

The Project Gutenberg EBook of Catálogo Instructivo de las Colecciones Mineralógicas by E. Hermitté and G. Bodenbender

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***START OF THE PROJECT GUTENBERG EBOOK
CATÁLOGO INSTRUCTIVO DE LAS COLECCIONES
MINERALÓGICAS***

REPÚBLICA ARGENTINA
MINISTERIO DE AGRICULTURA
DIVISIÓN DE MINAS, GEOLOGÍA É HIDROLOGÍA

Catálogo Instructivo de las Colecciones Mineralógicas
ESCOLARES

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BUENOS AIRES
Talleres de publicaciones de la Oficina Meteorológica
1905

I. CARACTERES MORFOLÓGICOS

CRISTALES--(suelos ó en agregados).

Cubo de Pírita de hierro	Nº 5 ^a	Nº 5 ^{a*}
Deltoedro del Analcima	» 92	
Dodecaedro rómbico, Deltoedro ó combinación de los dos (Granate)	» 72	» 34* y 34 ^{a*}
Pirámide hexagonal del Cuarzo	» 26 ^a	
Pirámide hexagonal con prisma del Cuarzo	» 26	» 16*
Romboedro del Espato calizo	» 43	» 23* y 24*
Escalenoedro del Espato calizo	» 44	
Cristales rómbicos (prisma con pinacoide) de la Baritina	» 64	
Prisma monoclinico con hemipirámide (incompleta) del Yeso	» 59	
Prisma monoclinico del Feldespato	» 90	

NOTA.--Los números con estrella se refieren á la colección escolar primaria, los otros á la colección escolar secundaria.

AGREGADOS.--1) *Cristalizados.*

Cuarzo » 26 y 27

Espato de cal	» 43	» 44
Granate	» 72	
Baritina	» 64	
Epídota	» 77	
Analcima, etc	» 92	
2) <i>Cristalinos</i> .--(macro y micro)		
Azufre	» 1	Nº 1*
Galena	» 7	» 6*
Blenda	» 11	» 7*
Hematita	» 20 y 21	» 11* y 12*
Estalactitas	» 47	» 25*
Mármol	» 57	» 43*
Yeso	» 60	» 62
» 29*	» 30*	
Feldespatos, etc.	» 91	» 35*
3) <i>Criptocristalinos</i> .		
Limonita	» 39	» 15*
4) <i>Amorfos</i> .--(Ópalo, Obsidiana, etc.)		

TEXTURA DE LOS AGREGADOS. (Forma interior)

1) *Agregados granulosos*.

(Grano grueso, medio grueso y fino, con transiciones al fibroso y laminar).

Hierro magnético	» 35	» 19*
Mármol	» 50	» 43*
Sal común	» 40	» 20*
Yeso, etc	» 62	» 30*

2) *Agregados fibrosos*.--

(Gruesos, medio gruesos, finos, paralelos, radiados, reticulados, etcétera).

Yeso	» 60	» 29*
Boronatocalcita	» 42	» 22*
Asbesto	» 84	» 36*
3) <i>Agregados laminares--</i>		
hojosos, micáceos.		
Yeso	» 61	
Mica	» 74	» 33*
Hematita, etc.	» 21	
4) <i>Agregados homogéncos.</i>		
Onix-Mármol	» 19	» 26*

NOTA.--Los agregados compactos están en contraposición á los porosos.

FORMAS EXTERIORES DE LOS AGREGADOS.

1) <i>Estalactitas</i>	» 47	
2) <i>Alambres y chapas:</i>		
Oro, Plata, Cobre	» 2, 3, 4	» 2*, 3*, y 4*
3) <i>Concreciones:</i>		
Tosca	» 51	» 44*
Boronatocalcita	» 42	» 22*
4) <i>Drusas. (Secreciones):</i>		
Espato de cal	» 43	
Analcima	» 92	
5) <i>Costras, revestimientos, pegaduras:</i>		
Azurita	» 58	» 28*
Descloizita	» 71	
6) <i>Eflorescencias:</i>		
Alumbre	» 65	
Sulfato de magnesio	» 66	
7) <i>Embutidas:</i>		
Granate en feldespato, etc.	» 73	

Hierro cromífero en Serpentina	» 36	
8) <i>Vetas ó filones</i> . (Agregados de orden superior) Galena, blenda, etc., con cuarzo ó espato de hierro, etc.	» 19	
FÓSILES.--(Formas orgánicas)		
Plantas fósiles (carbonizadas)	» 100	» 50*
Madera fósil silicificada	» 34	» 18*
Animales fósiles	» 99	» 49*
SEUDOMORFISMO. (Epigenias):		
Hierro pardo en cubos, por descomposición de piritita de hierro	» 6	
MACLAS. (Gemelos), múltiples, caracterizados por estriamiento sobre los planos de clivaje.		
Espato de cal	» 45	

II. CARACTERES FÍSICOS

CLIVAJE, (ó cruceros):

A) Según la posición de los planos de clivaje:

1) *Octaédrico*:

Hierro magnético » 35

2) *Cúbico*:

Galena » 7 » 6*

3) *Romboédrico*:

Espato de cal	» 45 y 46	» 23* y 24*
4) <i>Prismático:</i>		
Antimonita	» 12	
Enargita	» 17	
B) Según el grado de perfección:		
1) <i>Sumamente perfecto:</i>		
Mica	» 74	» 33*
2) <i>Muy perfecto:</i>		
Galena	» 7 y 8	» 6*
Espato de cal	» 45 y 46	» 23* y 24*
3) <i>Imperfecto ó muy imperfecto.</i>		
Cuarzo	» 26 y 27	» 16*
Granate	» 72	

FRACTURA.--A) Según la forde la superficie:

1) *Concoidal:* (factura del vidrio grueso) (Obsidiana).

2) *Desigual:*

Pirita de hierro » 5

Cuarzo » 86 » 17*

3) *Llana.*

Piedra Córnea.

B) Según la calidad de de la superficie: *Lisa:*

Piedra córnea y Calcedonia.

2) *Astillosa:*

Triplita » 70

3) *Erizada:*

Oro, Plata, Cobre » 2, 3, 4 » 2*, 3* y 4*

4) *Terrosa:*

Hematita ocrácea » 22 » 11*

Kaolina » 94 » 37*

[008]

DUREZA.--Escala de dureza:

1) Talco	» 80	
2) Yeso	» 62	» 30*
3) Espato de cal	» 45	» 23*
4) Espato fluor	» 41	» 21*
5) Apatita	» 69	
6) Ortoclasa	» 91	» 35*
7) Cuarzo	» 28	» 16*
8) Topacio.		
9) Corindón.		
10) Diamante.		

1) Minerales muy blandos, rayados por la uña (grados 1 hasta 3)

Oro, Plata, Cobre	» 2, 3, 4	» 2*, 3* y 4*
Galena	» 7	» 6*
Sal común	» 40	» 20*
Yeso	» 60 y 63	» 29* y 30*
Mica	» 74	» 33*
Kaolina	» 94	» 37*

2) Minerales que no son rayados por la uña, pero si por la punta de un cuchillo (grados 3 hasta 5).

Blenda	» 10	» 7*
Calcita	» 43	» 22*
Espato fluor	» 41	» 21*

3) Minerales que no son rayados por la punta de un cuchillo (grados 6 en adelante).

Feldespató.	Nº 91	Nº 35*
Cuarzo	» 28	» 16* y 17*

Granate etc. » 72 » 34*

TENACIDAD 1) *frágiles*:

Pirita de hierro » 5 » 5*
 Cuarzo » 26 etc. » 17*
 Caliza etc. » 43 » 22* y 23*
 2) *Sectiles*: Chalcosina » 9
 Talco » 81
 3) *Maleables* (ductil): Oro, Plata, » 2, 3, 4 » 2, 3, 4*
 Cobre
 4) *Elásticos*: Mica » 74 » 33*
 5) *Flexibles* (Clorita, Talco, Asbesto).

LUSTRE a)--*Según cantidad. Mui lustroso*:

Mica » 74 » 33*
 Espato de Islandia » 45 » 23*

Lustroso:

Galena » 7 » 6*
 Granate » 72 » 34*

Poco lustroso:

Feldespató » 91 » 35*
 Berilo » 88

Mate:

Caolina » 94 » 37*

b) *Según calidad: Metálico*:

Oro, Plata, Cobre » 2, 3, y 4 » 2*, 3* y 4*
 Pirita de hierro etc. » 5 » 5*

Diamantino: (Diamente)--

Vidrioso:

Espato de cal » 45 » 23*

Cuarzo (sobre las caras de los cristales	» 26	» 16*
<i>Grasoso:</i> (ó resinoso): Cuarzo sobre los planos de de fractura)	» 26 y 27	» 16 y 17*
Wolframita (sobre los planos de fractura	» 67	» 31*
<i>Perlado:</i> (nacarado).		
Mica	» 74	» 33*
Crisotila	» 83	» 36*
<i>Sedoso:</i>		
Wolastonita	» 85	
Aragonita	» 52	
Alumbre	» 65	
Boronatrocálcita	» 22	» 22*

DIAFANIDAD:

Transparente:

Espato de Islandia » 45 » 23*

Semi-transparente:

Cuarzo » 26 » 16*

Translúcido:

Onyx » 49 » 26*

Semi translúcido:

Feldespató » 90 » 35*

Opacos:

Oro, Plata, Pirita de hierro, etc.

COLOR: *Minerales incoloros* (en su estado puro)

Cuarzo » 26 » 16*

Sal común » 40 » 20*

Espato de Islandia » 45 » 23*

Caliza	» 46 y 47	» 24* y 25*
Wolastonita	» 85	
<i>Grises</i> (tipo gris de ceniza):		
Tierra de infusorios	» 33	
<i>Negros</i> (tipo negro de terciopelo):		
Turmalina	» 76	» 32*
Carbón de piedra	» 97	» 38*
<i>Azules</i> (tipo azul de Prusia):		
Azurita	» 58	» 28*
<i>Verdes</i> (tipo verde de esmeralda):		
Malaquita	» 56	» 28*
Onix-mármol	» 49	» 26*
Crisocola	» 79	
Apatita	» 69	
Epídota	» 77 y 78	
Serpentina	» 82	
<i>Amarillos</i> (tipo amarillo de limón).		
Azufre	» 1	» 1*
Ocre de hierro	» 39	» 15*
<i>Rojos</i> (tipo rojo-carmesí):		
Hematita ocrácea	» 22	» 11*
Cuarzo rosado	» 29	» 17*
<i>Pardos</i> (tipo pardo de castaño):		
Limonita	» 37	» 14*
Triplita	» 70	

RAYA (color del polvo del mineral):

1) Minerales incoloros (al estado puro) ó alocromáticos. Tienen por lo común un polvo blanco ó gris:

Cuarzo rosado	» 29	» 17*
Espato fluor	» 4	» 21*
Turmalina	» 76	» 32*
Feldespato	» 91	» 35*

2) Minerales con colores propios (idiocromáticos). El color del mineral y de su polvo no difieren ó son por lo menos parecidos:

Galena (polvo gris-oscuro)	» 7	» 6*
Hematita (polvo rojo-parduzco)	» 20	» 11*
Malaquita (polvo verde)	» 56	» 28*

3) Minerales maleables. Se ponen lustrosos por frotamiento:

Oro, plata, cobre.

COLORES MULTIPLES (por agregación):

Espato fluor	» 41	» 21*
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COLORES SUPERFICIALES (abigarrados, en mayor parte debido á una descomposición química):

Pirita de cobre	» 13, 14	» 9*
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IRISACIÓN:

Espato de Islandia.

FOSFORESCENCIA:

Cuarzo, Espato fluor, etc.

DOBLE REFRACCIÓN:

Espato de Islandia. etc.

ELECTRICIDAD:

Azufre, Cuarzo, Espato calizo,
Mica, Turmalina.

[014]

MAGNETISMO: Hierro magnético 35 » 19*

PESO ESPECÍFICO: (Densidad)

0,6 .. 1 Kerosene, Agua

1 .. 1,5 Hulla.

1,5 .. 2,0 Alumbre.

2,0 .. 2,5 Yeso, Sal común.

2,5 .. 3,0 Cuarzo, Calcita,
Feldespatos.

3,0 .. 3,5 Espato Fluor, Turma-
lina.

3,5 .. 4,0 Malaquita, Azurita.

4,0 .. 4,5 Pirita de cobre, Blenda.

4,5 .. 5,5 Pirita de hierro, Cobre
gris.

5,5 .. 6,5 *Magnetita*, Chalcosina.

6,5 .. 8 Cerusita, Casiterita,
Galena.

8,5 .. 10,0 Cobre, Bismuto.

10,0 .. 14,0 Plata, Plomo, Mercurio.

15,0 .. 21 Oro, platino.

21,5 .. 23 Iridio.

IV. CARACTERES QUÍMICOS¹

FUSIBILIDAD 1) Minerales fácilmente fusibles (fusibles con la llama de una vela:

Antimonita, Sal común.

2) Dificilmente fusibles á un globulito:

Granate (Almandina).

3) Facilmente fusibles en astillas finas:

Feldespatos.

4) Dificilmente fusibles en astillas: Bronzita.

5) Infusibles á la llama del soplete: Cuarzo.

Según Kobell, hay siete grades de fusibilidad.

1) Antimonita.

2) Natrolita.

3) Almandina.

4) Actinolita.

5) Ortoclasa.

6) Bronzita.

7) Cuarzo.

¹ Los institutos de enseñanza en los que se quiera hacer ensayos químicos con minerales pueden dirigirse á la División de Minas, Geología é Hidrología para obtener las muestras necesarias.

SUBLIMACIÓN: (total ó parcial).

Azufre, Pirita de hierro,

SOLUBILIDAD: A) En agua: *Sal común.*

B) En ácido clorhídrico:

1) Con desprendimiento de ácido carbónico: *Caliza.*

2) Con desprendimiento de cloro: *Pirolusita.*

3) Con desprendimiento de ácido sulfhídrico: *Blenda.*

C) En ácido nítrico, con desprendimiento de bióxido de nitrógeno (vapores rutilantes): *Hierro magnético.*

D) Parcialmente solubles en los ácidos:

1) Sulfuros, solubles en ácido nítrico concentrado, con separación de azufre: *Blenda, Pirita de hierro.*

2) Silicatos solubles en ácido clorhídrico con separación de ácido sílico.

a) Bajo la forma de polvo arenoso: *Serpentina.*

b) Bajo la forma de masa gelatinosa: *Wolastonita.*

3) Wolframatos solubles (en polvo muy fino) en ácido clorhídrico concentrado, separándose ácido wolfrámico: *Wolframita.*

E) Insolubles en los ácidos *Cuarzo, Espato fluor, Feldespato.*

DISGREGACIÓN DE MINERALES INSOLUBLES EN LOS ÁCIDOS por fusión con carbonatos alcalinos:
Cuarzo, Feldespato.

INVESTIGACIÓN DE LOS COMPONENTES MÁS IMPORTANTES.

Agua. Agua higroscópica: Sal común.

Agua de cristalización: Yeso.

Agua de cristalización y de constitución: Serpentina.

Acido sulfhídrico ó azufre: Galena, Blenda.

Acido clorhídrico: Sal común.

Ácido fluorhídrico: Espato fluor.

Acido sulfúrico: Yeso.

Acido fosórico: Apatita.

Acido carbónico: Espato de cal, Cerusita.

Acido sílico: *Serpentina, Feldespato, Wolastonita.*

Cobre: Pirita de cobre. Crisocola.

Zinc: Blenda.

Plomo: Galena. Cerusita.

Hierro: Pirita de hierro. Hierro magnético.

Antimonio: Antimonita. Enargita.

Arsénico: Hierro arsenical.

Manganeso: Pirolusita. Wolframita.

Aluminio: Alumbre. Ortoclasa.

Calcio: Espato de cal. Yeso.

Magnesio: Sulfato de magnesio.

Sodio: Sal común.

Potasio: Feldespato.

COLECCIÓN DE MUESTRAS DE ENSAYO

- N.º 1 Blenda.
- » 2 Galena.
- » 3 Pirita de hierro.
- » 4 Limonita ó Hematita.
- » 5 Cuarzo.
- » 6 Pirolusita.
- » 7 Espato fluor.
- » 8 Sal común.
- » 9 Espato calizo.
- » 10 Cerusita.
- » 11 Yeso.
- » 12 Sulfato de magnesia.
- » 13 Apatita.
- » 14 Wolframita.
- » 15 Serpentina.
- » 16 Wolastonita.
- » 17 Crisocola.
- » 18 Feldespato.

ALGUNOS EJEMPLOS DE LA FORMACIÓN DE MINERALES

A) Minerales formados en disoluciones acuosas por evaporación del agua:

Sal común	Nº 40
Yeso	» 59
Calcedonia	» 31
Cuarzo cristalizado	» 27

B) Minerales formados en disoluciones acuosas cargadas de ácido carbónico, por evaporación de este último.

Espato calizo	Nº 44, etc.	(dentro de grietas que cruzan el mármol.
Estalactitas	» 47	(dentro de cavernas en caliza).
Travertina	» 48	(en agua bajo la acción de plantas).
Onyx-Mármol	» 49	(en aguas calientes)

C) Minerales formados por procesos químicos; por la acción del oxígeno, del ácido carbónico y del agua:

- 1) Limonita, por descomposición de Pirita de hierro N° 38
- 3) Cerusita, por descomposición de Galena » 53
- 4) Malaquita por descomposición de Cobre » 4
- 5) Analcima, por descomposición de Basalto » 92
- 6) Caolina, por descomposición de Feldespato » 94
- D) *Minerales formados en una masa fusión (rocas eruptivas)*
- Feldespato en granito » 91
- Cuarzo » 28
- Mica en granito » 74
- Anfibol » 86
- E) *Minerales en filones metálicos, como: Galena, Pirita de hierro, Blenda, etc., formados:*
- 1) por procedimientos de disoluciones acuosas, ej.: sulfato de hierro, ha sido reducido á sulfuro de hierro, ó
- 2) por acción del gas sulfhídrico (ó sulfuros alcalinos) sobre disoluciones; ej.: carbonato de plomo, transformado en galena:
- 3) por sublimación de gases (casos raros)

4) por reducción de sus disoluciones ó de minerales compuestos: oro nativo por reducción de cloruro de oro; cobre nativo en parte por reducción de óxido de cobre (cobre rojo) ó de malaquita (carbonato de cobre)

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