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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

[pg 003] I. CARACTERES MORFOLÓGICOS

CRISTALES--(suelos ó en agregados).

Cubo de Pirita 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	

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) *Cristalinos.*--(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*
Feldespato, etc.	» 91	» 35*	

3) *Criptocristalinos.*

Limonita	» 39	» 15*
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4) *Amorfos.*--(Ópalo, Obsidiana, etc.)

TEXTURA DE 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*
Boronatrocalcita	» 42	» 22*
Asbesto	» 84	» 36*

3) *Agregados laminares*--hojosos, micáceos.

Yeso	» 61	
Mica	» 74	» 33*
Hematita, etc.	» 21	

4) *Agregados homogéncos.*

Onix-Mármol	» 19	» 26*
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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*
Boronatrocalcita	» 42	» 22*
4) <i>Drusas.</i> (Secreciones):		
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) <i>Octaédrico</i> :		
Hierro magnético	» 35	
2) <i>Cúbico</i> :		
Galena	» 7	» 6*
3) <i>Romboédrico</i> :		
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) <i>Concoidal</i> : (factura del vidrio grueso) (Obsidiana).		
2) <i>Desigual</i> :		
Piritita de hierro	» 5	
Cuarzo	» 86	» 17*
3) <i>Llana</i> .		
Piedra Córnea.		
B) Según la calidad de de la superficie: <i>Lisa</i> :		
Piedra córnea y Calcedonia.		
2) <i>Astillosa</i> :		
Triplita	» 70	
3) <i>Erizada</i> :		
Oro, Plata, Cobre	» 2, 3, 4	» 2*, 3* y 4*
4) <i>Terrosa</i> :		
Hematita ocrácea	» 22	» 11*
Kaolina	» 94	» 37*

[pg 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) Ortoclase	» 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).

Feldespatos.	N ^o 91	N ^o 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) <i>Sectiles:</i> Chalcosina	» 9	
Talco	» 81	
3) <i>Maleables</i> (ductil): Oro, Plata, Cobre	» 2, 3, 4	» 2, 3, 4*
4) <i>Elásticos:</i> Mica	» 74	» 33*
5) <i>Flexibles</i> (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:

Feldespatos	» 91	» 35*
Berilo	» 88	

Mate:

Caolina	» 94	» 37*
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b) *Según calidad: Metálico:*

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

Diamantino: (Diamante)--*Vidrioso:*

Espato de cal	» 45	» 23*
Cuarzo (sobre las caras de los cristales)	» 26	» 16*

Grasoso: (ó resinoso): Cuarzo sobre los planos de de fractura) » 26 y 27 » 16 y 17*

Wolframita (sobre los planos de fractura) » 67 » 31*

Perlado: (nacarado).

Mica	» 74	» 33*
Crisotila	» 83	» 36*

Sedoso:

Wolastonita	» 85	
Aragonita	» 52	
Alumbre	» 65	
Boronatrocalcita	» 22	» 22*

DIAFANIDAD:

Transparente:

Espato de Islandia	» 45	» 23*
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Semi-transparente:

Cuarzo	» 26	» 16*
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Translúcido:

Onyx	» 49	» 26*
<i>Semi translúcido:</i>		
Feldespató	» 90	» 35*
<i>Opacos:</i>		
Oro, Plata, Pírita de hierro, etc.		

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

Cuarzo	» 26	» 16*
Sal común	» 40	» 20*
Espato de Islandia	» 45	» 23*
2) <i>Minerales con colores propios</i> (idiocromáticos) Oro, Plata, Cobre.		
Pírita de hierro	» 5	» 5*
Malaquita	» 56	» 28*
3) <i>Minerales con colores accidentales</i> (alocromáticos)		
Cuarzo rosado	» 29	» 17*
Onyx--Mármol	» 49	» 26*
Espato-Fluor	» 41	» 21*
Granate	» 72	» 34*
Feldespató	» 91	» 35*

COLORES METÁLICOS: *Blancos:*

Blanco de plata » 3 » 4*

(Blanco de estaño) *Amarillos:*

De oro » 2 » 2*

De bronce » 5 » 5*

De latón » 13 » 9*

Gris:

De plomo » 7 » 6*

Rojo:

De cobre » 4 » 3*

Negro:

De acero hasta negro de hierro

Enargita » 17 » 10*

Hematita » 20 » 12*

Pírolusita » 24 » 13*

COLORES NO METÁLICOS: *Blancos* (tipo blanco de nieve):

Yeso N° 60 N° 29* y 30*

Caliza » 46 y 47 » 24* y 25*

Wolastonita » 85

Grises (tipo gris de ceniza):

Tierra de infusorios » 33

Negros (tipo negro de terciopelo):

Turmalina » 76 » 32*

Carbón de piedra » 97 » 38*

Azules (tipo azul de Prusia):

Azurita » 58 » 28*

Verdes (tipo verde de esmeralda):

Malaquita » 56 » 28*

Onix-mármol » 49 » 26*

Crisocola » 79

Apatita » 69

Epídota » 77 y 78

Serpentina » 82

Amarillos (tipo amarillo de limón).

Azufre » 1 » 1*

Ocre de hierro » 39 » 15*

Rojos (tipo rojo-carmesí):

Hematita ocrácea » 22 » 11*

Cuarzo rosado » 29 » 17*

Pardos (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*
Feldespató	» 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 MÚLTIPLES (por agregación):

Espato fluor » 41 » 21*

COLORES SUPERFICIALES (abigarrados, en mayor parte debido á una descomposición química):

Pirita de cobre » 13, »
14 9*

IRISACIÓN:

Espato de Islandia.

FOSFORESCENCIA:

Cuarzo, Espato fluor, etc.

DOBLE REFRACCIÓN:

Espato de Islandia. etc.

ELECTRICIDAD:

Azufre, Cuarzo, Espato calizo, Mica, Turmalina.

[pg 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, Feldespato.

3,0 .. 3,5 Espato Fluor, Turmalina.

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.

[pg 015] III. CARACTERES FISIOLÓGICOS

1) Por frotamiento emite olor á azufre:

Pirita de hierro » 5 » 5*

2) Cuando se le echa el aliento emite olor terroso:

Kaolina y tierras » 94 » 37*

3) Se pega á la lengua:

Kaolina y tierras » 94 » 37*

4) Untuoso al tacto;

Talco » 81

5) Sabor salino:

Sal común » 40 » 20*

6) Sabor salino amargo:

Sulfato de magnesio » 66

7) Sabor metálico:

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.

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*, *Feldespatos*.

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

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.

Acido fluorhídrico: Espato fluor.

Acido sulfúrico: Yeso.

Acido fosórico: Apatita.

Acido carbónico: Espato de cal, Cerusita.

Acido sílico: *Serpentina*, *Feldespatos*, *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.

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	(dentro de grietas que cruzan el mármol.
	44,	(dentro de
	etc.	cavernas en caliza).
Estalactitas	»	(en agua
	47	bajo la acción de plantas).
Travertina	»	(en
	48	aguas calientes)
Onyx-Mármol	»	
	49	

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	Nº 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) <i>Minerales formados en una masa fusión (rocas eruptivas)</i>	
Feldespato en granito	» 91
Cuarzo	» 28
Mica en granito	» 74
Anfibol	» 86
E) <i>Minerales en filones metálicos, como: Galena, Pirita de hierro, Blenda, etc., formados:</i>	
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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