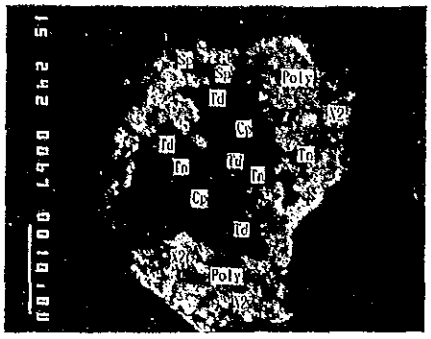
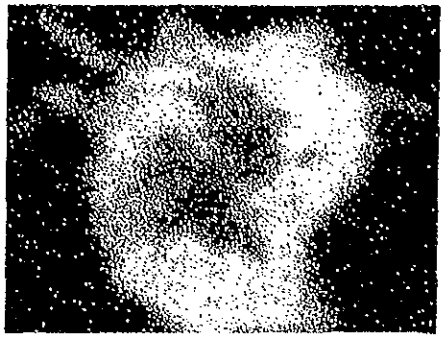
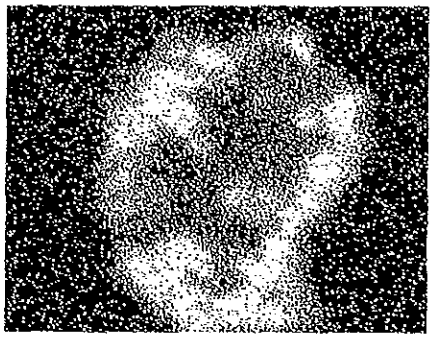
No.7 －1　　⑦－A－1



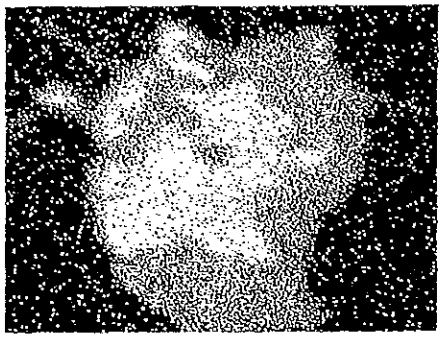
Microscopio electrónico



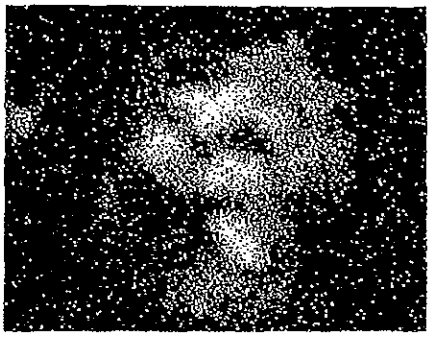
Ag



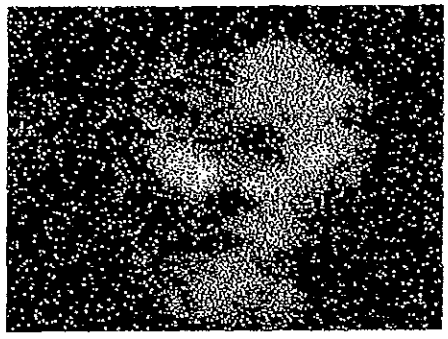
Au



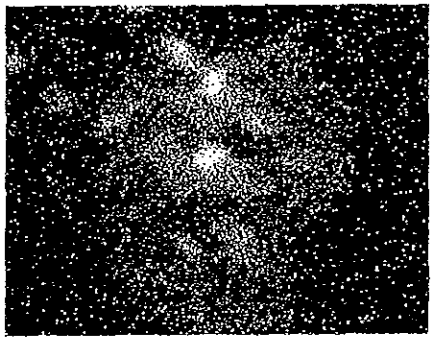
Cu



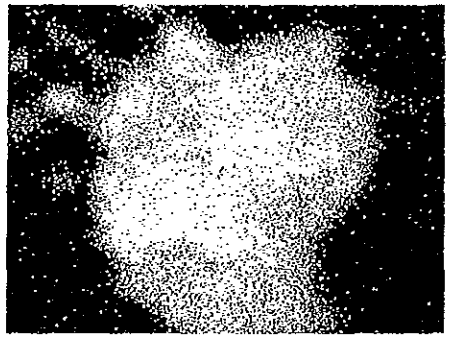
Sb



As

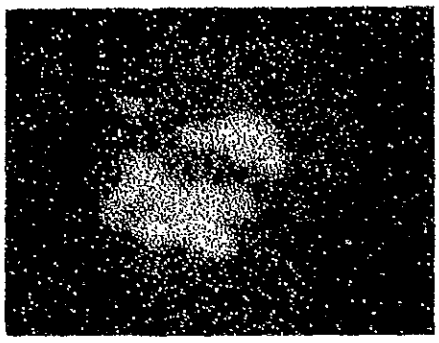


Zn



S

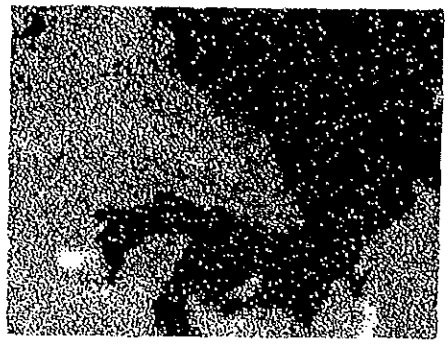
No.7－2　⑦－A－1



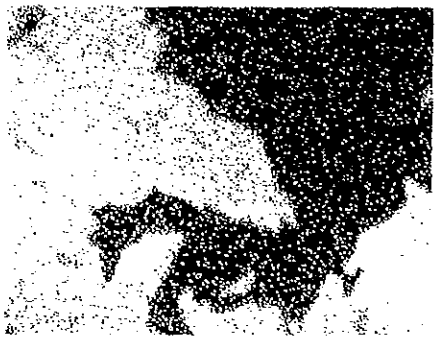
Fe

No. 8 ⑦－A－1

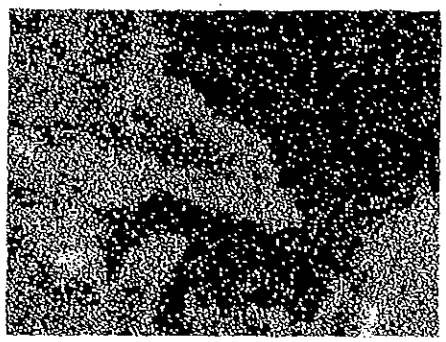
Microscopio electronico



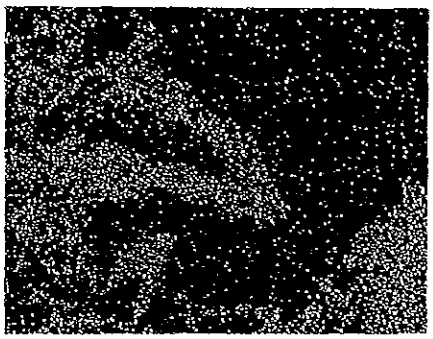
Ca



Mn



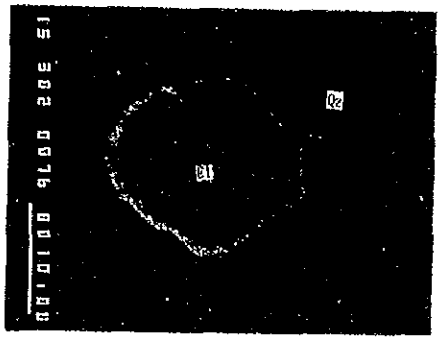
Mg



Na

Si

No.9 ⑦－A－2



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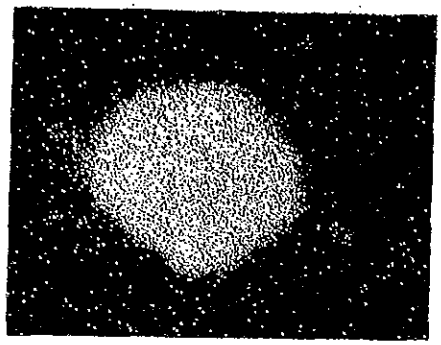
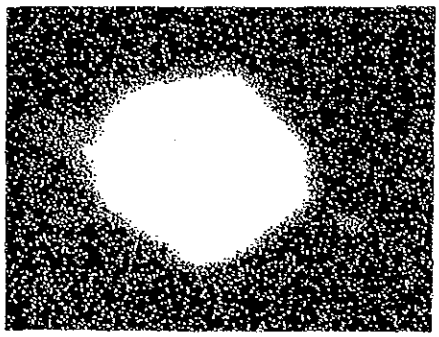
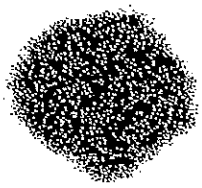


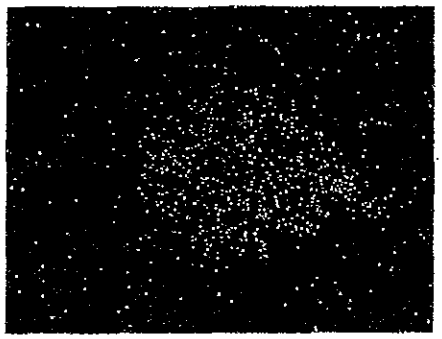
Ag



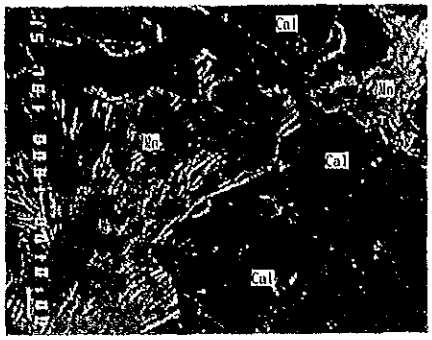
Au



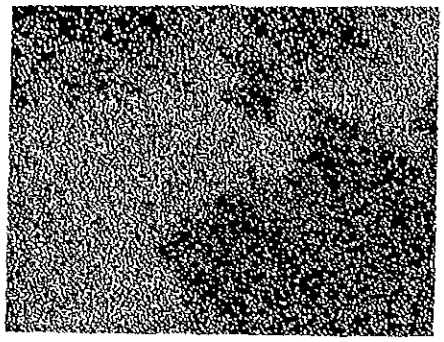
Si



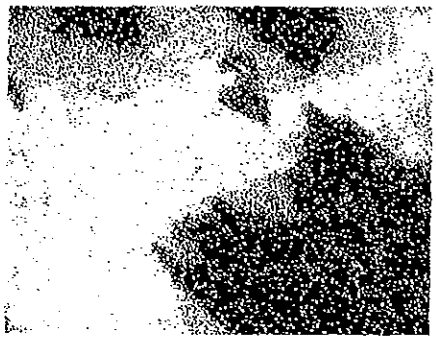
S



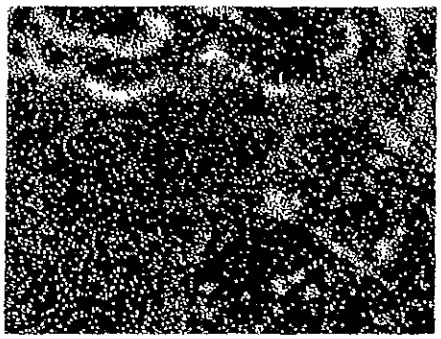
Microscopio electrónico



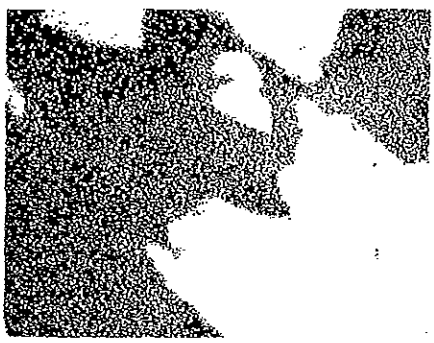
Mg



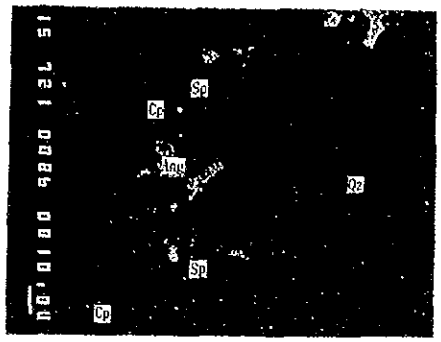
Mn



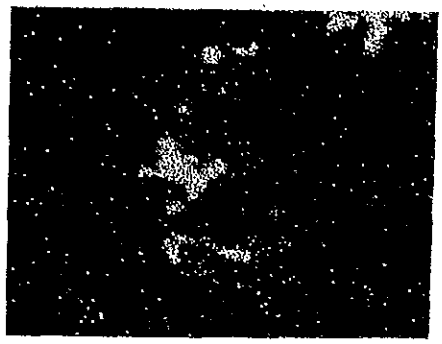
Fe



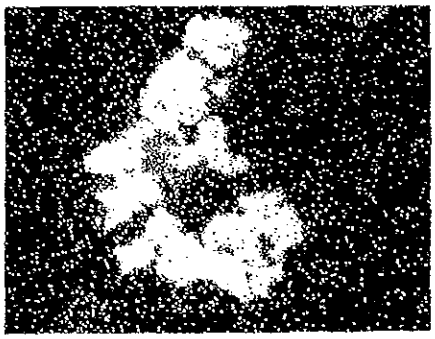
Ca



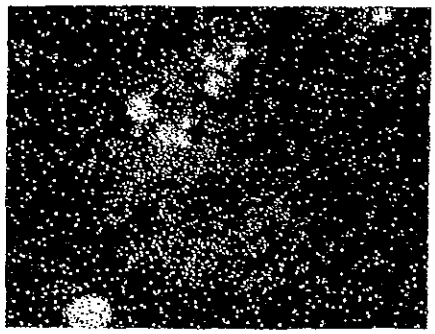
Microscopio electrónico



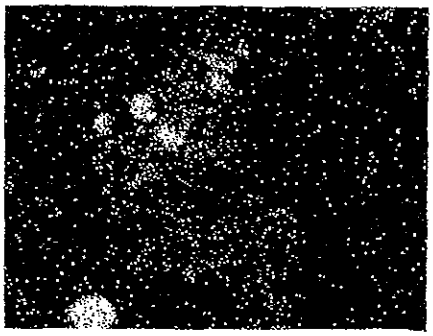
Pb



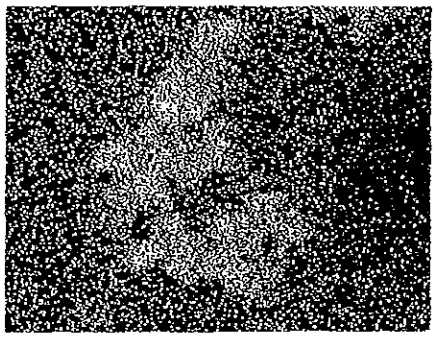
Zn



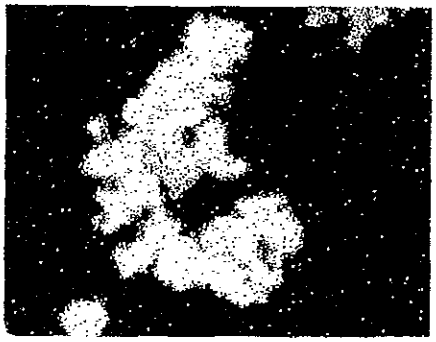
Cu



Fe



Mn

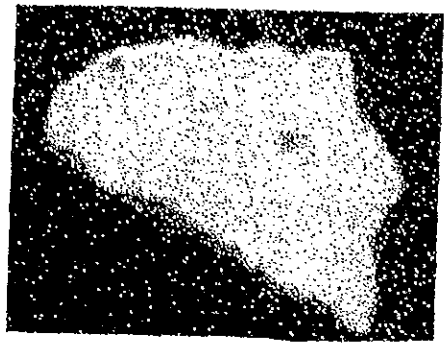


S

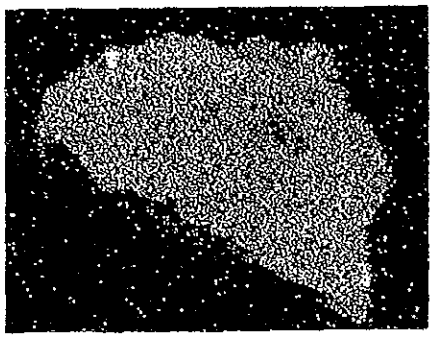
Si

No.１２　⑫　原鉱（混合鉱）

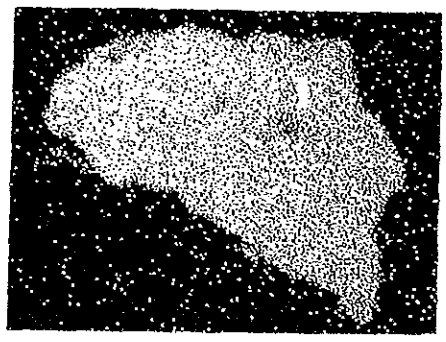
Microscopio electrónico



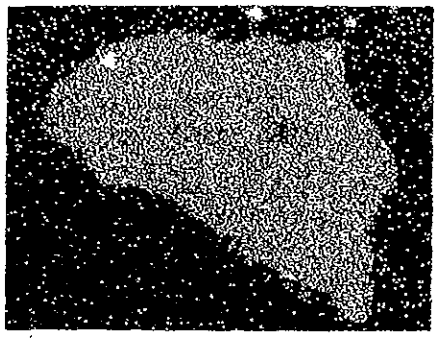
Cu



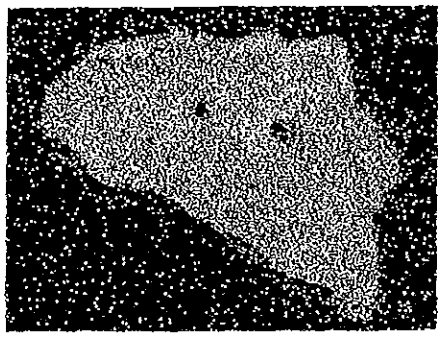
Ag



Sb

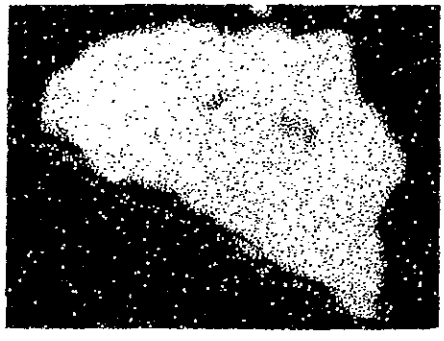


Zn



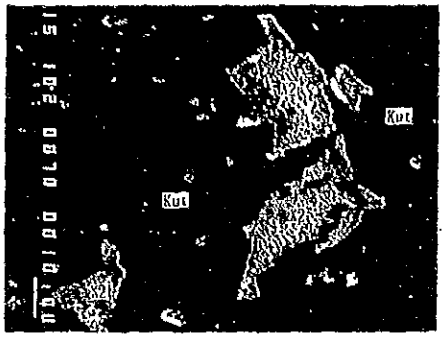
As

Si

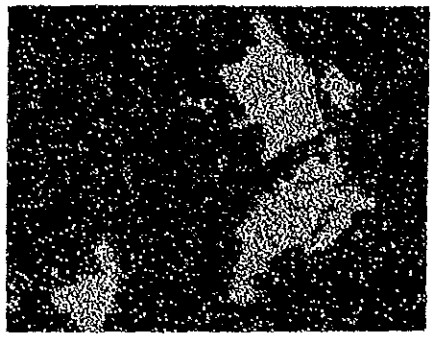


S

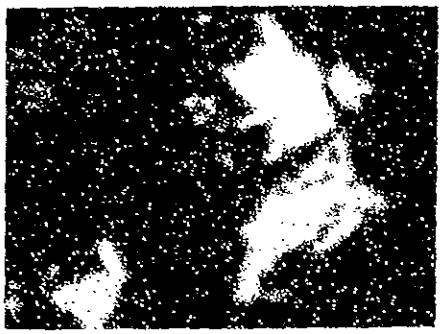
No.13－1 ⑮5，000着



Microscopio electrónico



Cu



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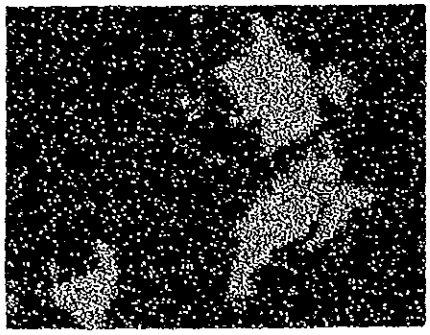

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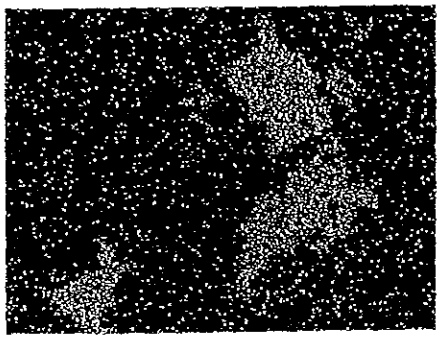
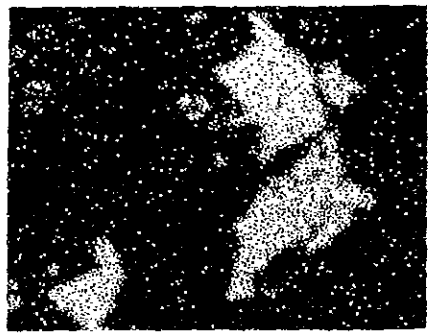
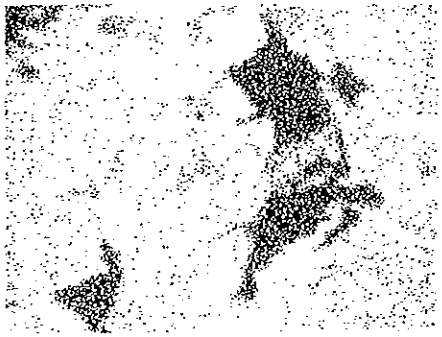


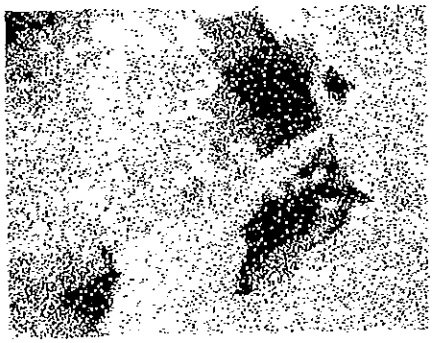
Sb



S

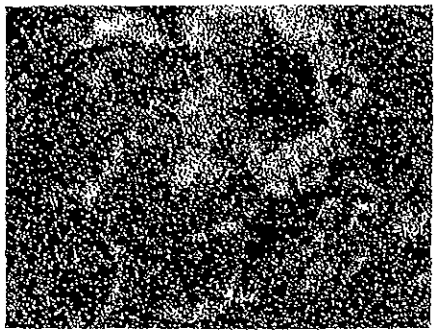


Mn



Ca

No.13－2



Mg

Ap.16 CUADRO GENERAL DE LOS RESULTADOS DE DIFRACCION POR RAYOS-X

Ap. 16 Lista de Resultado de Analisis Difractario Rayo-X

No.	No. de muestra	Minerales / Tipo de muestra																					
1	①-A-1	Veta	4								2	2				4							
2	①-A-2	〃	4		4						2	2				2			2	1	1	2	
3	①-G	Ganga	4	3										1		2	2						1
4	②-A	Veta	4		1						2					3	2					2	
5	②-G	Ganga	4											1									
6	③-A	Veta	4		1										2								
7	④-A	〃	4		1				1							1			3	1		1	
8	④-G	Ganga	3	2	3												1				1	2	
9	⑤-A	Veta	4		1																		
10	⑥-A-1	〃	4	2			4									1							
11	⑥-A-2	〃	4				2									1							
12	⑦-A-1	〃	4		2											1							
13	⑦-A-2	〃	4		2											1							
14	⑦-G	Ganga	2		4						1					1							
15	⑧-A	Veta	4		2	1						1				1							
16	⑧-G	Ganga	2				4									2				2		2	
17	⑨-A-1	Veta	4					3															
18	⑨-A-2	〃	4		2			2			2					1							
19	⑨-B	Caballo	4				2	1			1					2							
20	⑨-G	Ganga	4	2													1				2	2	
21	⑩-F	Aliment. para planta	4		2		2		2		1	1		1		1				1			
22	⑩-T	Cola de planta	4		2		2		1		1	1		1		1				1	1?		
23	⑪-F	Aliment. para playa	4	1	3							1	2			2				1	1		
24	⑪-T	Cola de playa	4	2	3							1			2	2				1	1		
25	⑫	Mineral crudo (mixt)	4		2		2	2			1			1	1			1					
26	⑬	Mineral blanco	4				3					1					1						
27	⑭	Mineral negro	2		4						2			1									
28	⑮	Atractado mag. (5000G)	4				3				1				1	1	1	1					

Cantidad : 4 Abundante 3 Medio 2 Poco 1 Escaso

Información AP 16 Análisis de difracción por rayos X

Ver la tabla 1 y el cuadro de difracción por rayos X.

Además, las muestras para la difracción por rayos X no se separaron de las muestras para la observación con microscopio, sino extraídas independientemente. Por lo tanto, ambos no se corresponden unos a los otros.

a. En los minerales de sílice se reconoció en forma generalizada el cuarzo que fue detectado en todas las muestras usadas.

b. De los minerales arcillosos, por orden de frecuencia aparecen la sericita (7), clorita (6), mineral de capas mixtas de sericita/esmectita (5), esmectita (2) y caolinita (1).

c. Como mineral de carbonato se reconocieron 5 clases y en particular, el espato calcáreo existió en forma casi generalizada apareciendo en 15 muestras. Luego, pudieron detectarse el Kutnahorita (4), pirolusita (3), dolomita (2) y Ankelita (1) respectivamente.

d. Como mineral de sulfato se reconoció el yeso en 14 muestras señalando un alto coeficiente de aparición. Se considera que es el mineral alterado característico de esta región.

e. Como óxidos de manganeso se reconocieron 5 clases. Por orden de frecuencia de aparición se citan la Todorokite (7), 7Å-MnO_2 (5), pirolusita (4), psilomelano (4) y Hollandite (1). Sin embargo, el pico de difracción es en general débil y se ha juzgado la presencia del mineral con 1 ~ 2 líneas de picos correspondientes y la precisión de análisis es inferior a los demás minerales. En cuanto a la Hollandite se incluye dentro del grupo criptomelano.

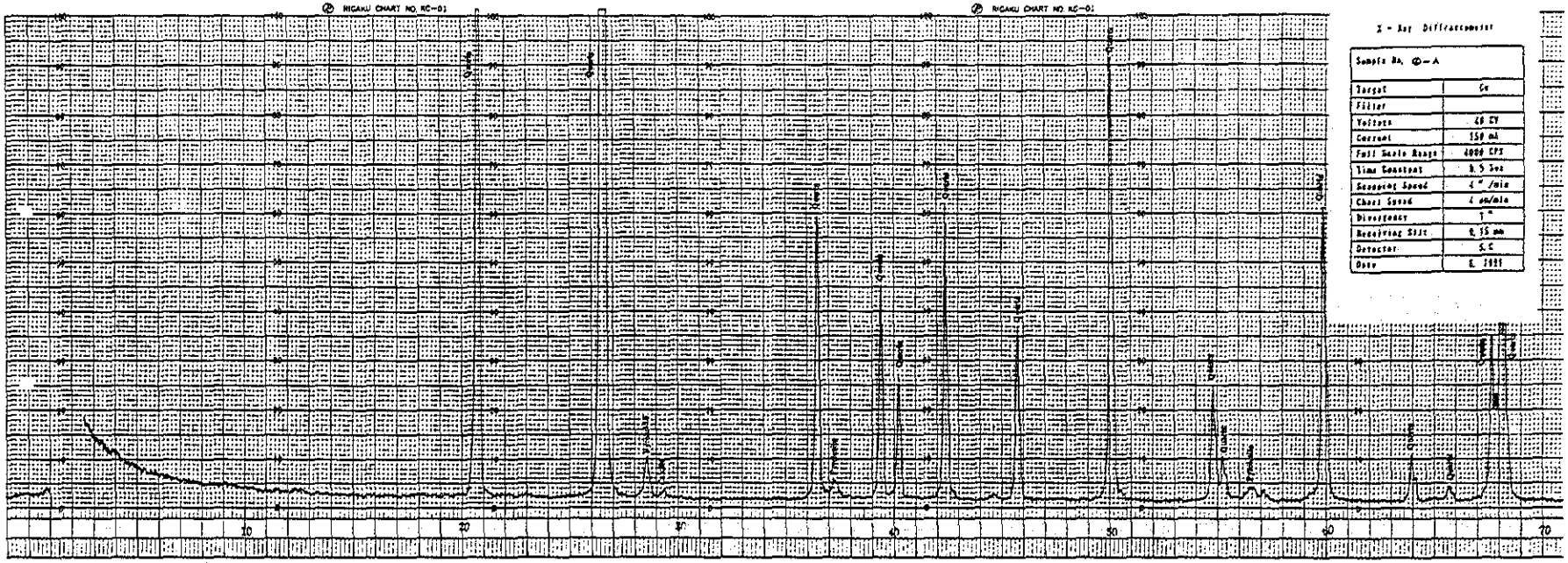
f. Como mineral de hierro aparecen la pirita y goethita.

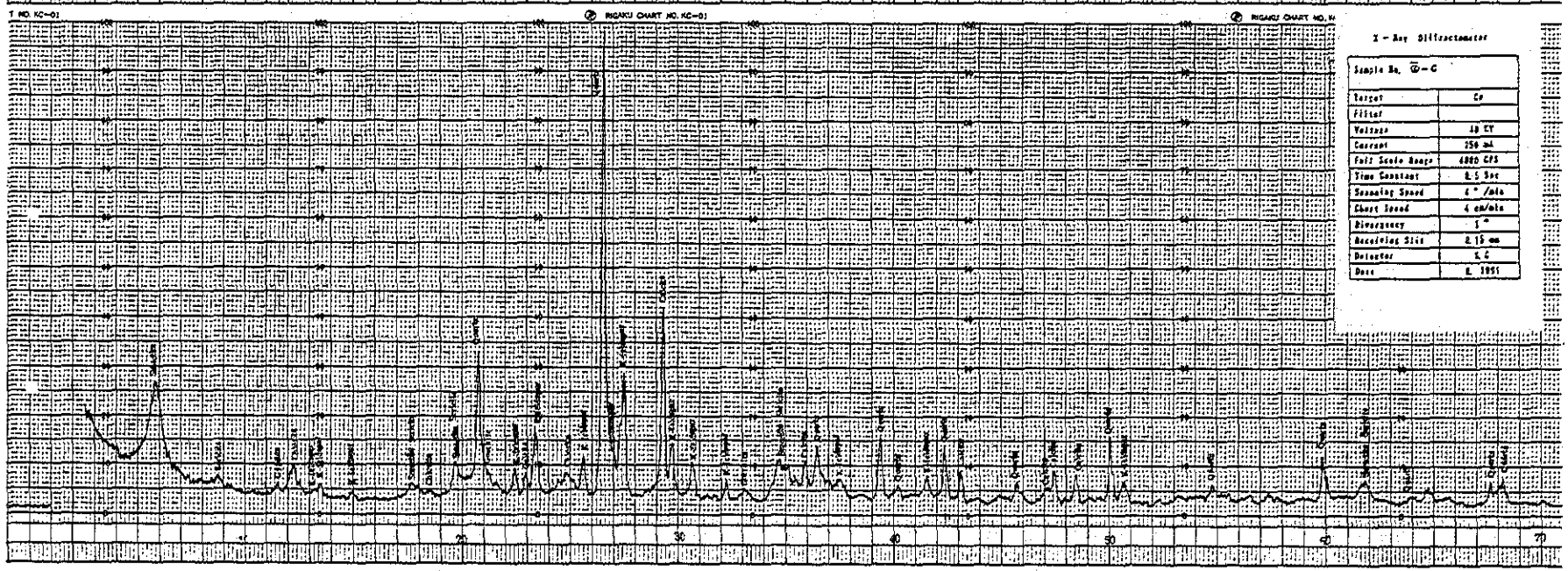
g. Entre otros, se detectó el feldespato potásico en 6 muestras en torno a la roca madre. Sin embargo, al desconocerse la roca original, no es posible juzgar si el feldespato detectado es un mineral primario o mineral alterado.

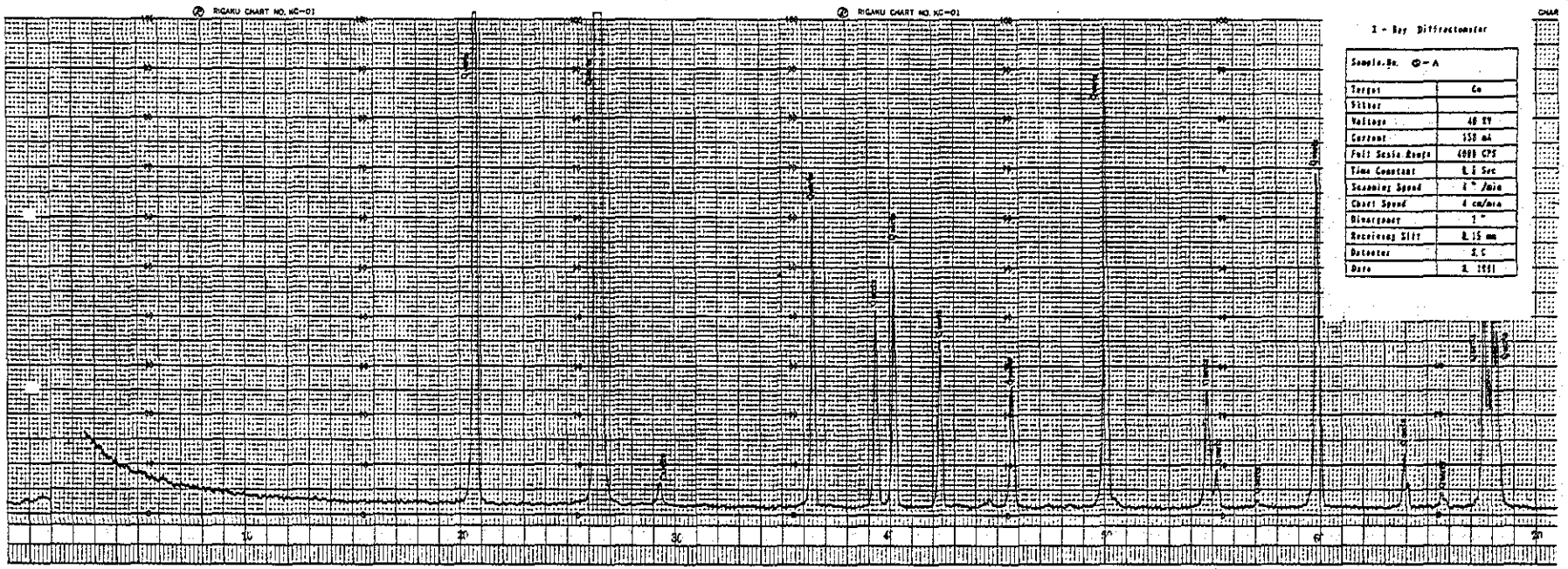
X-Ray Diffractometer
Sample No. Φ-A-2
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4°/min
Chart Speed 1 cm/min
Divergency 1°
Receiving Slit 0.15 mm
Detector S.C
Date 2. 1991
RIGAKU CHART NO. XC-01
X-Ray Diffractometer
Sample No. Φ-A-2
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 1000 CPS
Time Constant 0.5 Sec
Scanning Speed 4°/min
Chart Speed 1 cm/min
Divergency 1°
Receiving Slit 0.15 mm
Detector S.C
Date 2. 1991
RIGAKU CHART NO. XC-01

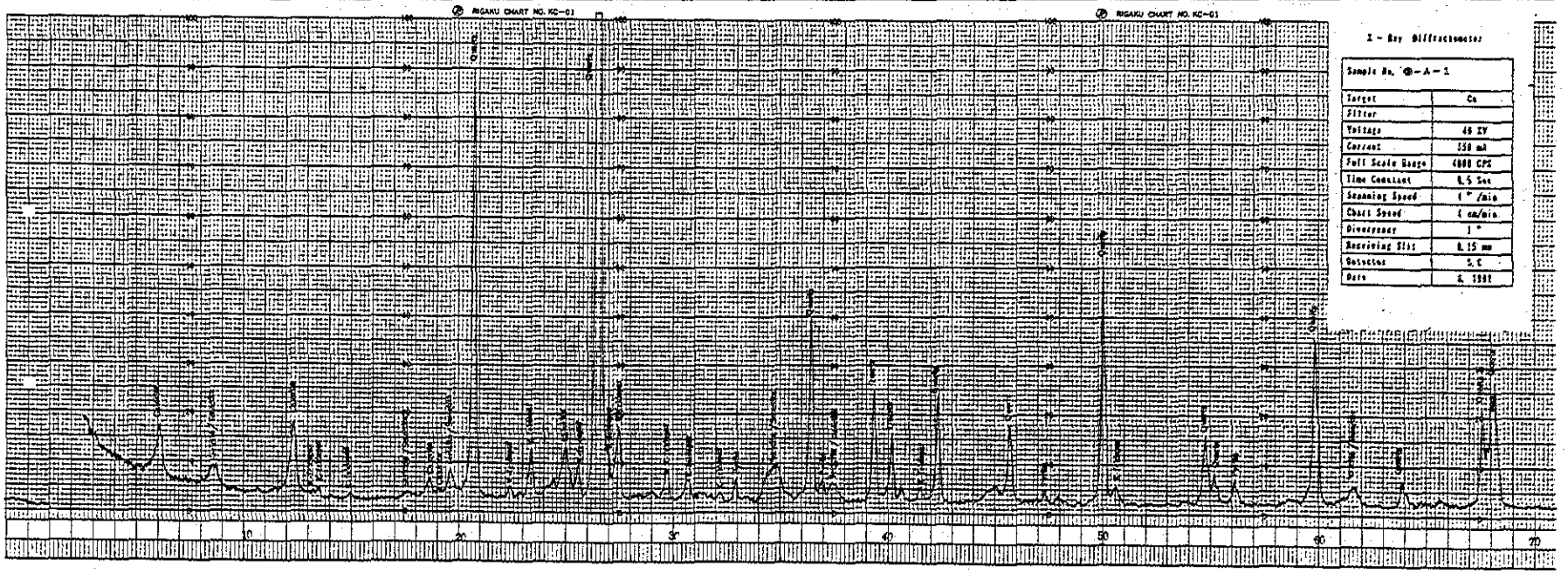
X-Ray Diffractometer
Sample no. Q-G
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 2°/min
Chart Speed 1 cm/min
Divergence 1°
Receiving Slit 0.15 mm
Detector S.C
Date 1. 1991
RIGAKU CHART NO. KC-01
X-Ray Diffractometer
Sample No. Q-A
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 2°/min
Chart Speed 1 cm/min
Divergence 1°
Receiving Slit 0.15 mm
Detector S.C
Date 1. 1991
RIGAKU CHART NO. KC-01
RIGAKU CHART NO. KC-01

X-Ray Diffractometer
Sample No. Φ-C
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 2°/min
Chart Speed 4 cm/min
Divergence 1°
Receiving Slit 0.15 mm
Detector S.C
Date 8. 1991
RIGAKU CHART NO. XC-01
X-Ray Diffractometer
Sample No. Φ-A
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 2°/min
Chart Speed 4 cm/min
Divergence 1°
Receiving Slit 0.15 mm
Detector S.C
Date 8. 1991
RIGAKU CHART NO. XC-01

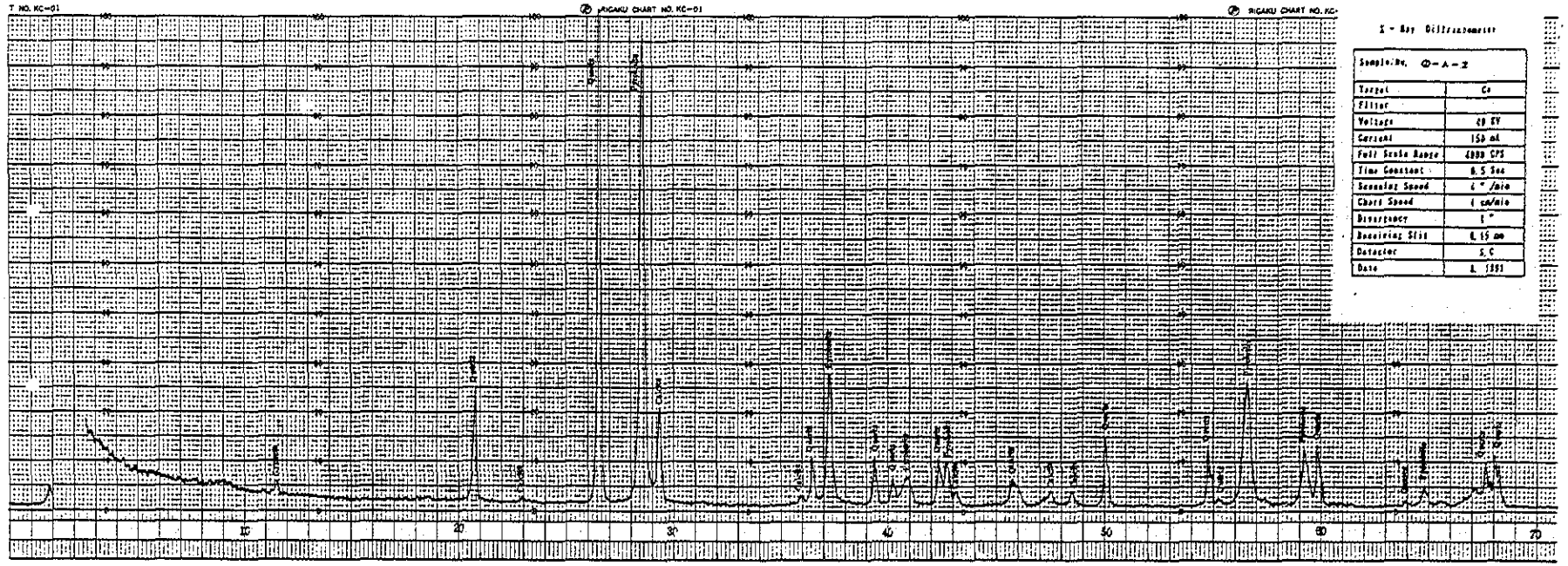

RIGAKU CHART NO. KC-01
X - Ray Diffractometer
Sample No. ⑩ - A
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 ° /min
Chart Speed 4 cm/min
Divergency 1 °
Receiving Slit 0.15 mm
Detector S.C
Date 8. 1991

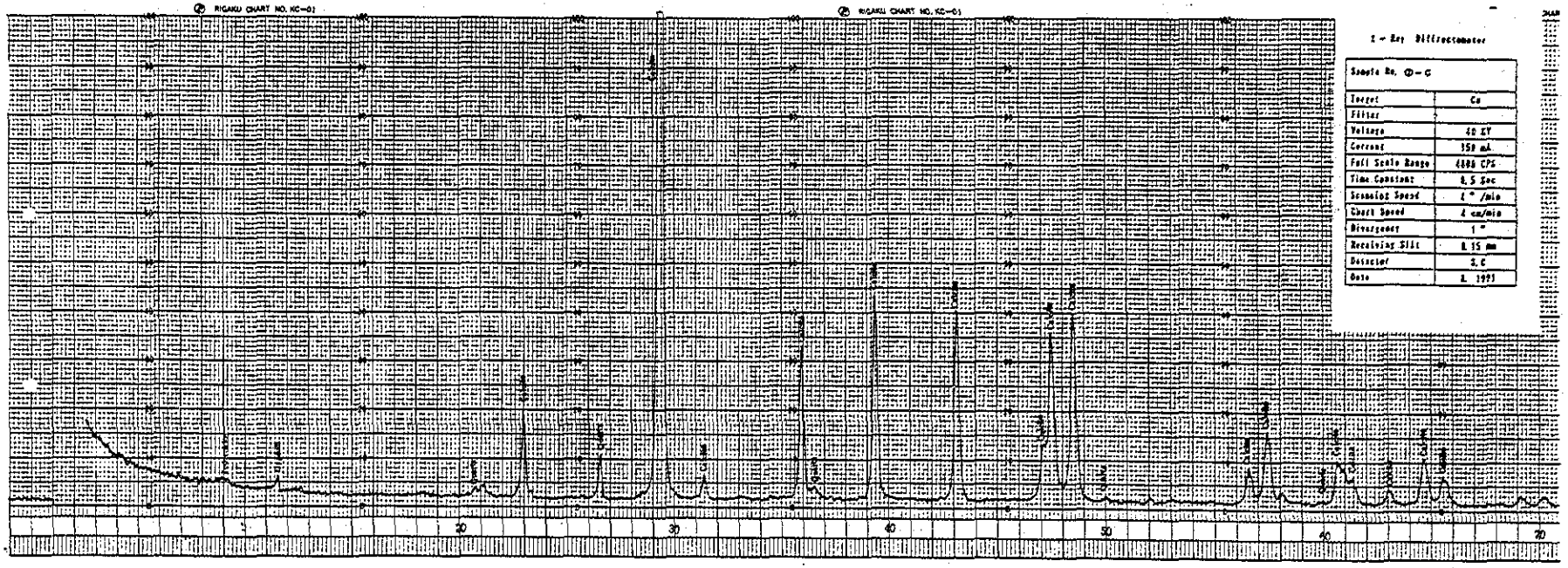

RIGAKU CHART NO. KC-01
X - Ray Diffractometer
Sample No. ⑩ - C
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 ° /min
Chart Speed 4 cm/min
Divergency 1 °
Receiving Slit 0.15 mm
Detector S.C
Date 8. 1991


RIGAKU CHART NO. KC-01
X - Ray Diffractometer
Sample No. ⊕ - A
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 1 °/min
Chart Speed 1 cm/min
Divergence 1 °
Receiving Slit 0.15 mm
Detector S.C
Date 8. 1991


RIGAKU CHART NO. KC-01
X - Ray Diffractometer
Sample No. ⊕ - A - 1
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 1 °/min
Chart Speed 1 cm/min
Divergence 1 °
Receiving Slit 0.15 mm
Detector S.C
Date 8. 1991

RIGAKU CHART NO XC-01
RIGAKU CHART NO XC-01
RIGAKU CHART NO XC-01
RIGAKU CHART NO XC-01

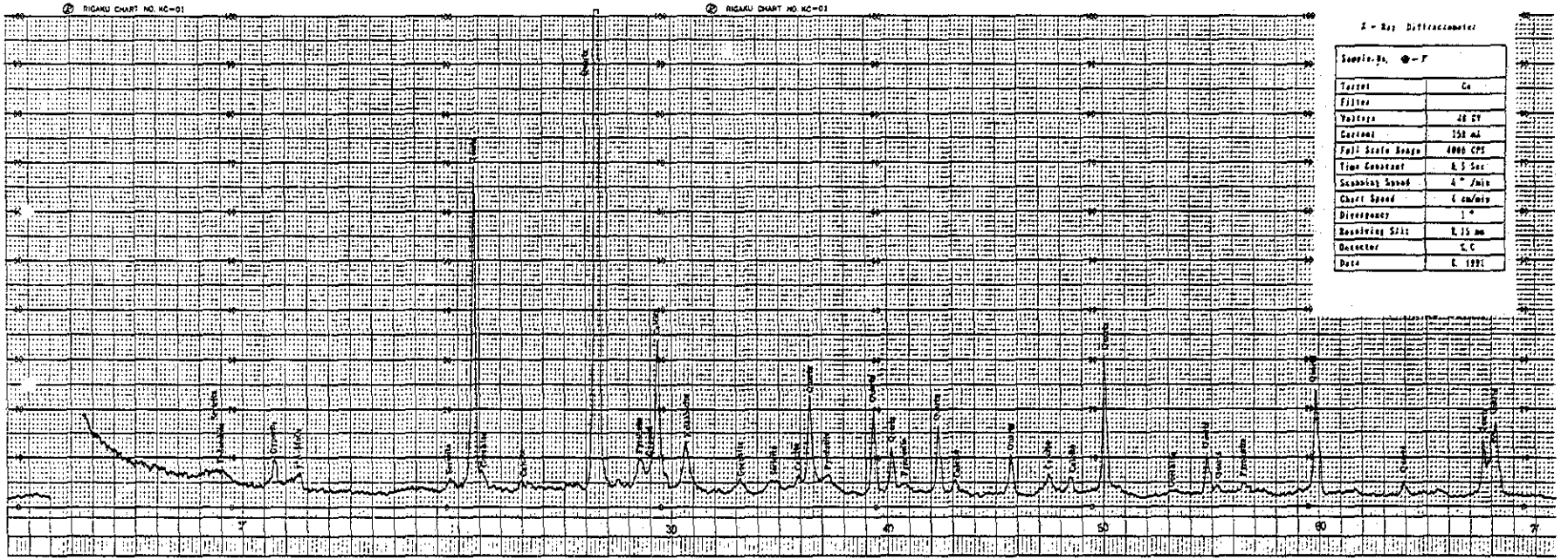

RIGAKU CHART NO. KC-01
X-Ray Diffractometer
Sample No. ①-A-2
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 °/min
Chart Speed 4 cm/min
Divergence 1 °
Receiving Slit 0.15 mm
Detector S.C
Date 1991

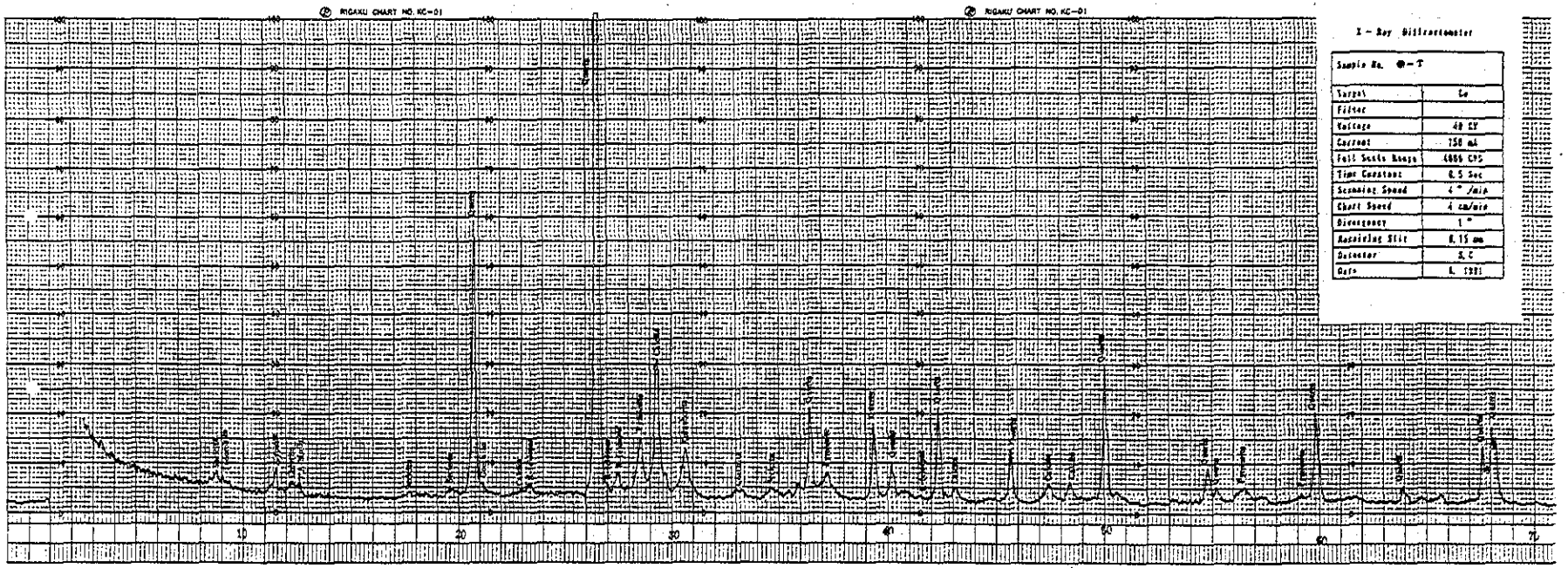

RIGAKU CHART NO. KC-01
X-Ray Diffractometer
Sample No. ①-C
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 °/min
Chart Speed 4 cm/min
Divergence 1 °
Receiving Slit 0.15 mm
Detector S.C
Date 1991

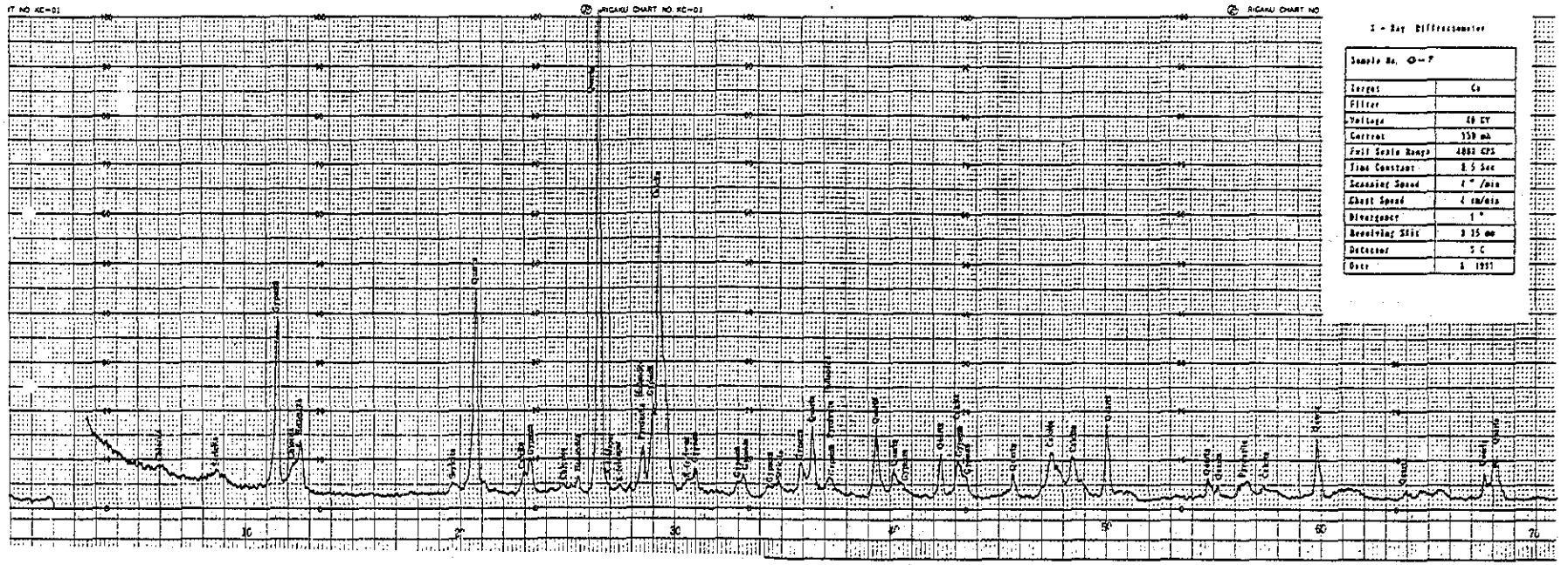
X-Ray Diffractometer
Sample No. ⑧-A
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 °/min
Chart Speed 1 cm/min
Divergence slit 1°
Receiving Slit 0.15 mm
Detector S.C
Date 4. 1991
RIGAKU CHART NO. RC-01
RIGAKU CHART NO. RC-01
X-Ray Diffractometer
Sample No. ⑧-C
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 °/min
Chart Speed 2 cm/min
Divergence slit 1°
Receiving Slit 0.15 mm
Detector S.C
Date 4. 1991
RIGAKU CHART NO. RC-01
RIGAKU CHART NO. RC-01

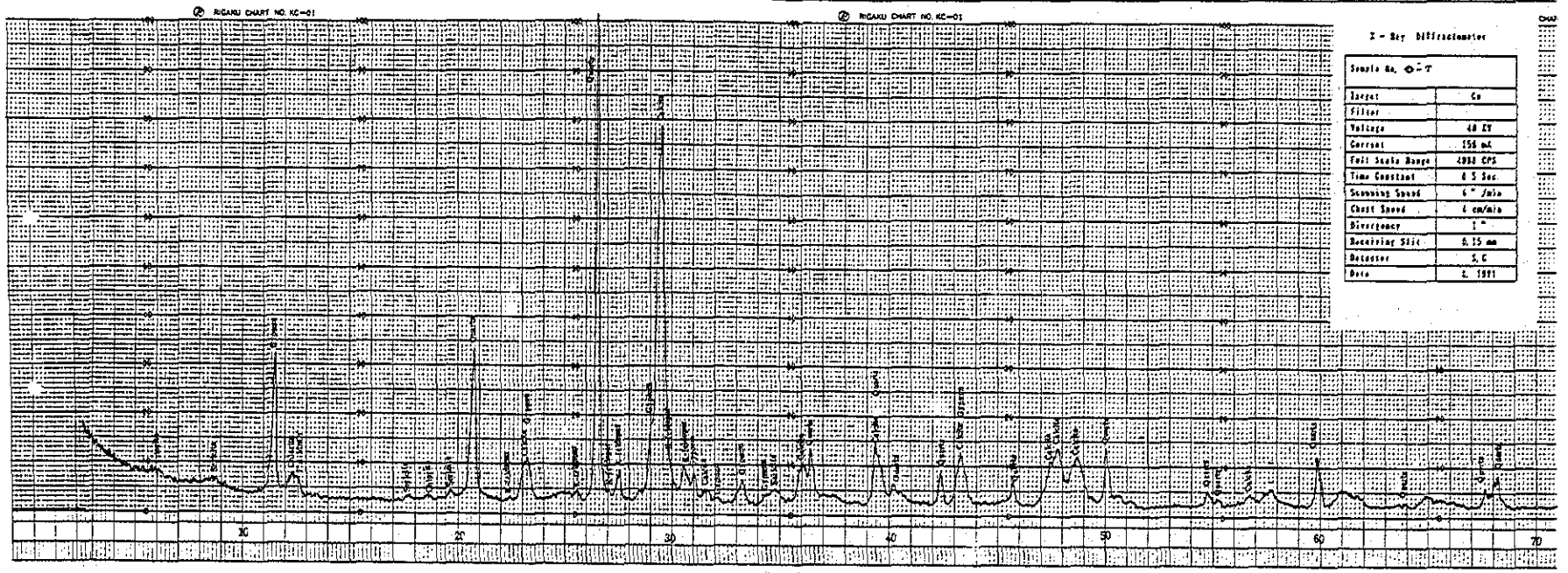
X-Ray Diffractometer
Sample No. ⑧-A-1
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 1000 CPS
Time Constant 0.5 Sec
Scanning Speed 2°/min
Chart Speed 4 cm/min
Divergency 1°
Receiving Slit 0.15 mm
Detector S.C
Date 8. 1991
RIGAKU CHART NO. XC-01
X-Ray Diffractometer
Sample No. ⑧-A-2
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4°/min
Chart Speed 4 cm/min
Divergency 1°
Receiving Slit 0.15 mm
Detector S.C
Date 8. 1991
RIGAKU CHART NO. XC-01

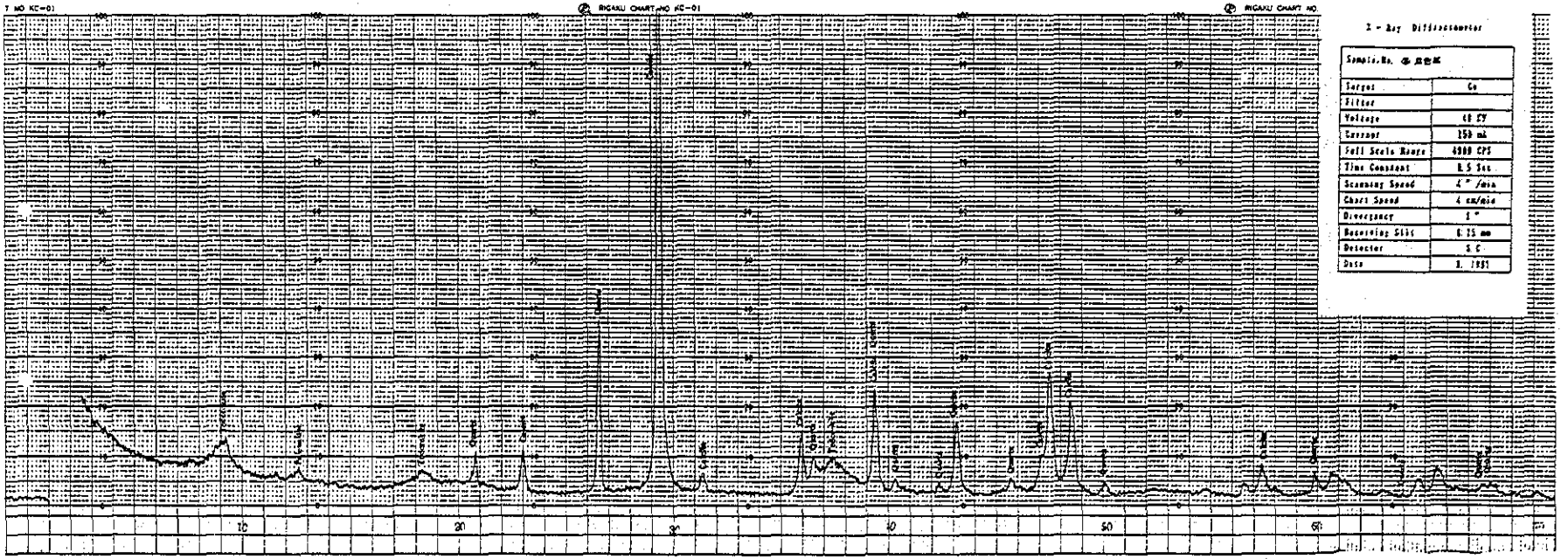
2-Ray Diffractometer
Sample No. ①-B
Target Cu
Filter
Voltage 45 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 8.5 Sec
Scanning Speed 2°/min
Chart Speed 1 cm/min
Divergence 1°
Receiving Slit 0.15 mm
Detector S.C
Date 2. 1981
RIGAKU CHART NO. RC-01
2-Ray Diffractometer
Sample No. ①-C
Target Cu
Filter
Voltage 45 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 8.5 Sec
Scanning Speed 2°/min
Chart Speed 1 cm/min
Divergence 1°
Receiving Slit 0.15 mm
Detector S.C
Date 2. 1981
RIGAKU CHART NO. RC-01

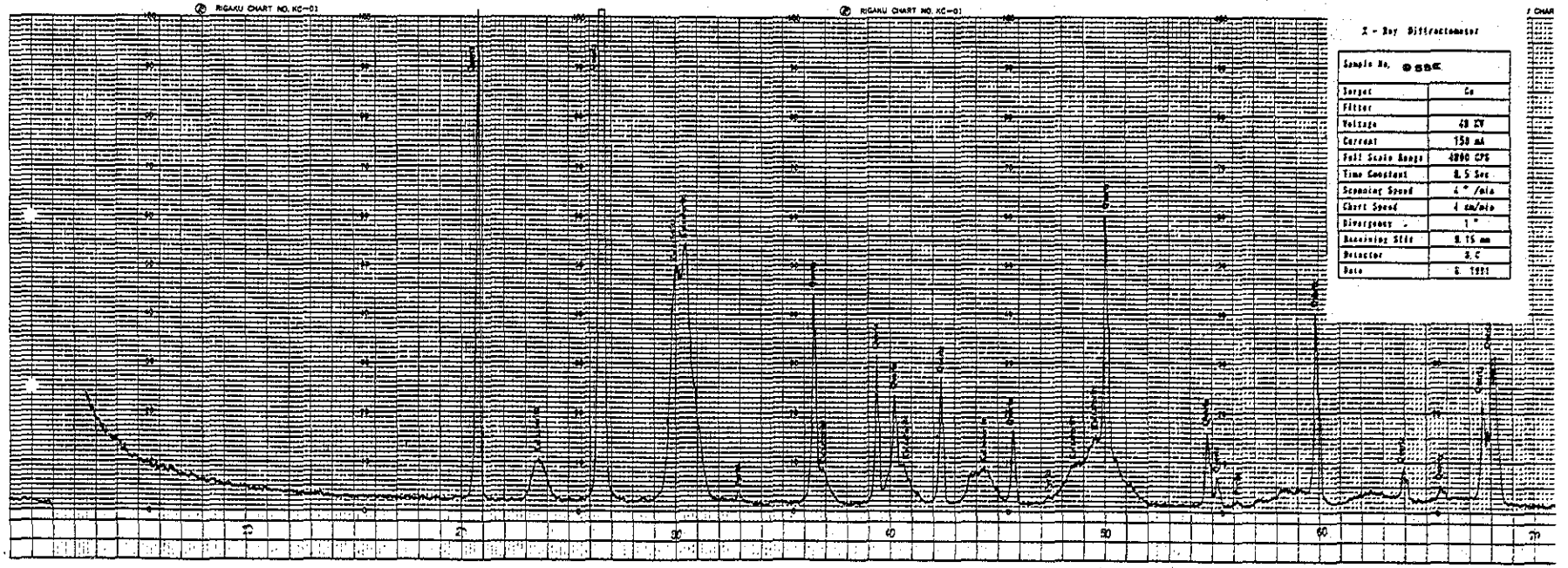

RIGAKU CHART NO. KC-01
X - Ray Diffractometer
Sample No. ●-F
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 °/min
Chart Speed 4 cm/min
Divergency 1 °
Receiving Slit 0.15 mm
Detector S.C
Date 6. 1991

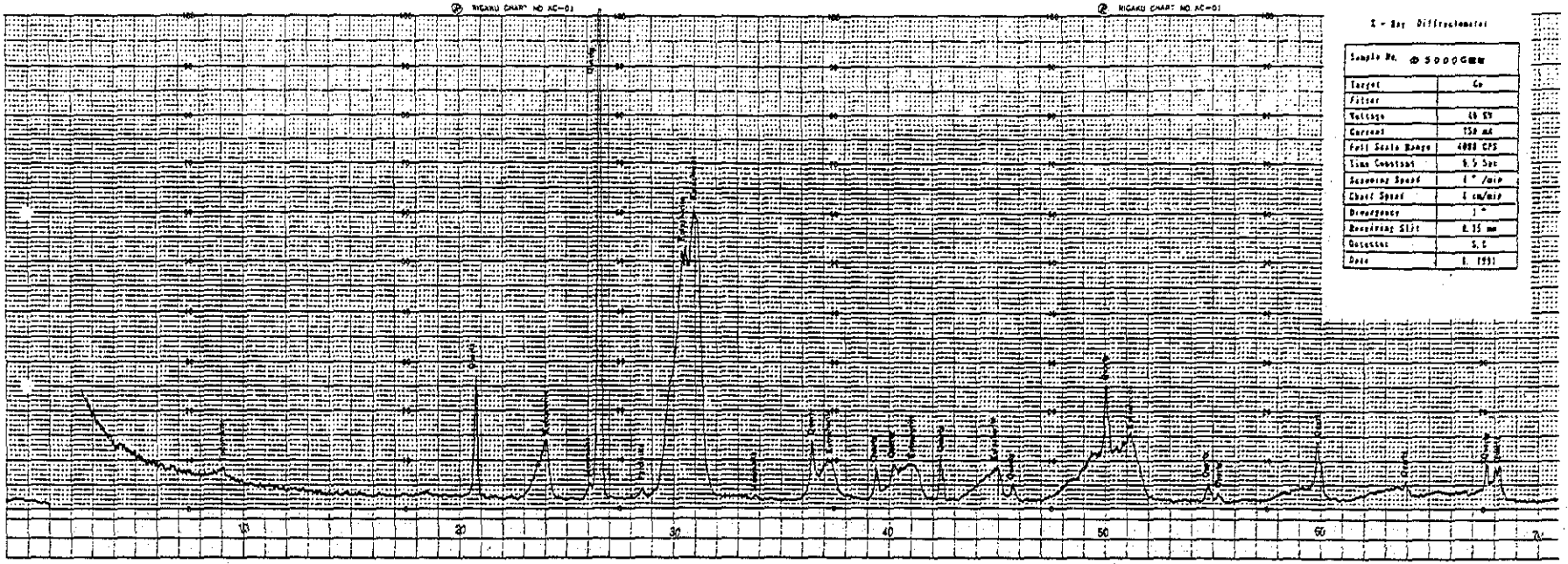

RIGAKU CHART NO. KC-01
X - Ray Diffractometer
Sample No. ●-T
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 °/min
Chart Speed 4 cm/min
Divergency 1 °
Receiving Slit 0.15 mm
Detector S.C
Date 6. 1991

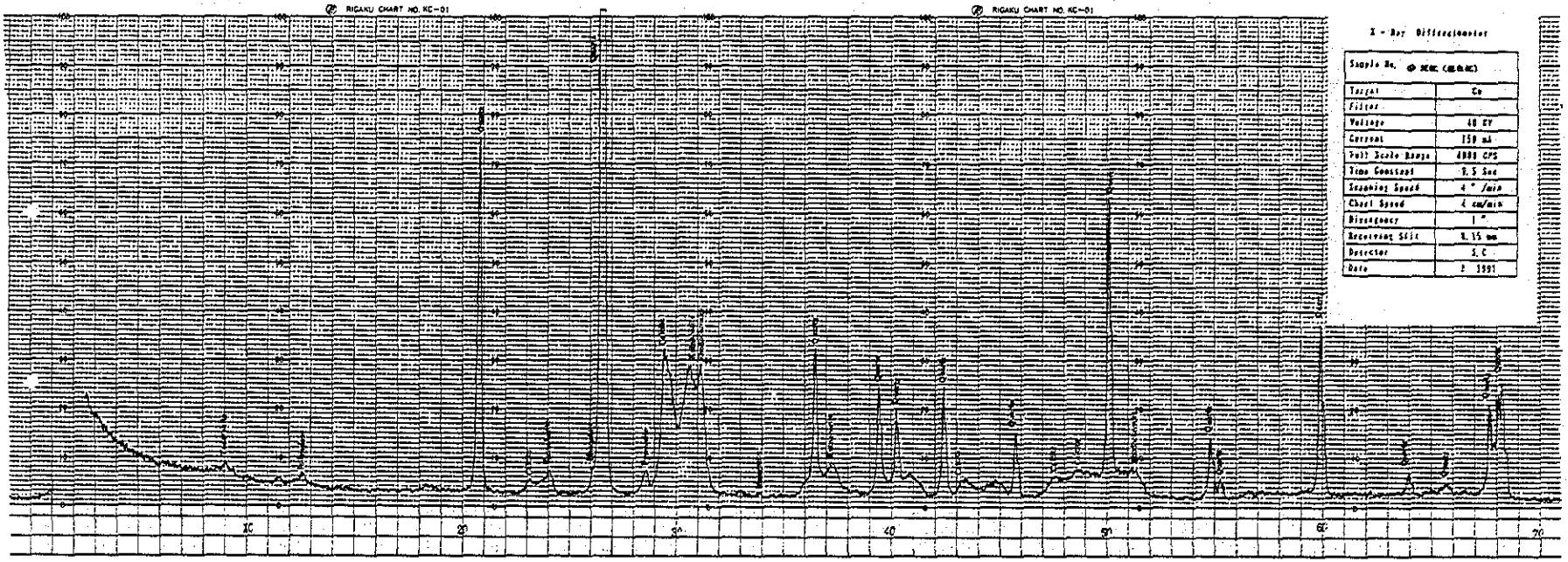

RIGAKU CHART NO. KC-01
X - Ray Diffractometer
Sample No. Φ-F
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 1 °/min
Chart Speed 1 cm/min
Divergence 1 °
Receiving Slit 0.15 mm
Detector S. C
Date 1. 1991


RIGAKU CHART NO. KC-01
X - Ray Diffractometer
Sample No. Φ-T
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 1 °/min
Chart Speed 1 cm/min
Divergency 1 °
Receiving Slit 0.15 mm
Detector S. C
Date 1. 1991


RIGAKU CHART NO. KC-01
X - Ray Diffractometer
Sample No. ④ 白色粉末
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 °/min
Chart Speed 4 cm/min
Divergency 1°
Receiving Slit 0.15 mm
Detector S.C
Date 8. 1991


RIGAKU CHART NO. KC-01
X - Ray Diffractometer
Sample No. ⑤ 淡黄色
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 °/min
Chart Speed 4 cm/min
Divergency 1°
Receiving Slit 0.15 mm
Detector S.C
Date 8. 1991


RIGAKU CHART NO. AC-01
X - Ray Diffractometer
Sample No. Φ5000C焼成
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 °/min
Chart Speed 4 cm/min
Divergence 1 °
Receiving Slit 0.15 mm
Detector S.C
Date 1991


RIGAKU CHART NO. AC-01
X - Ray Diffractometer
Target Cu
Filter
Voltage 40 KV
Current 150 mA
Full Scale Range 4000 CPS
Time Constant 0.5 Sec
Scanning Speed 4 °/min
Chart Speed 4 cm/min
Divergence 1 °
Receiving Slit 0.15 mm
Detector S.C
Date 1991

Ap.17 CUADRO GENERAL DE LOS RESULTADOS DEL ANALISIS QUIMICO DE MINARALES

Ap. 17 Resultado de Analisis Quimica de Muestras

No.	No. de Muestra	Au g/t	Ag g/t	Mn %	Cu ppm	Fe %	As ppm	Sb ppm	Bi ppm	Hg ppb	S %	SiO_2 %	Pb ppm	Zn ppm	Ti ppm	Y ppm	La ppm	Ce ppm	Nd ppm	Pr ppm	T-RE ppm	Analisis Argentina Au g/t	Ag g/t	Mn %	Nota
1	①-A-1	6.7	118.0	12.0	231	0.51	57	69	<1	1,034	1.8	53.9	--	--	--	--	--	--	--	--	--	6.1	109	--	
2	①-A-2	8.0	81.0	6.0	164	0.79	34	40	<1	600	0.12	52.0	--	--	--	--	--	--	--	--	--	8.0	93	3.6	
3	①-G	1.1	38.5	0.91	23	5.0	102	3	<1	131	2.3	52.7	--	--	--	--	--	--	--	--	--	0.8	50	0.2	
4	②-A	2.3	168.0	9.9	409	0.47	68	173	<1	71	0.05	68.2	--	--	--	--	--	--	--	--	--	1.7	157	--	
5	②-G	1.7	18.7	1.6	38	2.4	74	6	<1	59	4.3	58.6	--	--	--	--	--	--	--	--	--	0.5	14	--	
6	③-A	10.3	298.3	13.5	559	0.52	50	55	<1	12	0.06	60.5	--	--	--	--	--	--	--	--	--	10.0	1,140	--	
7	④-A	8.7	112.7	14.7	49	0.37	17	13	<1	36	0.04	70.1	--	--	--	--	--	--	--	--	--	7.8	110	13.4	
8	④-G	2.0	11.5	0.91	6	4.8	96	1	<1	22	1.2	48.3	--	--	--	--	--	--	--	--	--	2.2	12	0.1	
9	⑤-A	13.0	338.0	3.7	785	0.98	165	302	<1	96	0.10	74.6	--	--	--	--	--	--	--	--	--	9.7	311	--	
10	⑥-A-1	2.0	19.0	6.5	19	1.5	45	15	<1	24	0.20	26.9	--	--	--	--	--	--	--	--	--	2.3	22	--	
11	⑥-A-2	3.3	120.3	12.8	215	0.28	26	57	<1	24	0.19	37.9	--	--	--	--	--	--	--	--	--	2.9	104	--	
12	⑦-A-1	1.5	125.3	10.3	157	0.42	48	55	<1	24	0.17	52.0	248	268	74	0.6	1.1	1.8	0.7	0.2	5.8	1.7	124	4.0	
13	⑦-A-2	9.0	66.0	11.8	34	0.45	14	13	<1	59	0.41	65.5	141	204	116	0.8	0.8	1.3	0.1	0.6	7.8	8.3	60	8.6	
14	⑦-G	1.0	12.0	2.7	24	2.0	34	4	<1	11	0.38	11.4	357	2,066	1,039	11.8	4.8	8.5	1.1	4.3	45.7	0.7	15	1.5	
15	⑧-A	3.3	38.7	3.3	80	1.0	99	173	<1	88	0.12	58.5	--	--	--	--	--	--	--	--	--	3.6	57	--	
16	⑧-G	0.1	3.1	1.2	45	4.5	144	2	<1	70	3.1	29.7	--	--	--	--	--	--	--	--	--	0.3	4	--	
17	⑨-A-1	1.5	50.7	11.5	93	0.36	16	15	<1	80	0.24	50.1	--	--	--	--	--	--	--	--	--	1.9	55	--	
18	⑨-A-2	4.7	35.7	7.7	30	0.36	22	11	<1	12	0.05	37.0	--	--	--	--	--	--	--	--	--	4.7	30	--	
19	⑨-B	4.3	143.7	4.8	183	1.8	136	50	<1	12	1.1	77.1	--	--	--	--	--	--	--	--	--	3.4	25	--	
20	⑨-G	0.3	4.7	0.66	27	5.3	195	4	<1	9	2.2	54.2	--	--	--	--	--	--	--	--	--	0.3	4	--	
21	⑩-F	5.7	103.7	9.1	243	3.9	385	115	<1	214	1.1	48.0	--	--	--	--	--	--	--	--	--	--	--	--	Cabeza de Planta
22	⑩-T	1.1	79.9	9.0	194	3.4	372	103	<1	170	0.40	50.0	--	--	--	--	--	--	--	--	--	--	--	--	Cola de Planta
23	⑪-F	1.4	79.1	5.8	166	2.7	100	29	<1	237	1.8	37.0	--	--	--	--	--	--	--	--	--	--	--	--	Cabeza de Playa
24	⑪-T	1.3	55.2	4.8	143	2.1	77	20	<1	139	2.2	33.3	--	--	--	--	--	--	--	--	--	--	--	--	Cola de Playa
25	⑫	7.6	144.6	11.8	200	0.83	74	37	<1	26	0.12	44.8	--	--	--	--	--	--	--	--	--	--	--	--	Mixto
26	⑬	10.0	162.0	15.8	245	0.61	67	34	<1	15	0.20	50.0	--	--	--	--	--	--	--	--	--	--	--	--	Blanco
27	⑭	7.3	147.0	14.8	150	1.10	45	40	<1	35	0.15	37.2	--	--	--	--	--	--	--	--	--	--	--	--	Negro
28	⑮	4.8	244	43.1	80	0.55	60	55	<1	60	0.10	18.0	--	--	--	--	--	--	--	--	--	--	--	--	5000G Mag