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de las Colecciones  
Mineralógicas by E. Hermitté and G. Bodenbender

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ralógicas

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\*\*\*START OF THE PROJECT GUTENBERG EBOOK CATÁLOGO I  
NSTRUCTIVO DE LAS COLECCIONES MINERALÓGICAS\*\*\*

REPÚBLICA ARGENTINA

MINISTERIO DE AGRICULTURA  
DIVISIÓN DE MINAS, GEOLOGÍA É HIDR

OLOGÍA

Catálogo Instructivo de las Colecciones Mineralógicas

ESCOLARES

E. HERMITTÉ - Jefe de la División

G. Bodenbender - Jefe de la Sección Geología

BUENOS AIRES

Talleres de publicaciones de la Oficina Meteorológica

1905

I. CARACTERES MORFOLÓGICOS

CRISTALES--(suelos ó en agregados).

Cubo de Pirita de hierro	No 5a	No 5a*
Deltoedro del Analcima	» 92	
Dodecaedro rómbico, Deltoedro ó combinación de los dos (Granate)	» 72	» 34* y 34a*
Pirámide hexagonal del Cuarzo	» 26a	
Pirámide hexagonal con prisma del Cuarzo	» 26	» 16*

Romboedro del	» 43	» 23* y 24*
Espato calizo		
Escalenoedro del	» 44	
Espato calizo		
Cristales rómbicos	» 64	
(prisma con pinacoide) de la Baritina		
Prisma monoclinico	» 59	
con hemipirámide (incompleta) del Yeso		
Prisma monoclinico	» 90	
del Feldespato		

NOTA.--Los números con estrella se refieren á la co-  
lección escolar  
primaria, los otros á la colección escolar secundar-  
ia.

#### 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*

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

#### FORMAS EXTERIORES DE LOS AGREGADOS.

1) _Estalactitas_	» 47	
2) _Alambres y chapas_:		
Oro, Plata, Cobre	» 2, 3, 4	» 2*, 3*, y 4*
3) _Concreciones_:		
Tosca	» 51	» 44*
Boronatrocalcita	» 42	» 22*
4) _Drusas_. (Secreciones):		
Espato de cal	» 43	
Analcima	» 92	
5) _Costras, revestimientos, pegaduras_:		
Azurita	» 58	» 28*
Descloizita	» 71	
6)		
_Eflorescencias_:		
Alumbre	» 65	
Sulfato de magnesio	» 66	
7) _Embutidas_:		
Granate en feldespato, etc.	» 73	

Hierro cromífero	»	36	
en Serpentina			
8) _Vetas ó	»	19	
filones_.			
(Agregados de			
orden superior)			
Galena, blenda,			
etc., con cuarzo ó			
espato de hierro,			
etc.			
FÓSILES.--(Formas			
orgánicas)			
Plantas fósiles	»	100	» 50*
(carbonizadas)			
Madera fósil	»	34	» 18*
silicificada			
Animales fósiles	»	99	» 49*
SEUDOMORFISMO.			
(Epigenias):			
Hierro pardo en	»	6	
cubos, por			
descomposición de			
pirita de hierro			
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) \_Prismático:\_

Antimonita » 12

Enargita » 17

B) Según el grado  
de perfección:

1) \_Sumamente

perfecto\_:

Mica » 74 » 33\*

2) \_Muy perfecto\_:

Galena » 7 y 8 » 6\*

Espato de cal » 45 y 46 » 23\* y 24\*

3) \_Imperfecto ó

muy imperfecto.\_

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\*

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 sí 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:_	» 9	
Chalcosina		
Talco	» 81	
3) _Maleables_	» 2, 3, 4	» 2, 3, 4*
(ductil): Oro,		
Plata, Cobre		
4) _Elásticos:_	» 74	» 33*
Mica		
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	» 5	» 5*



etc.

\_Diamantino:\_  
(Diamente)--\_Vidrioso:\_

Espato de cal	» 45	» 23*
Cuarzo (sobre las caras de los cristales	» 26	» 16*
_Grasoso:_ (ó	» 26 y 27	» 16 y 17*

resinoso): Cuarzo sobre  
los planos de de  
fractura)

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*
--------------------	------	-------

\_Semi-transparente:\_

Cuarzo	» 26	» 16*
--------	------	-------

\_Translúcido:\_

Onyx	» 49	» 26*
------	------	-------

\_Semi translúcido:\_

Feldespatos	» 90	» 35*
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\_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*

2) \_Minerales con

colores\_ propios  
(idiocromáticos)

Oro, Plata, Cobre.

Pirita de hierro » 5 » 5\*

Malaquita » 56 » 28\*

3) \_Minerales con  
colores

accidentales\_  
(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\*

Pirolusita » 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

\_Grisés\_ (tipo

gris de ceniza):		
Tierra de	» 33	
infusorios		
_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*
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Espato fluor	» 4	» 21*
--------------	-----	-------

Turmalina	» 76	» 32*
-----------	------	-------

Feldespatos	» 91	» 35*
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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*
--------------	------	-------

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.

MAGNETISMO: Hierro      35      »      19\*  
magnético

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,

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.

### 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	» 66	
magnesio		
7) Sabor metálico:		
Vitriolo de cobre.		

#### IV. CARACTERES QUÍMICOS(1)

FUSIBILIDAD 1)  
Minerales  
facilmente  
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:  
Feldespató.  
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, Pírita 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  
nitríco, 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 silícico.

\_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.  
\_Ácido  
fluorhídrico:\_  
Espato fluor.  
\_Acido sulfúrico:\_  
Yeso.  
\_Acido fosórico:\_  
Apatita.  
\_Acido carbónico:\_  
Espato de cal,  
Cerusita.  
\_Acido sílicico:  
Serpentina,  
Feldespató,  
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:\_  
Feldespató.

## 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	» 27

cristalizado

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

Espato calizo as	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;  
 par 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) \_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)

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

## CREDITS

December 22, 2006

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