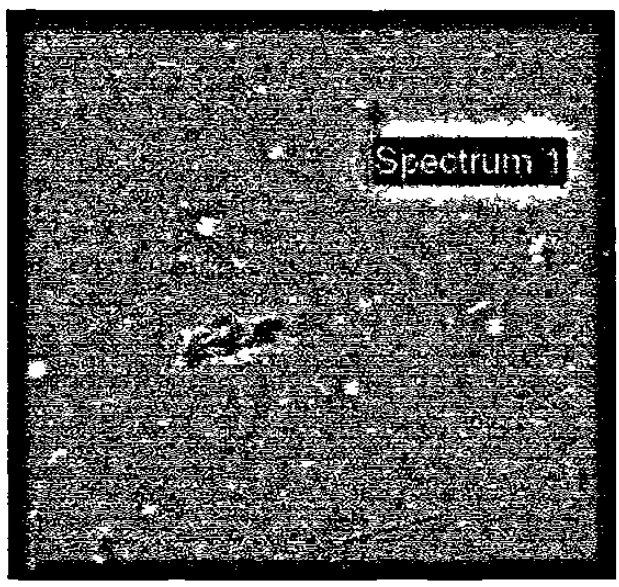


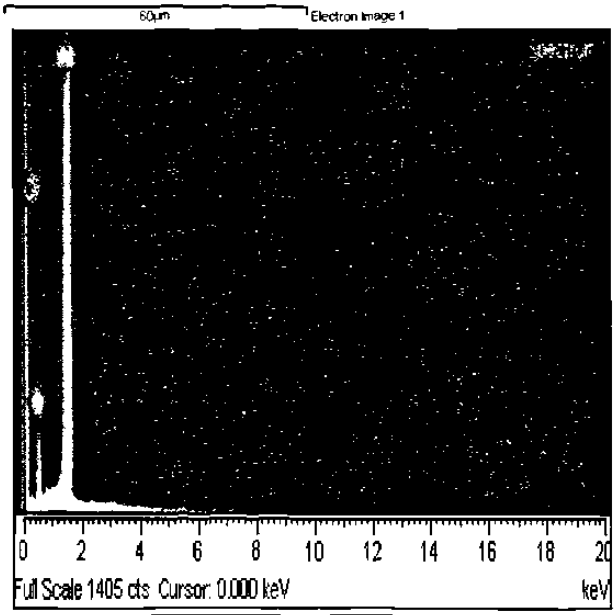


Element	Weight%	Atomic%
C K	6.36	13.85
O K	1.84	3.01
Al K	79.51	77.10
Si K	0.63	0.59
Fe K	11.66	5.46
Totals	100.00	

Comment: 4000X, 9.525 mm de diámetrro.

D)

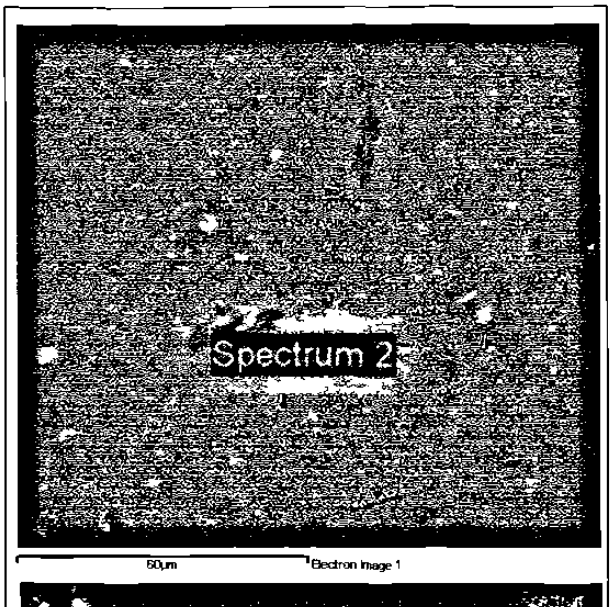


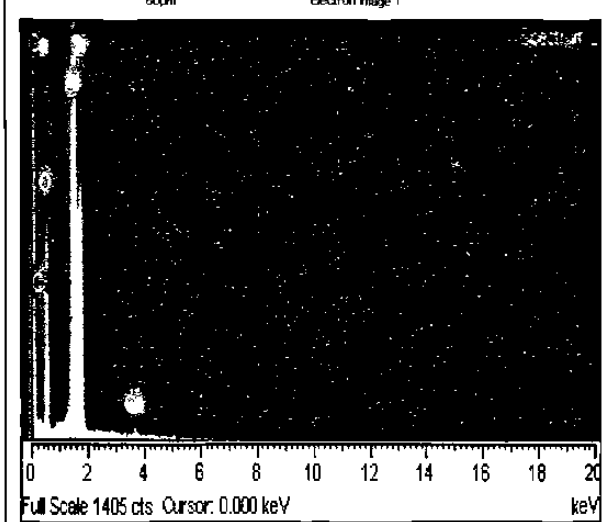


Element	Weight%	Atomic%
C K	9.06	17 59
O K	6.42	9.36
Al K	84.52	73.05
Totals	100.00	

Comment: 2000X. Lote B 9.525 mm de diámetro

E)

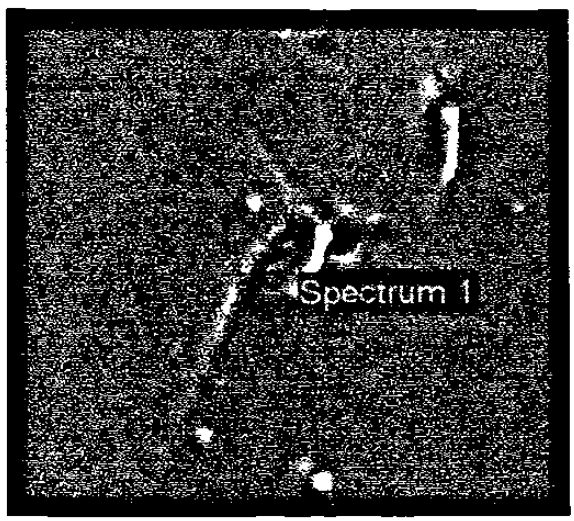


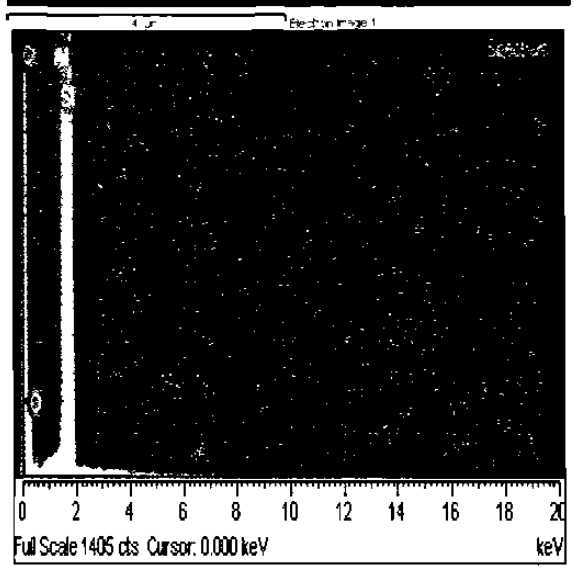


Element	Weight%	Atomic%
C K	9.36	16.74
O K	21.41	28.74
Al K	55.08	43.85
Si K	13.47	10.30
Ca K	0.68	0.36
Totals	100.00	

Comment: 3000X, Lote B 9.525 mm de diámetro

F)

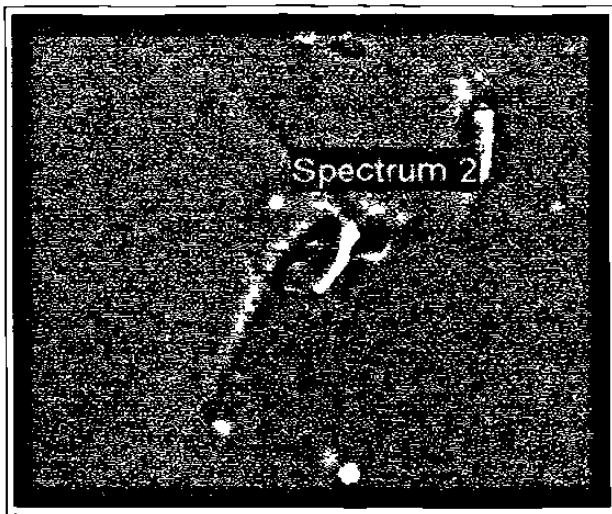


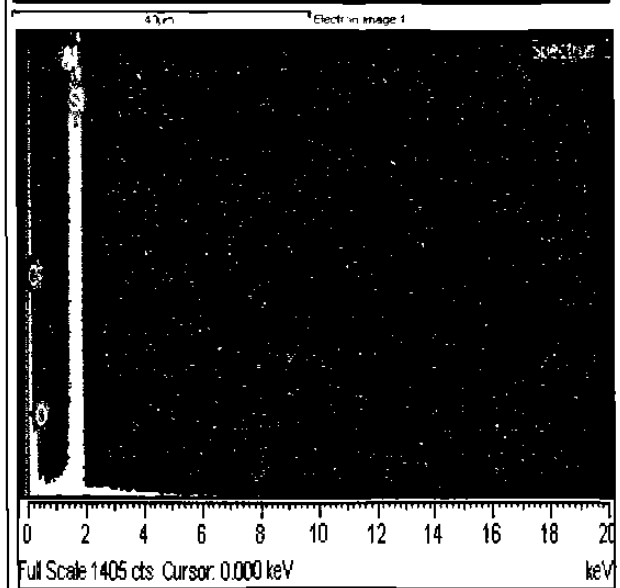


Element	Weight%	Atomic%
C K	30.60	50.19
O K	1.40	1.73
Al K	13.50	9.85
Si K	54.50	38.23
Totals	100.00	

Comment: 3000X. Lote B diámetro de 9.525 mm

G)

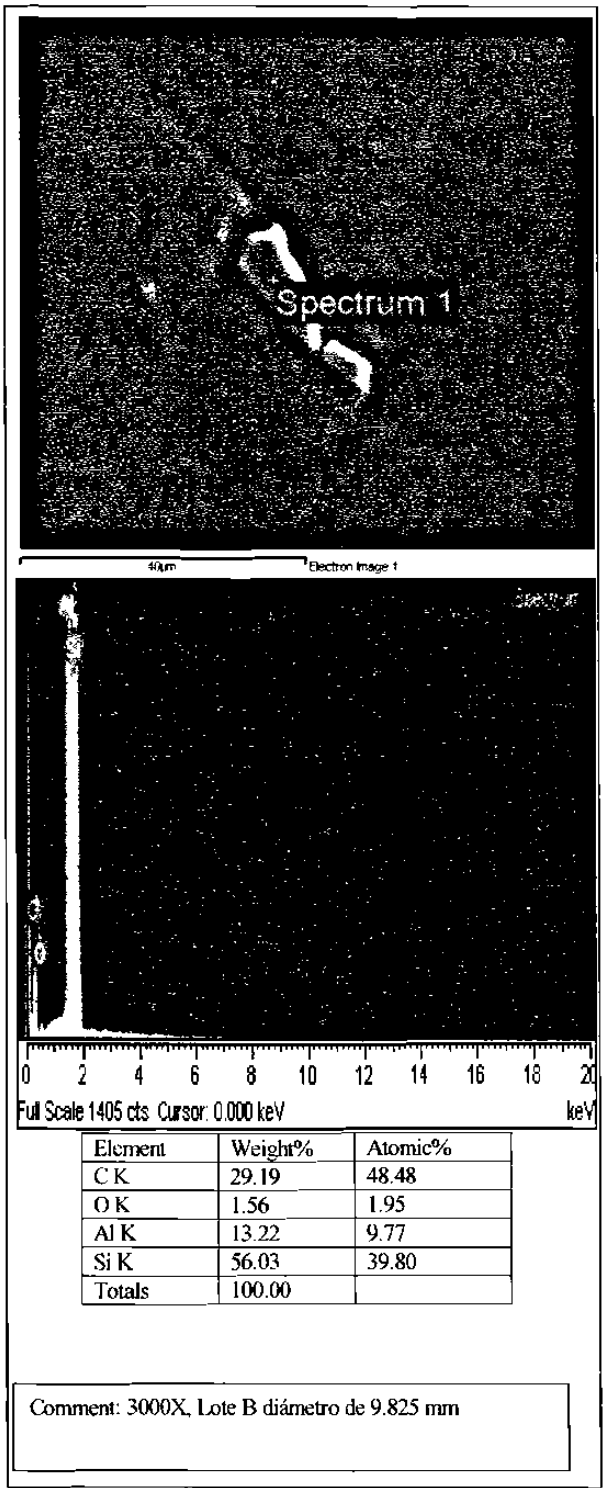




Element	Weight%	Atomic%
C K	26.41	44.83
O K	1.99	2.54
Al K	22.11	16.71
Si K	49.49	35.93
Totals	100.00	

Comment: 3000X. Lote B diámetro de 9.525 mm.

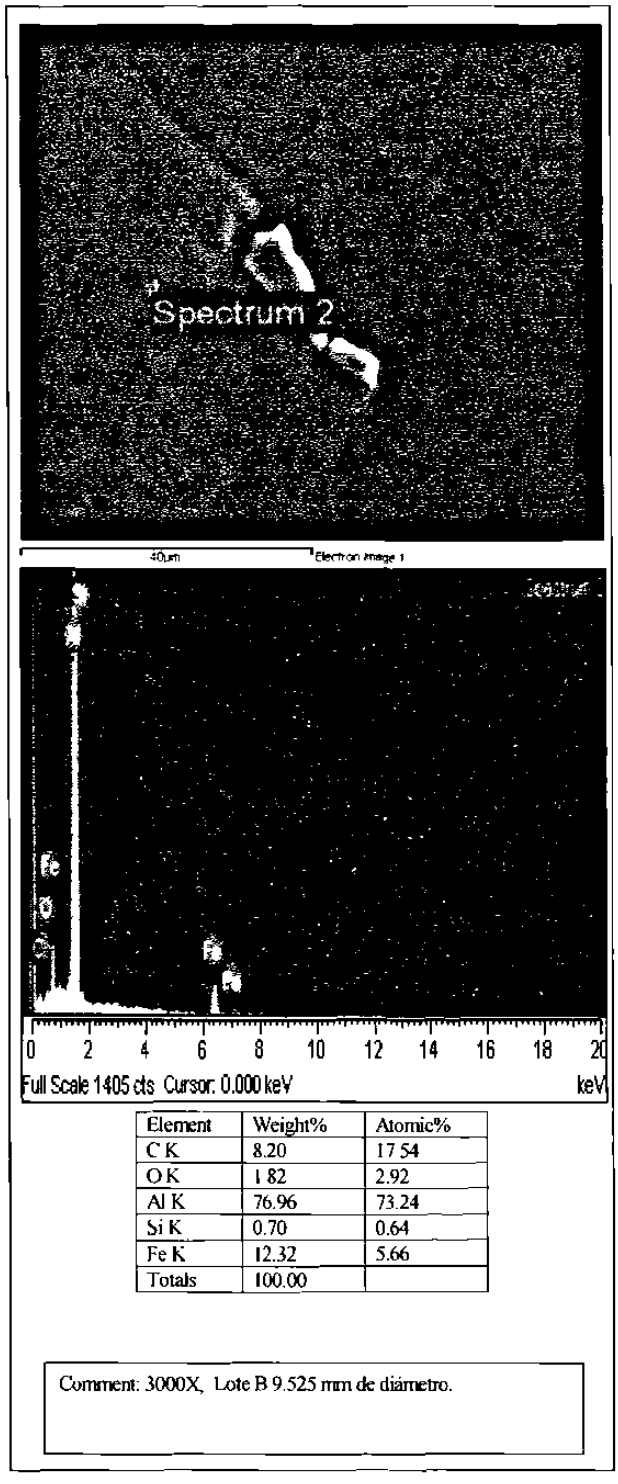
H)



Element	Weight%	Atomic%
C K	29.19	48.48
O K	1.56	1.95
Al K	13.22	9.77
Si K	56.03	39.80
Totals	100.00	

Comment: 3000X, Lote B diámetro de 9.825 mm

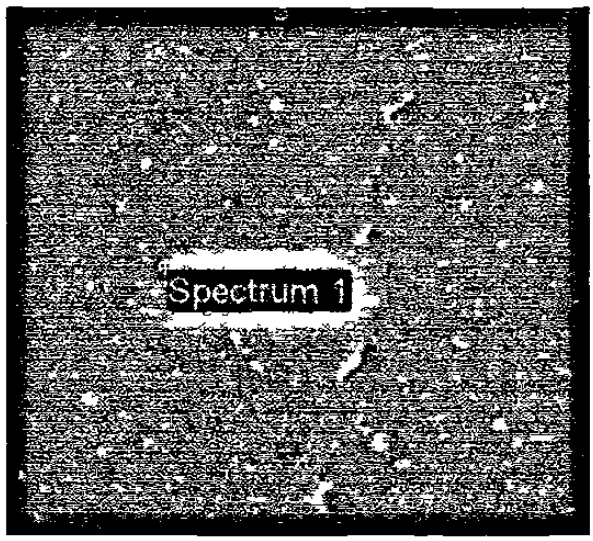
I)

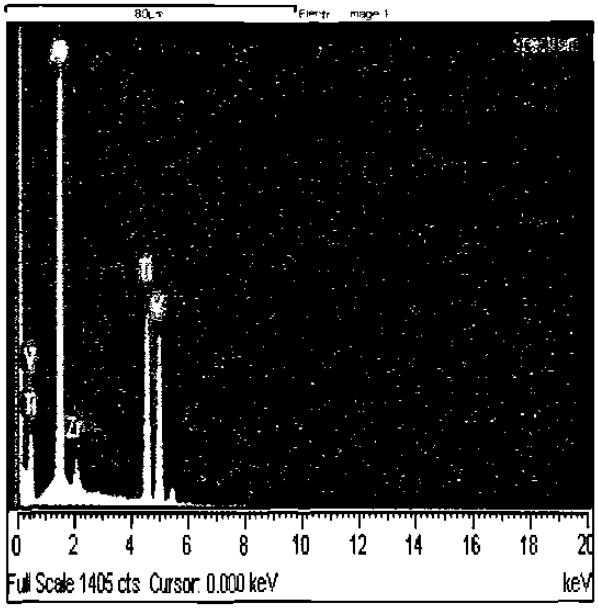


Element	Weight%	Atomic%
C K	8.20	17.54
O K	1.82	2.92
Al K	76.96	73.24
Si K	0.70	0.64
Fe K	12.32	5.66
Totals	100.00	

Comment: 3000X, Lote B 9.525 mm de diámetro.

J)

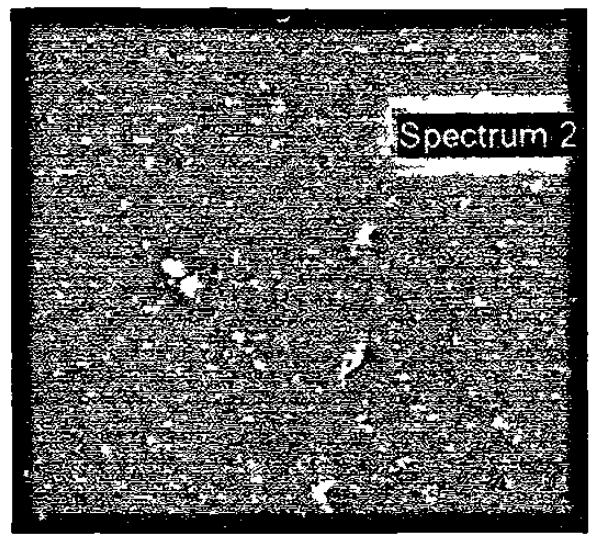


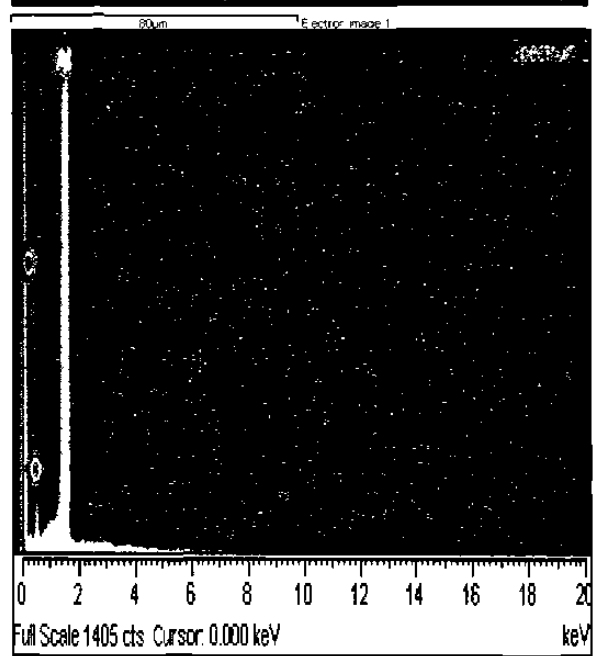


Element	Weight%	Atomic%
Al K	33.54	48.61
Ti K	32.29	26.36
V K	30.61	23.50
Zr L	3.55	1.52
Totals	100.00	

Comment: 1600X. Lote B 5.19 mm de diámetro

K)

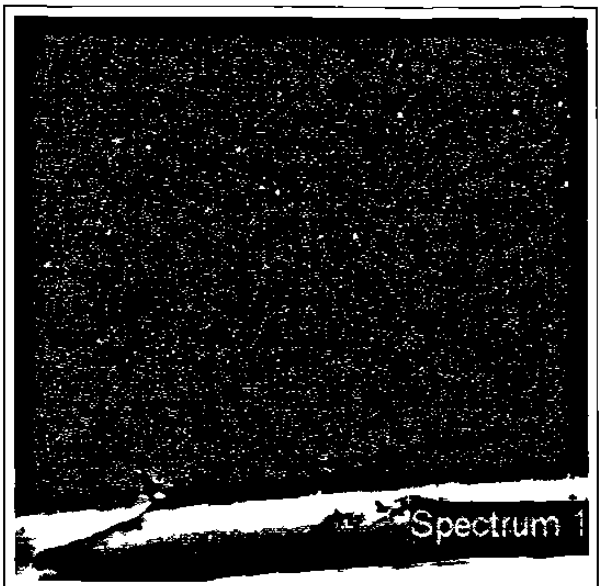


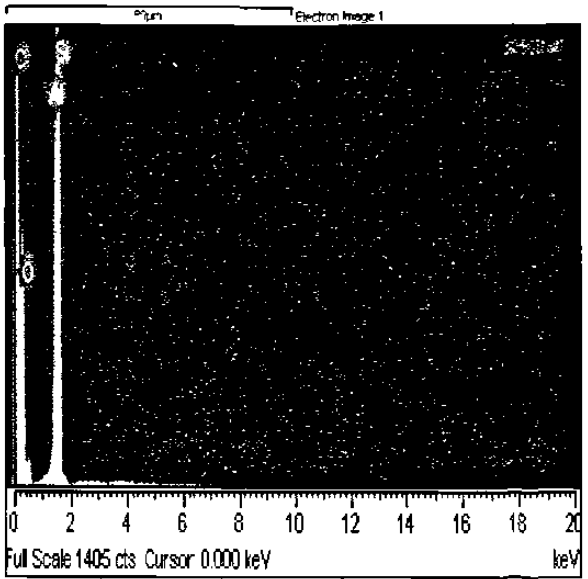


Element	Weight%	Atomic%
C K	7.68	15.44
O K	3.25	4.90
Al K	89.07	79.67
Totals	100.00	

Comment: 1600X, Lote B diámetro de 5 19 mm.

L)

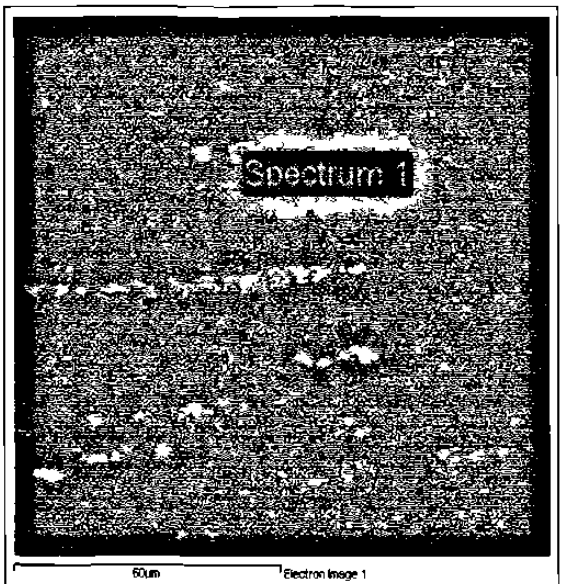


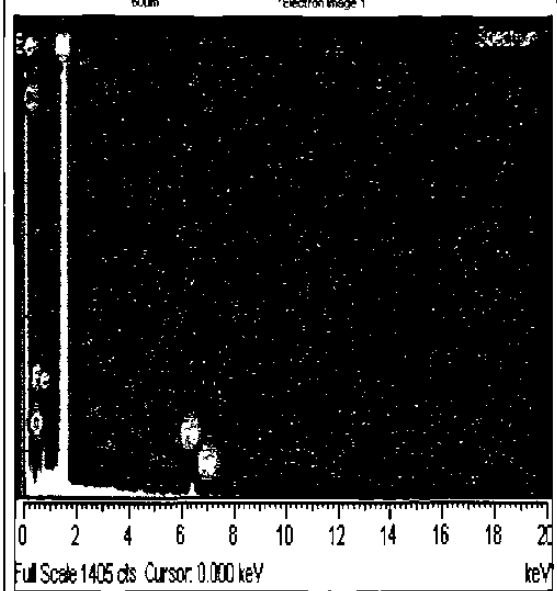


Element	Weight%	Atomic%
C K	52.80	70.43
O K	3.78	3.79
Al K	43.11	25.60
Si K	0.31	0.18
Totals	100.00	

Comment: 1500X, Lote B diámetro de 5.19 mm

M)

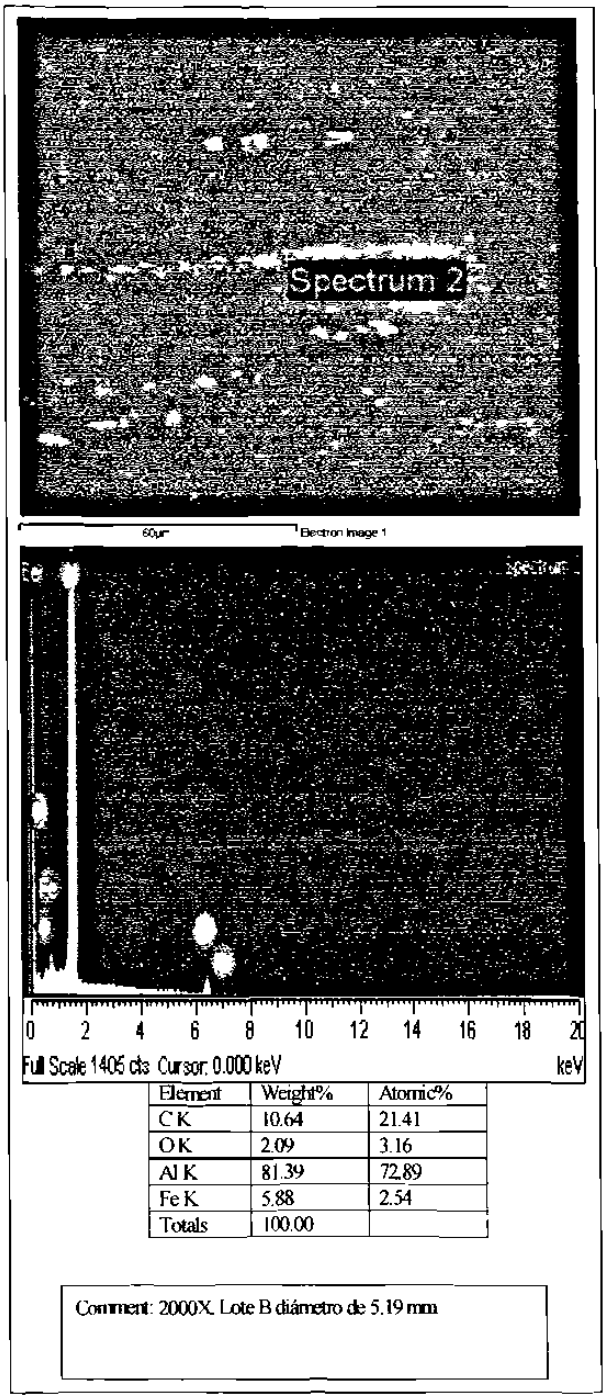




Element	Weight%	Atomic%
C K	13.59	26.26
O K	2.48	3.60
Al K	79.26	68.20
Fe K	4.68	1.94
Totals	100.00	

Comment: 2000X, Lote B diámetro de 5.19 mm

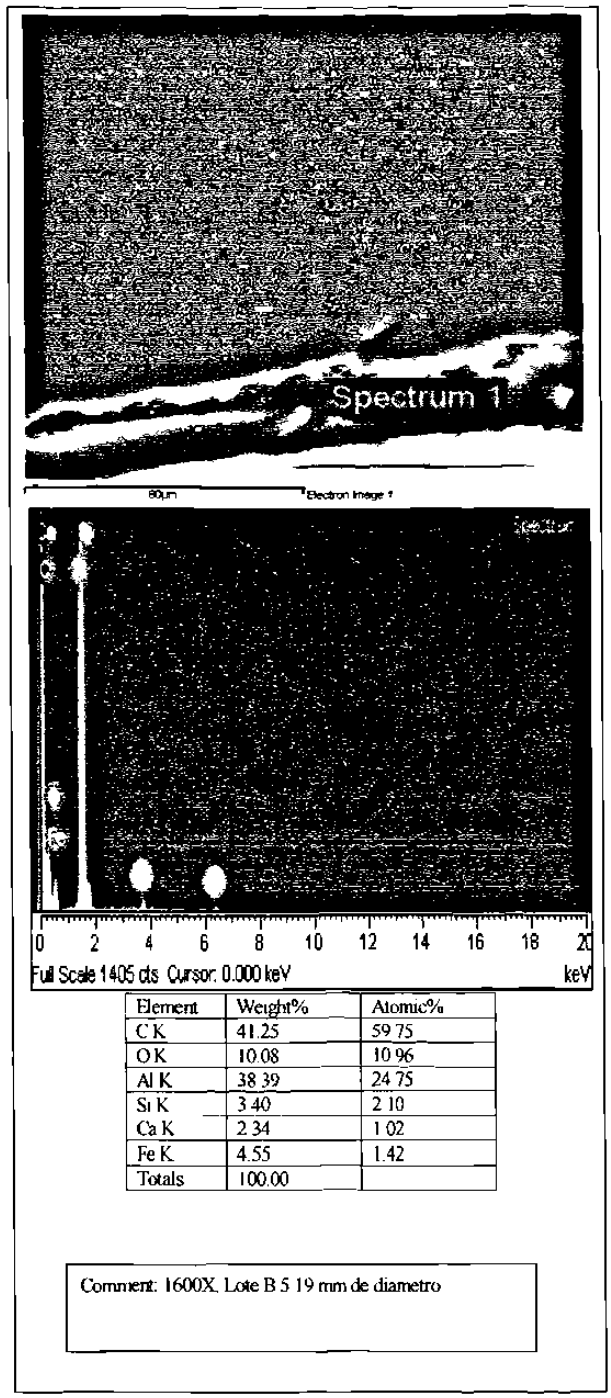
N)



Element	Weight%	Atomic%
C K	10.64	21.41
O K	2.09	3.16
Al K	81.39	72.89
Fe K	5.88	2.54
Totals	100.00	

Comment: 2000X. Lote B diámetro de 5.19 mm

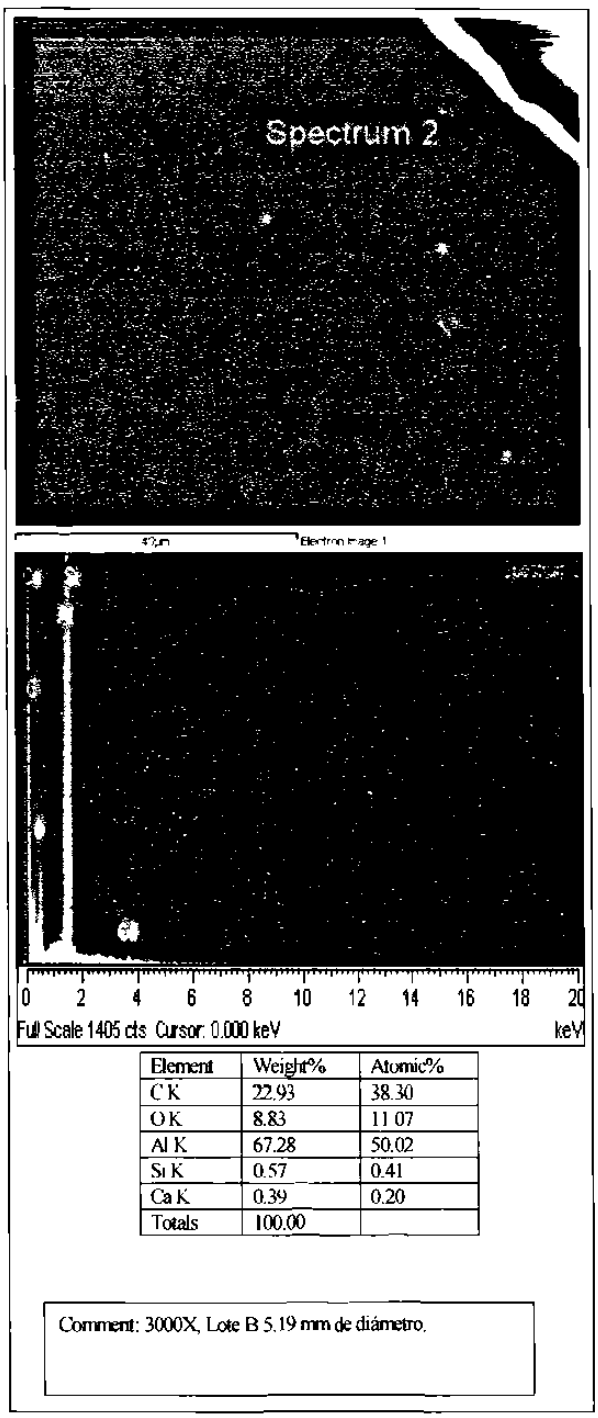
O)



Element	Weight%	Atomic%
C K	41.25	59.75
O K	10.08	10.96
Al K	38.39	24.75
Si K	3.40	2.10
Ca K	2.34	1.02
Fe K	4.55	1.42
Totals	100.00	

Comment: 1600X. Lote B 5.19 mm de diametro

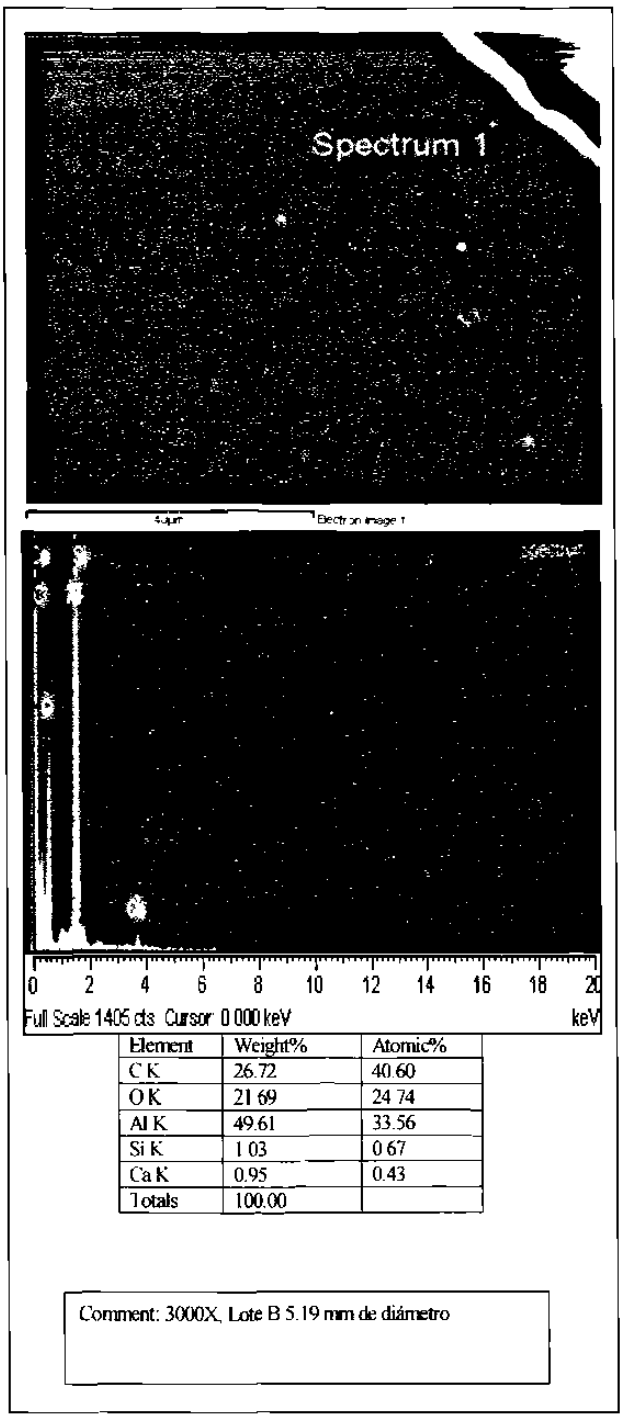
P)



Element	Weight%	Atomic%
C K	22.93	38.30
O K	8.83	11.07
Al K	67.28	50.02
Si K	0.57	0.41
Ca K	0.39	0.20
Totals	100.00	

Comment: 3000X, Lote B 5.19 mm de diámetro.

Q)

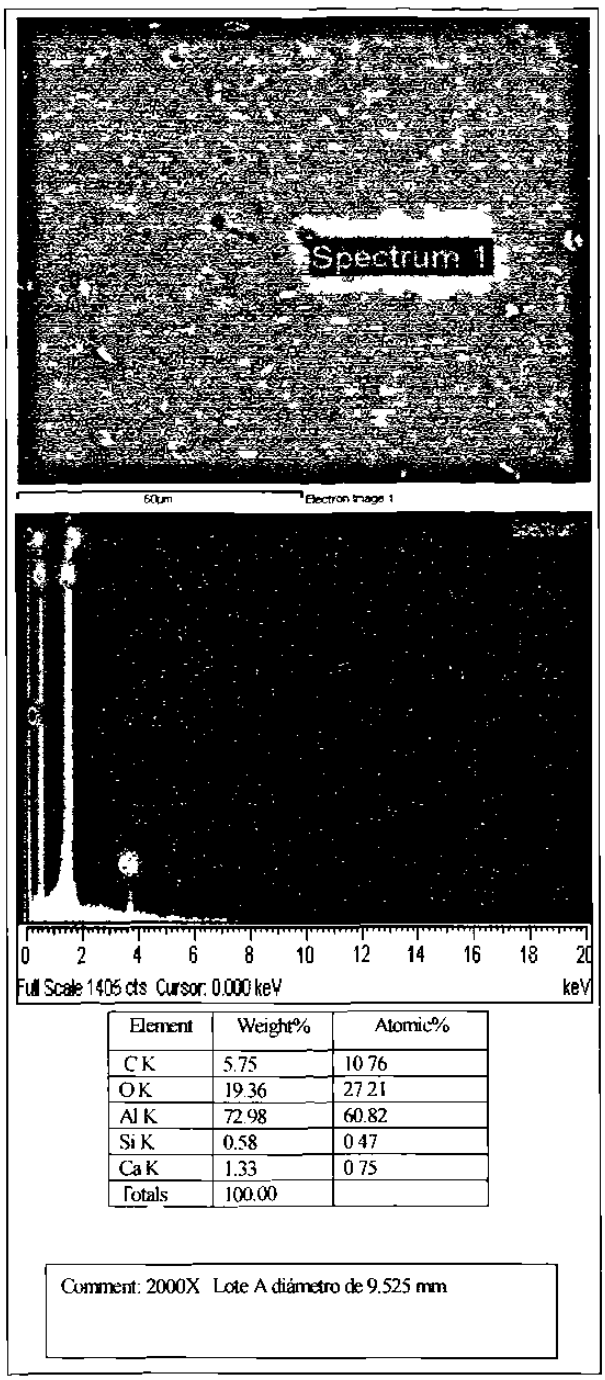


Element	Weight%	Atomic%
C K	26.72	40.60
O K	21.69	24.74
Al K	49.61	33.56
Si K	1.03	0.67
Ca K	0.95	0.43
Totals	100.00	

Comment: 3000X, Lote B 5.19 mm de diámetro

R)

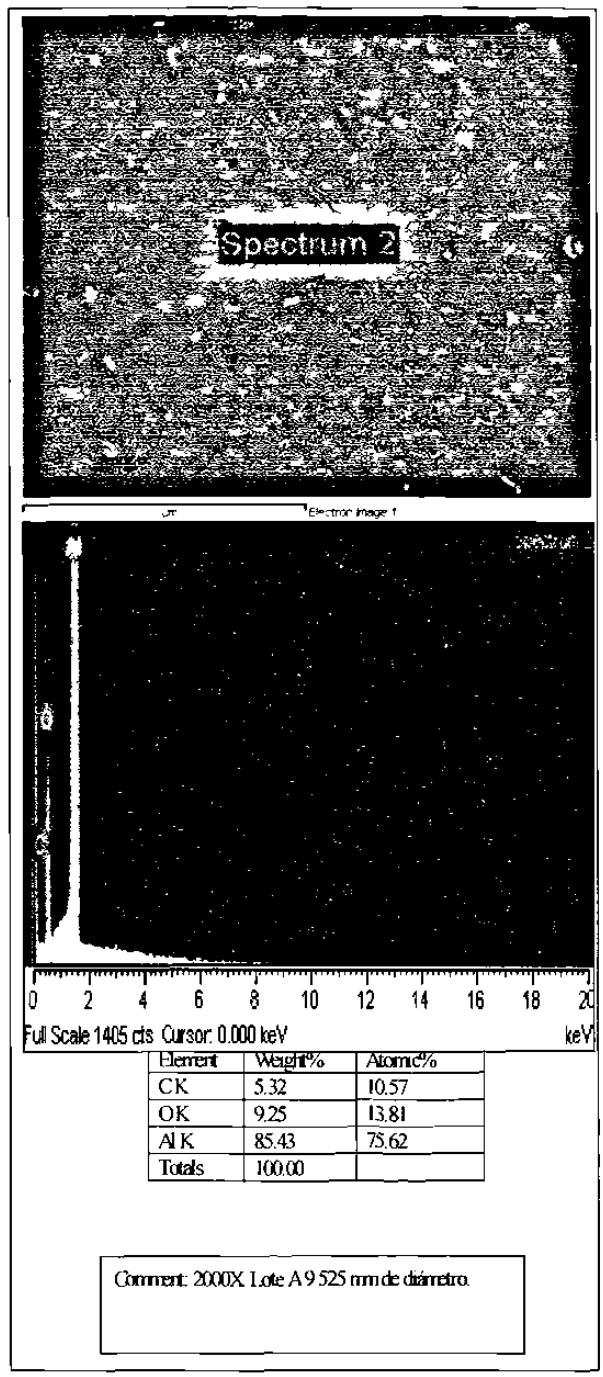
Figura AIV-1 A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R) muestran las partículas, imperfecciones y elementos encontrados en el aluminio del lote "B".



Element	Weight%	Atomic%
C K	5.75	10.76
O K	19.36	27.21
Al K	72.98	60.82
Si K	0.58	0.47
Ca K	1.33	0.75
Totals	100.00	

Comment: 2000X Lote A diámetro de 9.525 mm

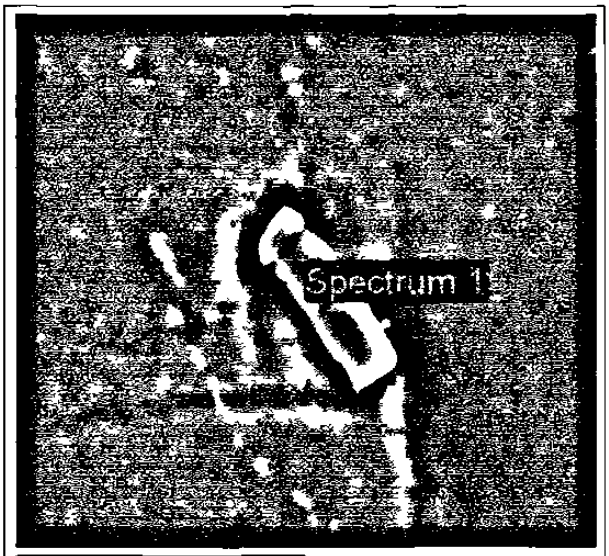
A)

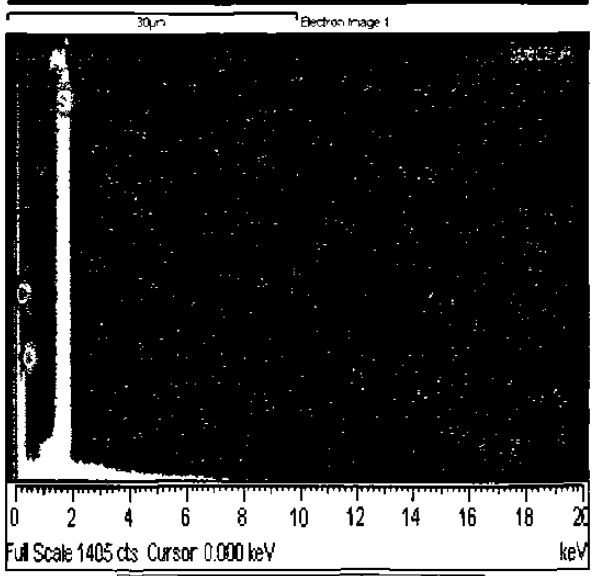


Element	Weight%	Atomic%
C K	5.32	10.57
O K	9.25	13.81
Al K	85.43	75.62
Totals	100.00	

Comment: 2000X Lote A 9.525 mm de diámetro.

B)

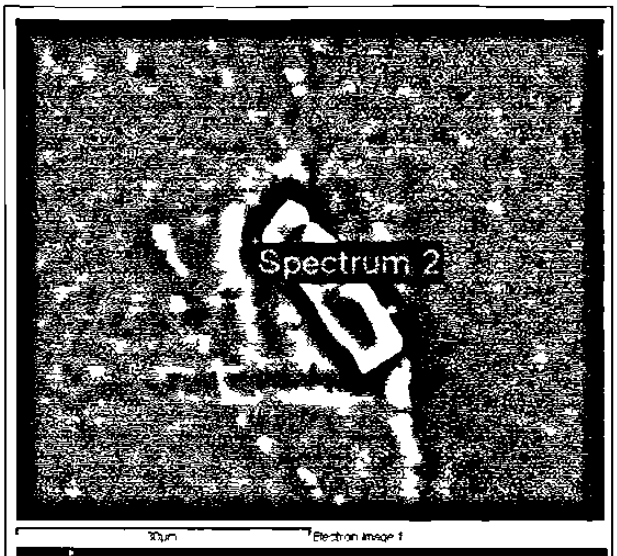


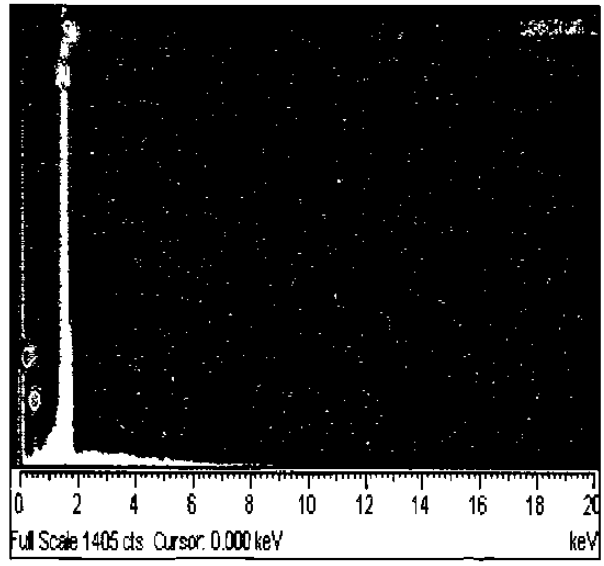


Element	Weight%	Atomic%
C K	27.25	46.21
O K	1.09	1.39
Al K	14.08	10.63
Si K	57.59	41.77
Totals	100.00	

Comment: 4000X, Lote A 9.525 mm de diámetro.

C)

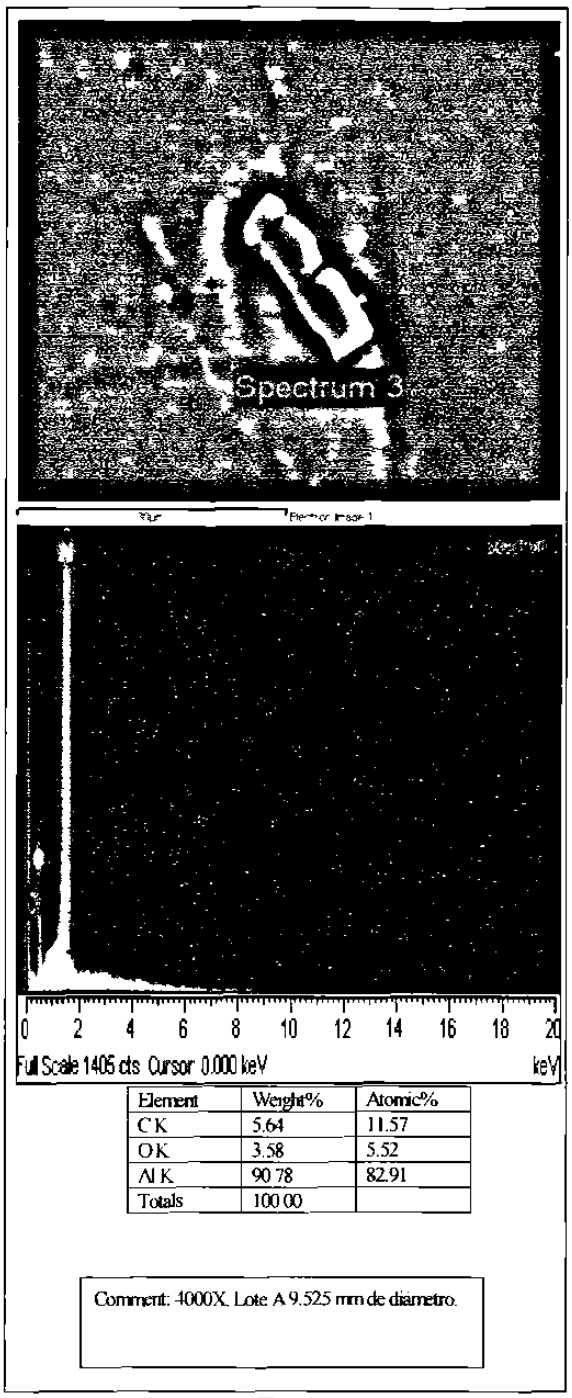




Element	Weight%	Atomic%
C K	3.20	6.84
O K	1.64	2.63
Al K	90.85	86.57
Si K	4.32	3.95
Totals	100.00	

Comment: 4000X. Lote A diámetro de 9.525 mm.

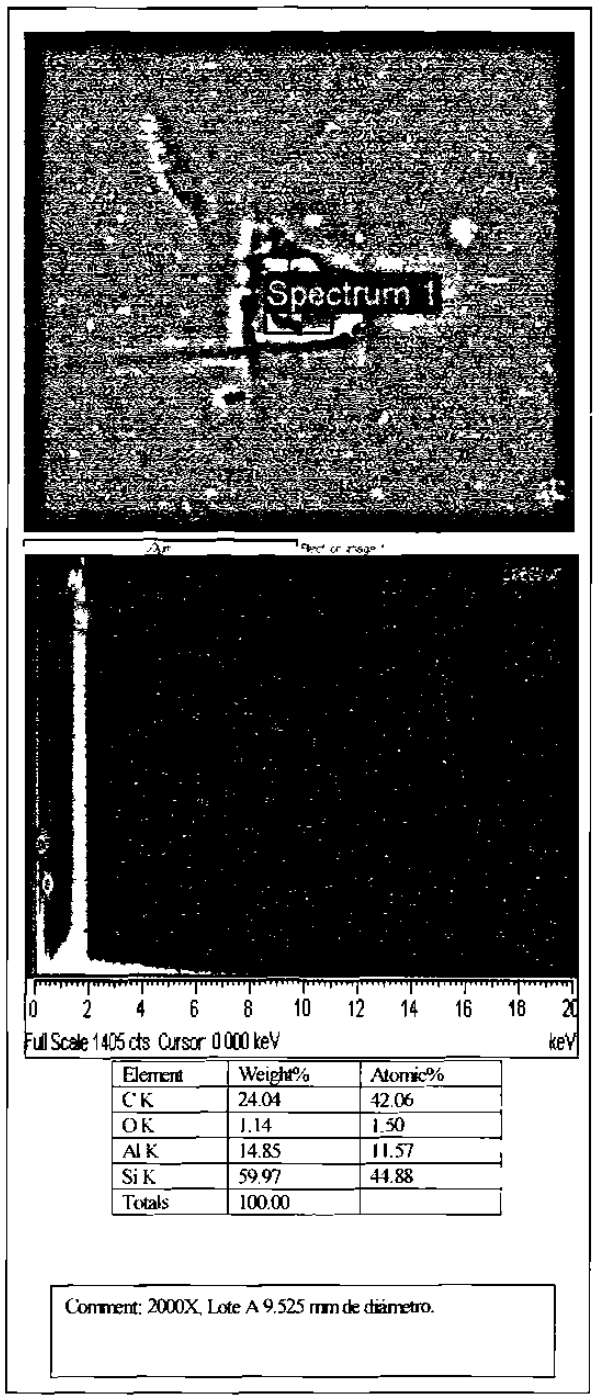
D)



Element	Weight%	Atomic%
C K	5.64	11.57
O K	3.58	5.52
Al K	90.78	82.91
Totals	100.00	

Comment: 4000X, Lote A 9.525 mm de diametro.

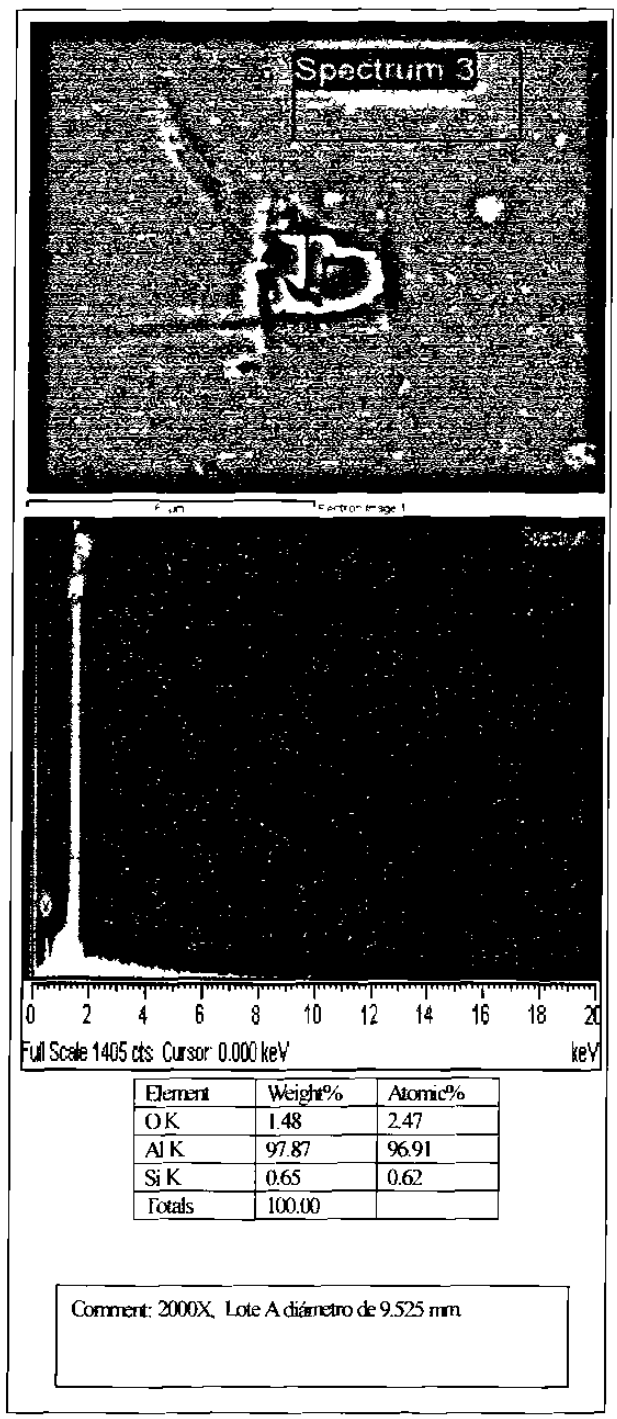
E)



Element	Weight%	Atomic%
C K	24.04	42.06
O K	1.14	1.50
Al K	14.85	11.57
Si K	59.97	44.88
Totals	100.00	

Comment: 2000X, Lote A 9.525 mm de diámetro.

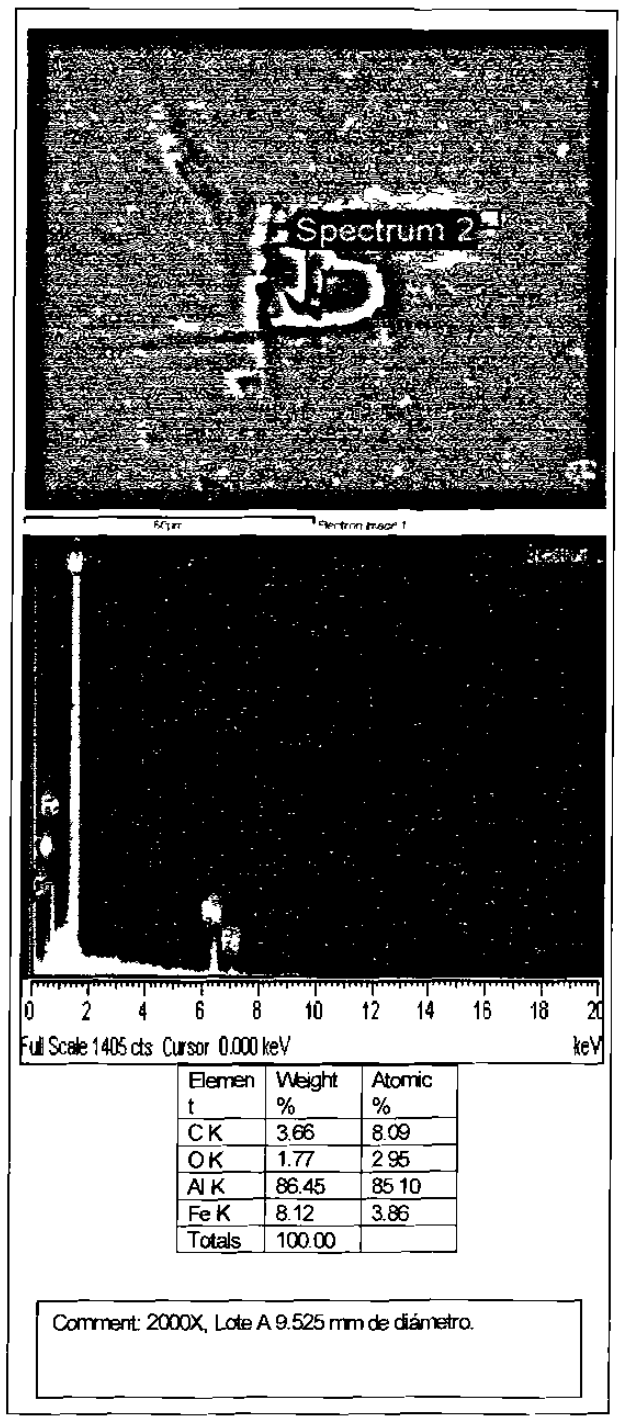
F)



Element	Weight%	Atomic%
O K	1.48	2.47
Al K	97.87	96.91
Si K	0.65	0.62
Totals	100.00	

Comment: 2000X, Lote A diámetro de 9.525 mm

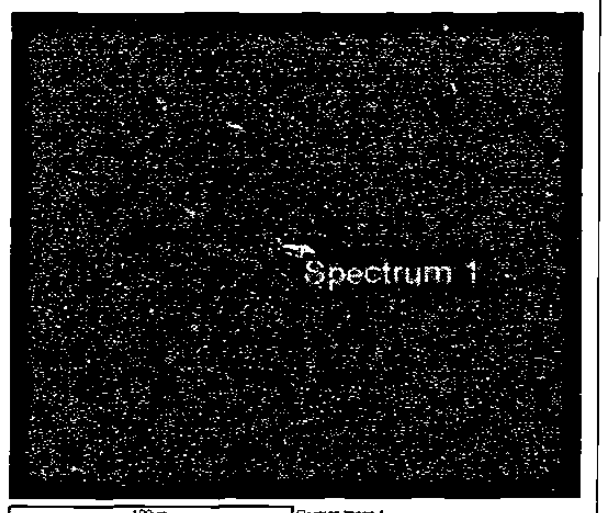
G)



Elemen t	Weight %	Atomic %
C K	3.66	8.09
O K	1.77	2.95
Al K	86.45	85.10
Fe K	8.12	3.86
Totals	100.00	

Comment: 2000X, Lote A 9.525 mm de diámetro.

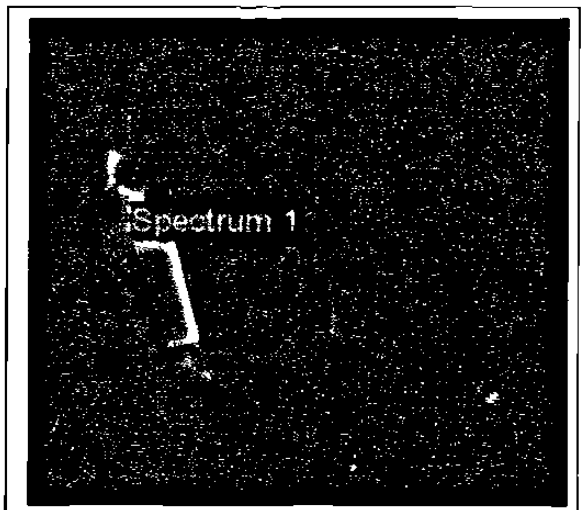
H)



Element	Weight%	Atomic%
C K	31.13	50.86
O K	1.19	1.46
Al K	13.53	9.84
Si K	54.15	37.84
Totals	100.00	

Comment: 1000X. Lote A 9.525 mm de diámetro.

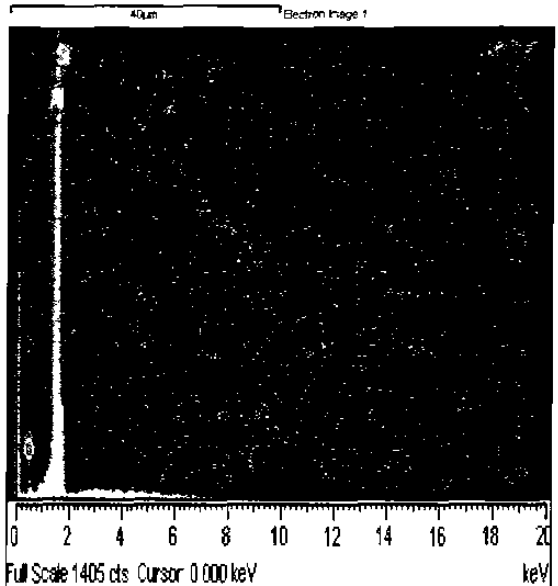
I)



Element	Weight%	Atomic%
C K	27.58	46.27
O K	2.34	2.95
Al K	17.53	13.09
Si K	52.55	37.70
Totals	100.00	

Comment: 3000x. Lote A 9.525 mm de diámetro.

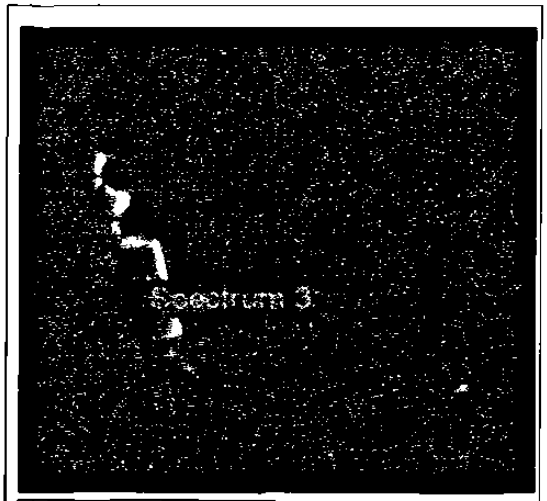
J)

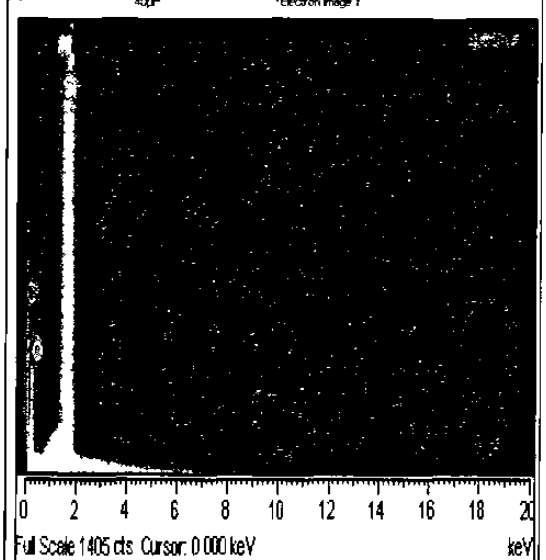


Element	Weight%	Atomic%
O K	1.67	2.79
Al K	93.34	92.46
Si K	4.99	4.75
Totals	100.00	

Comment: 3000x, Lote A 9.525 mm de diámetro.

K)

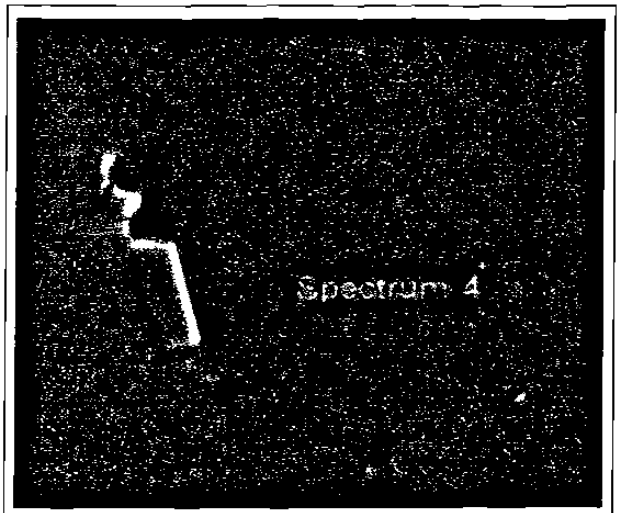


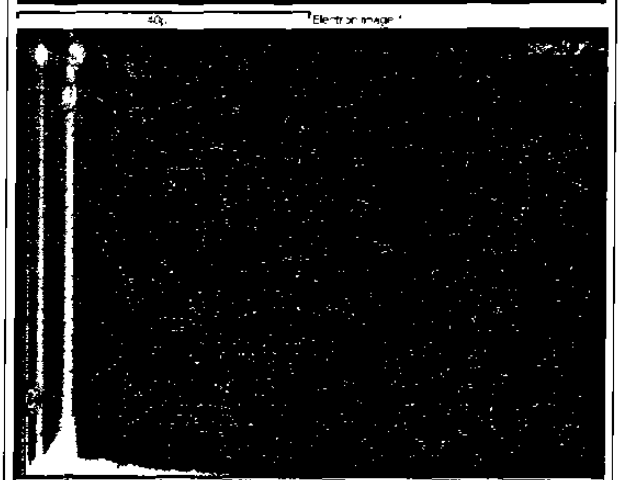


Element	Weight%	Atomic%
C K	28.20	47.39
O K	1.11	1.40
Al K	13.85	10.36
Si K	56.85	40.85
Totals	100.00	

Comment: 3000x, Lote A 9.525 mm de diámetro.

L)

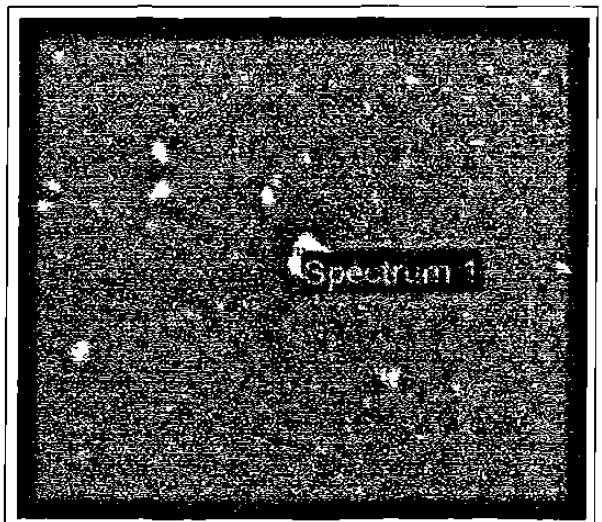


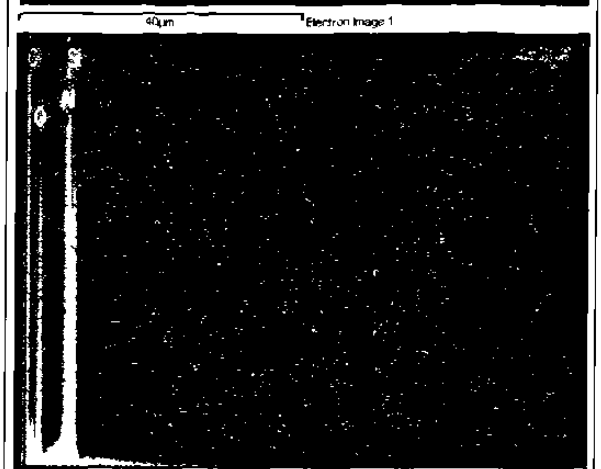


Element	Weight%	Atomic%
C K	2.37	4.49
O K	22.48	32.04
Al K	73.92	62.46
Si K	1.24	1.00
Totals	100.00	

Comment: 3000x, Lote A 9.525 mm de diámetro.

M)

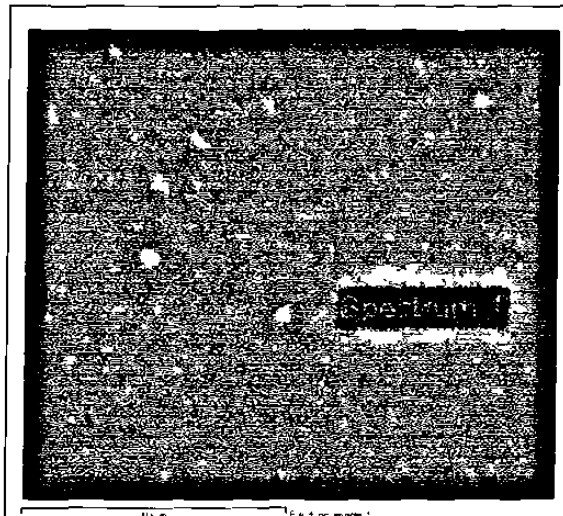


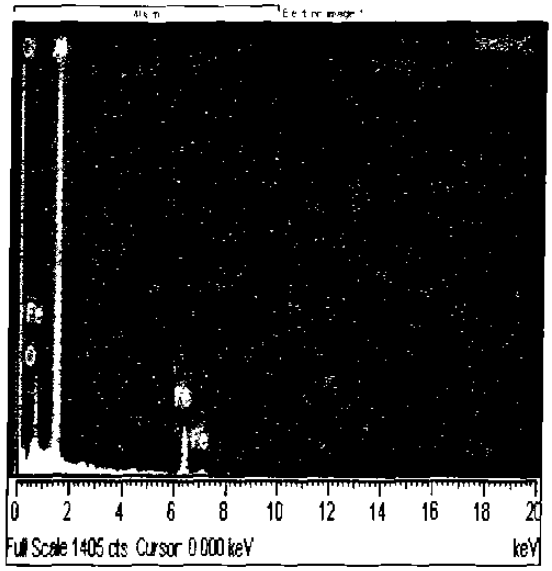


Element	Weight%	Atomic%
C K	14.91	25.04
O K	22.70	28.63
Al K	51.12	38.23
Si K	11.27	8.10
Totals	100.00	

Comment: 3000X, Lote A 5.19 mm de diámetro.

N)

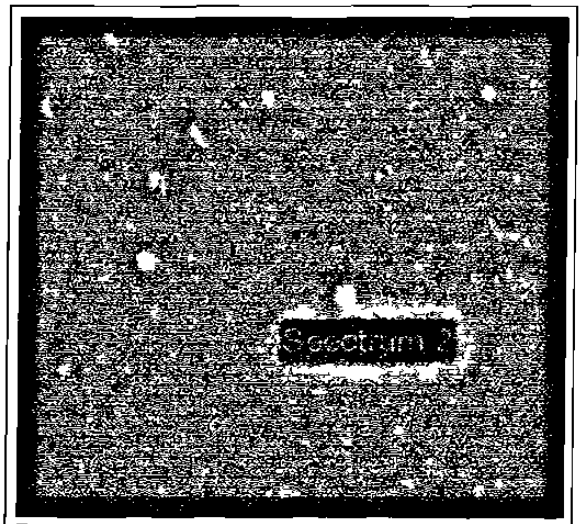


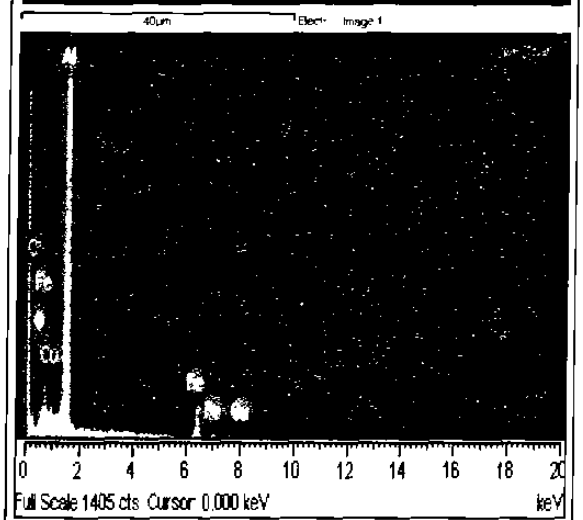


Element	Weight%	Atomic%
C K	11.11	23.59
O K	2.50	3.99
Al K	67.45	63.77
Fe K	18.95	8.66
Totals	100.00	

Comment: 3000X. Lote A diámetro de 5.19 mm

O)

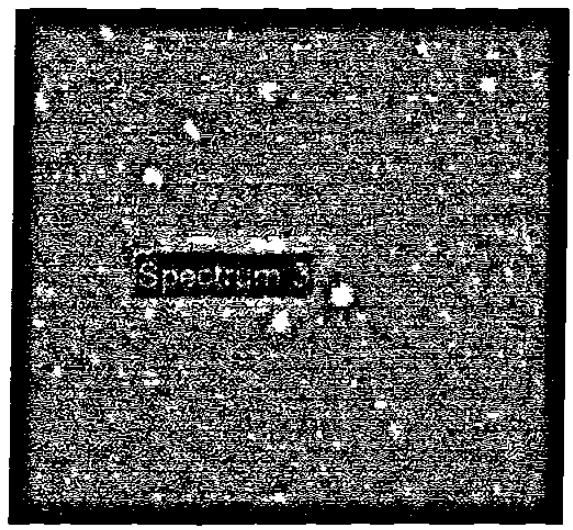


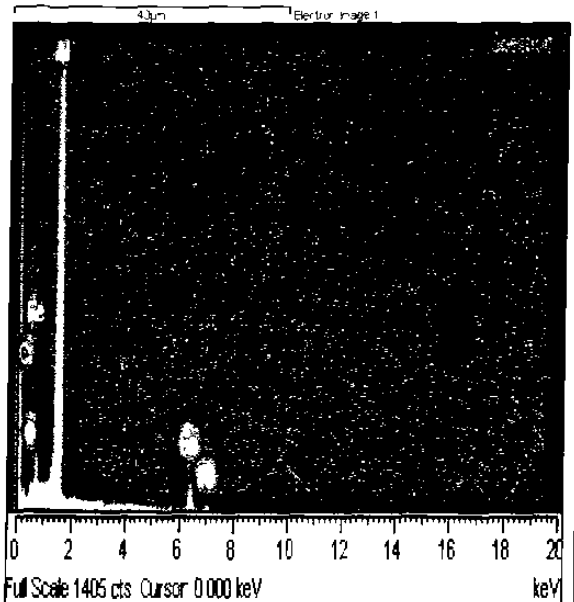


Element	Weight%	Atomic%
C K	10.41	21.68
O K	2.69	4.21
Al K	73.60	68.22
Fe K	12.00	5.37
Cu L	1.30	0.51
Totals	100.00	

Comment: 3000X. Lote A 5.19 mm de diámetro.

P)

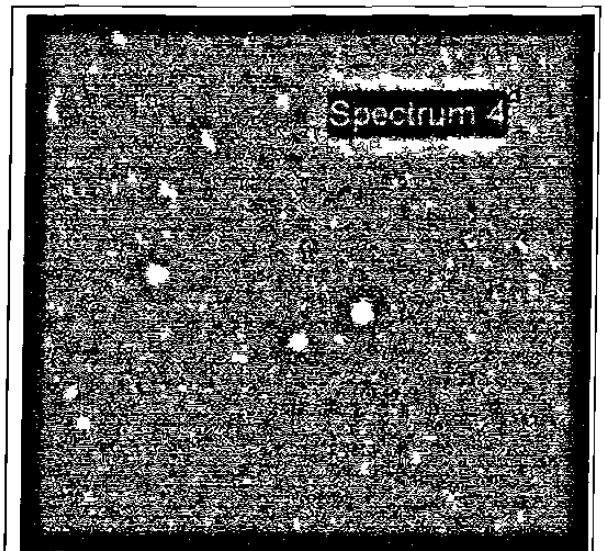


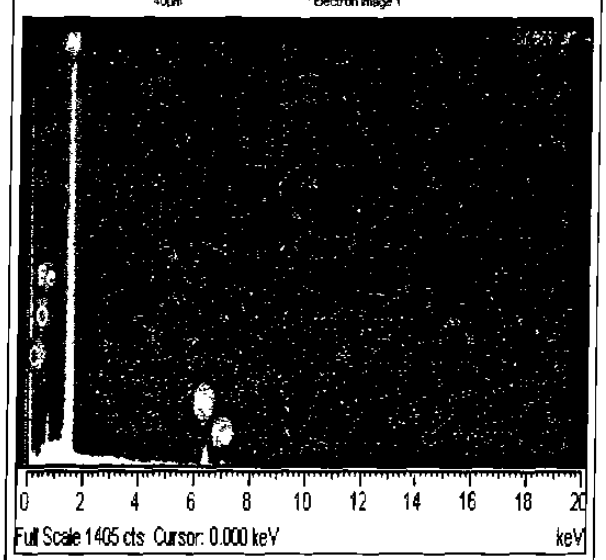


Element	Weight%	Atomic%
C K	9.28	19.26
O K	2.22	3.46
Al K	79.10	73.08
Fe K	9.40	4.20
Totals	100.00	

Comment: 3000X, Lote A 5.19 mm de diámetro.

Q)

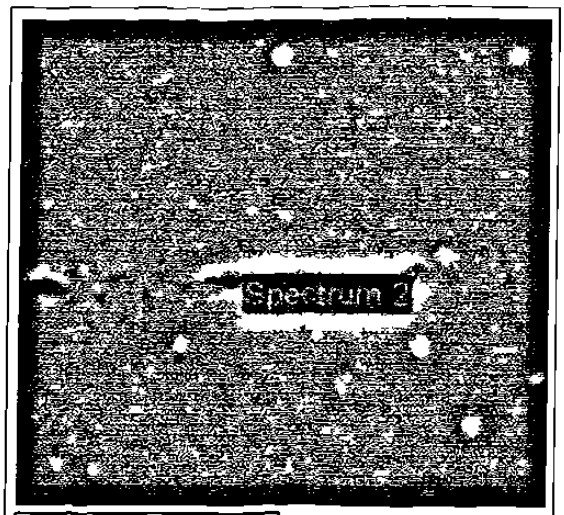


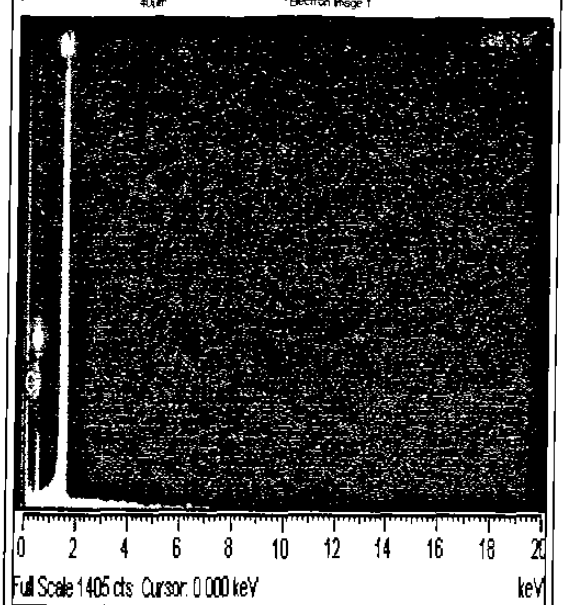


Element	Weight%	Atomic%
C K	7.11	15.11
O K	1.70	2.71
Al K	82.73	78.30
Fe K	8.46	3.87
Totals	100.00	

Comment: 3000X, Lote A 5.19 mm de diámetro.

R)

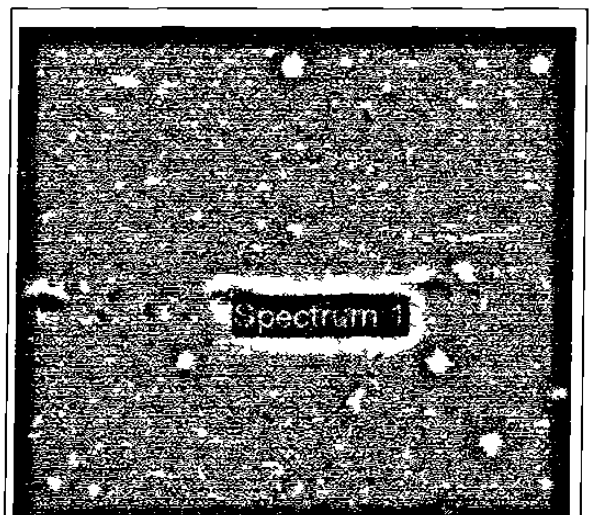


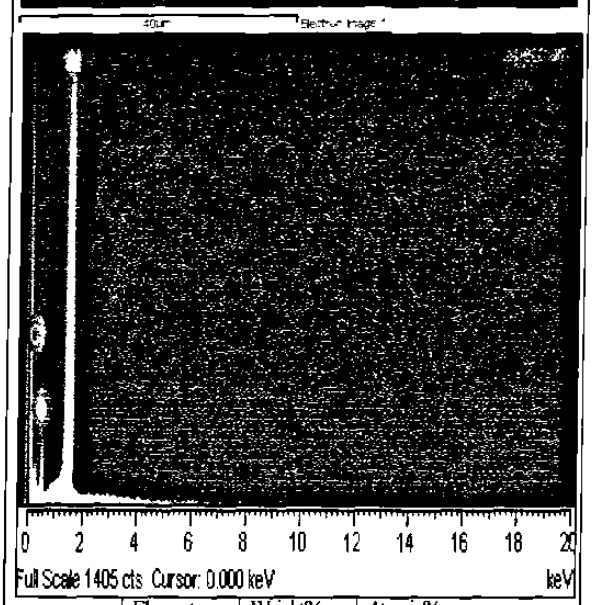


Element	Weight%	Atomic%
C K	10.21	19.67
O K	5.62	8.14
Al K	84.17	72.20
Totals	100.00	

Comment: 3000X. Lote A 5.19 mm de diámetro.

S)

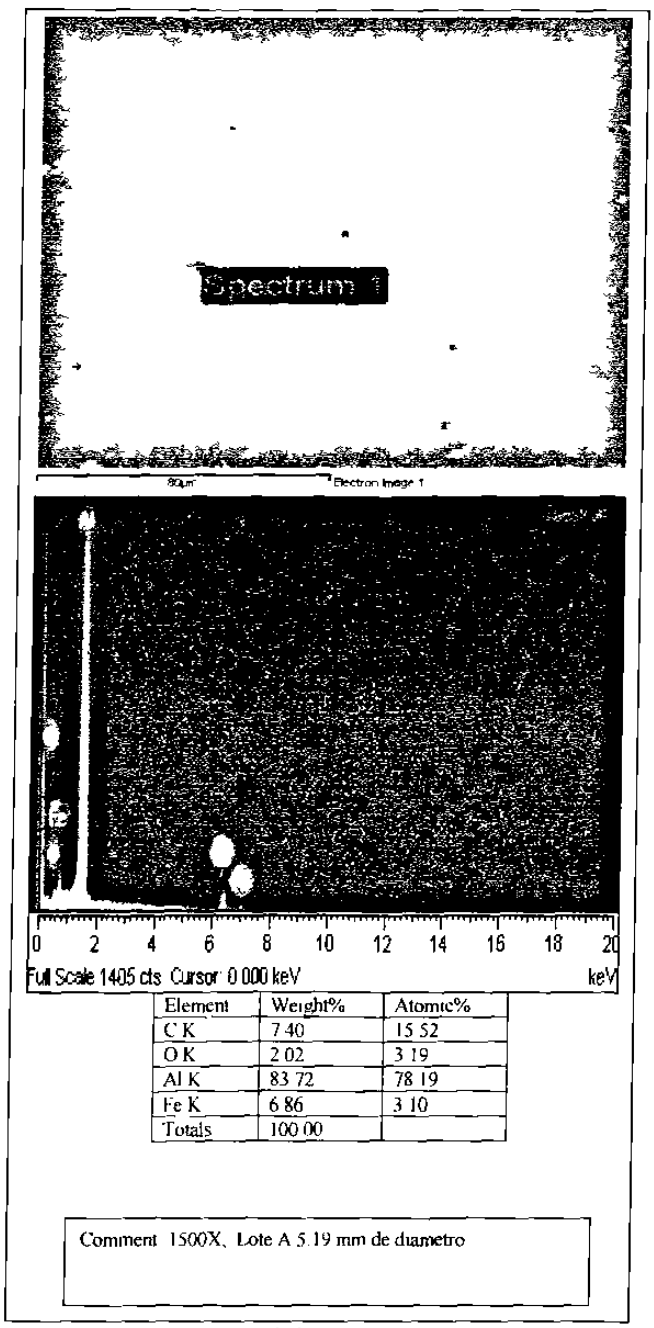




Element	Weight%	Atomic%
C K	15.01	27.60
O K	5.02	6.93
Al K	79.98	65.47
Totals	100.00	

Comment: 3000X. Lote A 5.19 mm de diámetro.

T)



Element	Weight%	Atomic%
C K	7.40	15.52
O K	2.02	3.19
Al K	83.72	78.19
Fe K	6.86	3.10
Totals	100.00	

Comment: 1500X, Lote A 5.19 mm de diametro

U)

Figura AIV-2 A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U) muestran las partículas, imperfecciones y elementos encontrados en el aluminio del lote "A".