Visita ao Museu de Geociências

O Museu de Geociências foi iniciado em 1934 pelo professor Ettore Onorato. O museu possui cerca de 5 mil peças entre minerais, rochas, meteoritos, gemas lapidadas e em estado natural. A maior parte proveniente do Brasil através de doações, trocas e aquisições feitas por alunos, professores e interessados por assuntos geológicos. Existem também peças vindas de várias partes do mundo.

NATIVE ELEMENTS

San Francisco's reggae favorite Native Elements (now in their 10th year as a cohesive unit) never fail to bring postivity and niceness to all of their music gatherings. As recording artist's they spin a curious fabric of luvers rock, roots and conscious dancehall wrapped cozily in a bright "frisco-pino" treatment. A family before anything else Native Elements strives to make their show a warm and inviting experience for all; young and old, blue and green and everything in between.

terry way photography 2002

NOW PLAYING

OUR STORY

LISTEN

TAKE HOME

TECH

CONTACT

MY SPACE

Sinopse dos minerais mais importantes da classe dos elementos

Metais				Semimetais				Não metais			
cobre	Cu	cúbico	*	bismuto	Bi	trigonal	*	grafita	C	hexagonal, trigonal	*
prata	Ag	cúbico	*	arsênio	As	trigonal	*	diamante	C	cúbico	*
ouro	Au	cúbico	*	antimônio	Sb	trigonal	*	enxofre	S	ortorrômbico	*
mercúrio	Hg	líquido	*								
ferro	Fe	cúbico	*								
platina	Pt	cúbico	*								

1.1.1 Grupo do ouro

F m3m 4/m 3 2/m

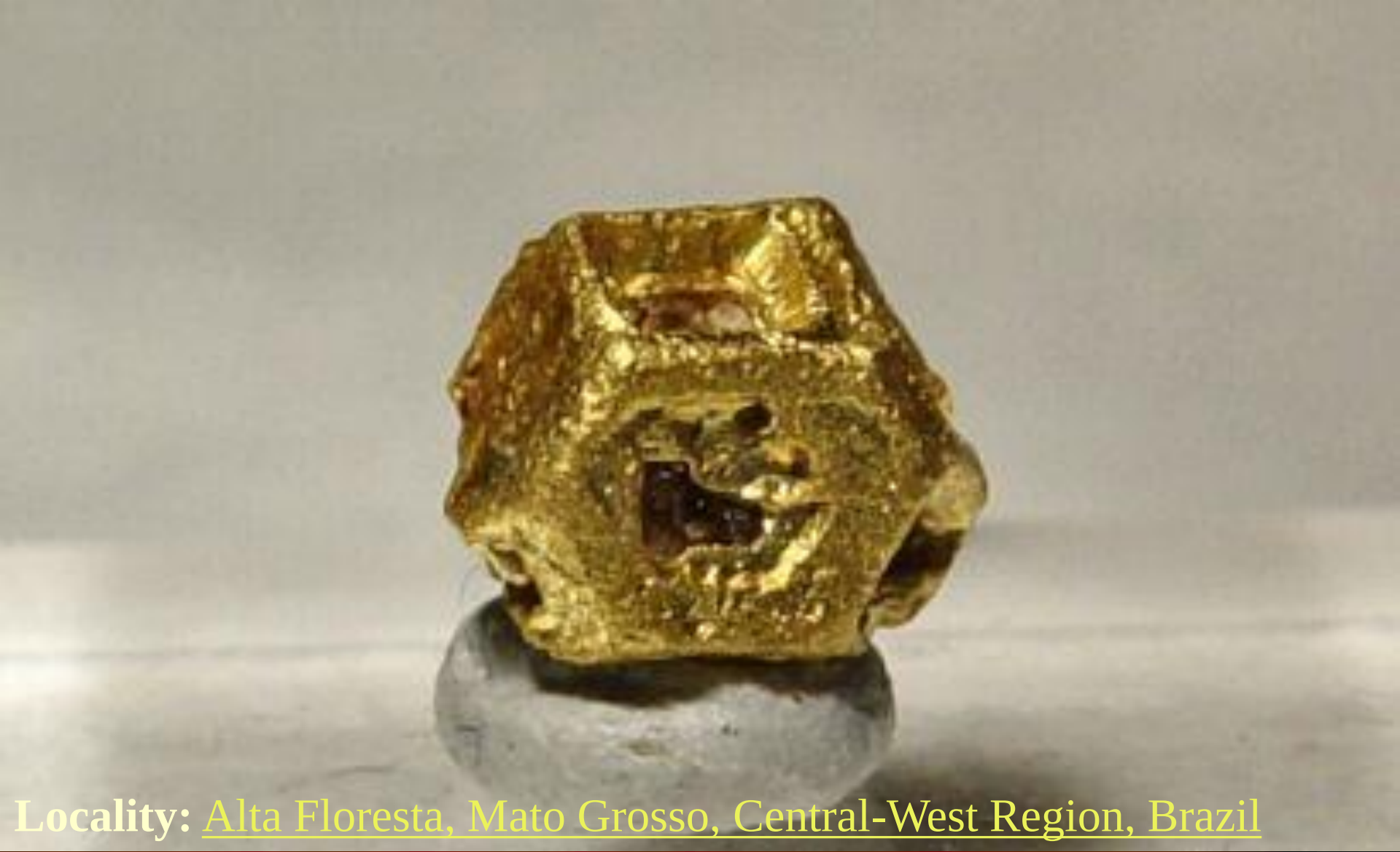
1.1.1.1 Ouro Au

1.1.1.2 Prata Ag

1.1.1.3 Cobre Cu

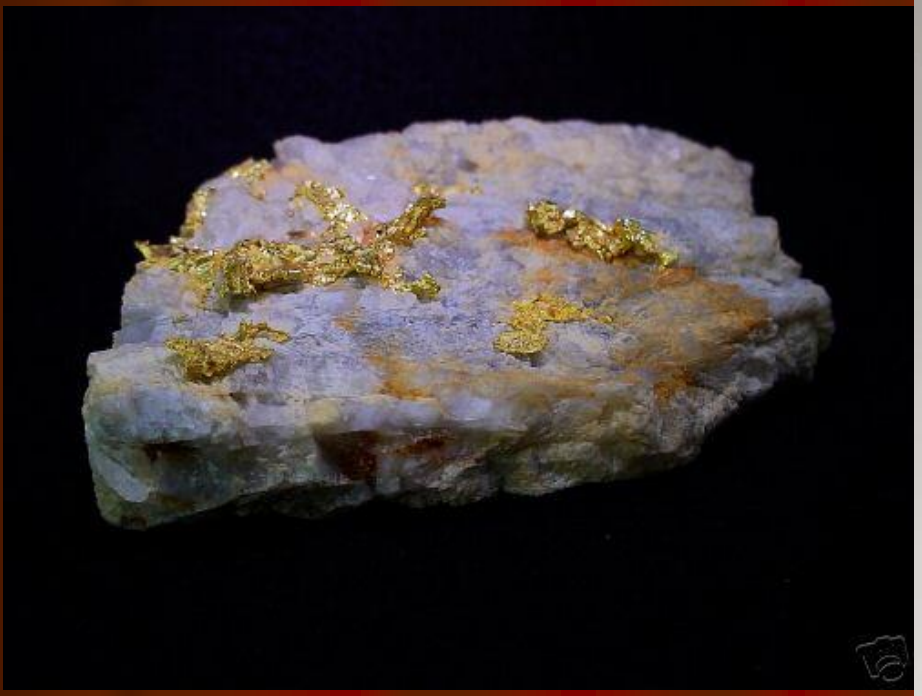
1.1.1.4 Chumbo Pb

1.1.1.5 Alumínio Al

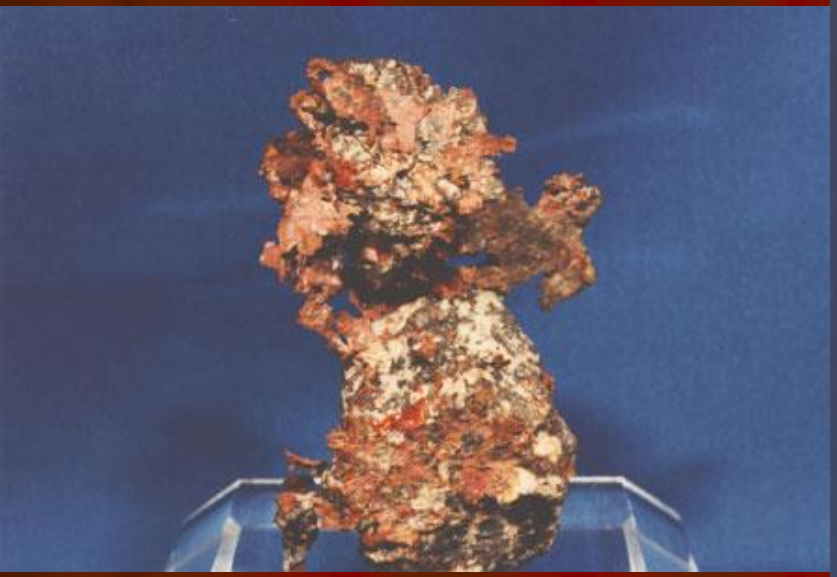


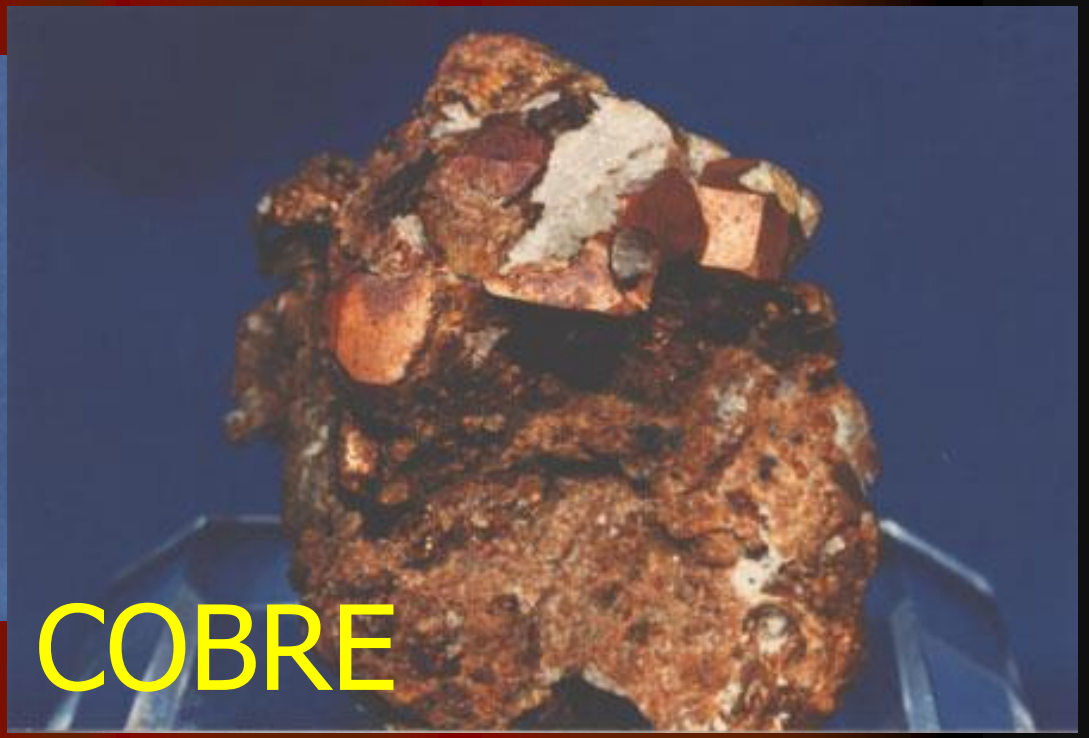
Locality: Alta Floresta, Mato Grosso, Central-West Region, Brazil

3.7 gram hoppered modified alluvial gold crystal measuring 9 x 7 mm.
Crystal shows cubic and dodecahedral faces.
Photograph by Edward Rosenzweig



PRATA





COBRE

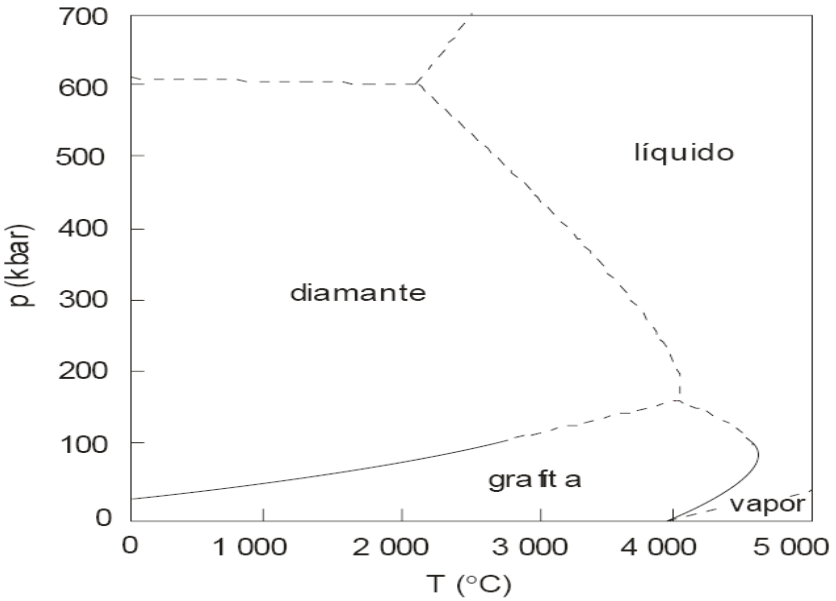


Fig.1.4: Diagrama de estado do carbono. As linhas cheias indicam fronteira de conhecimento garantido; as linhas tracejadas fronteiras aproximadas.

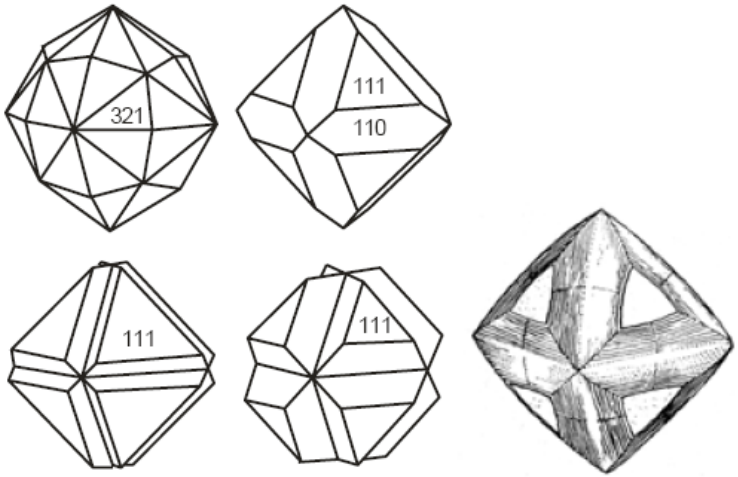


Figura 1.7: Diamante, exemplos da morfologia dos cristais. $4/m\bar{3}2/m$

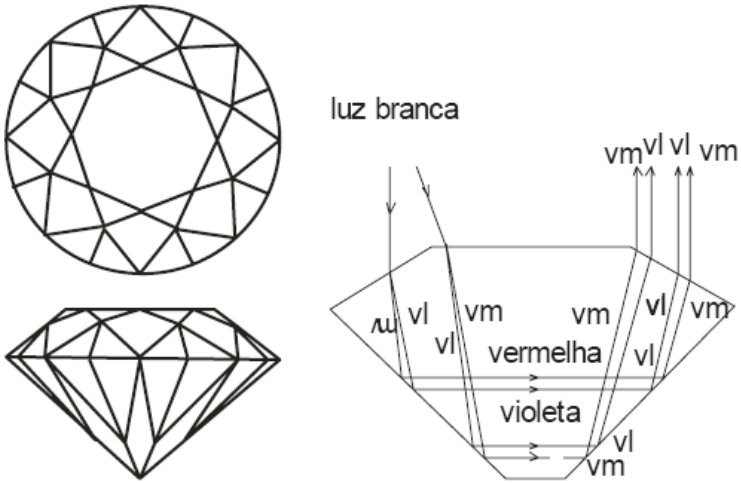
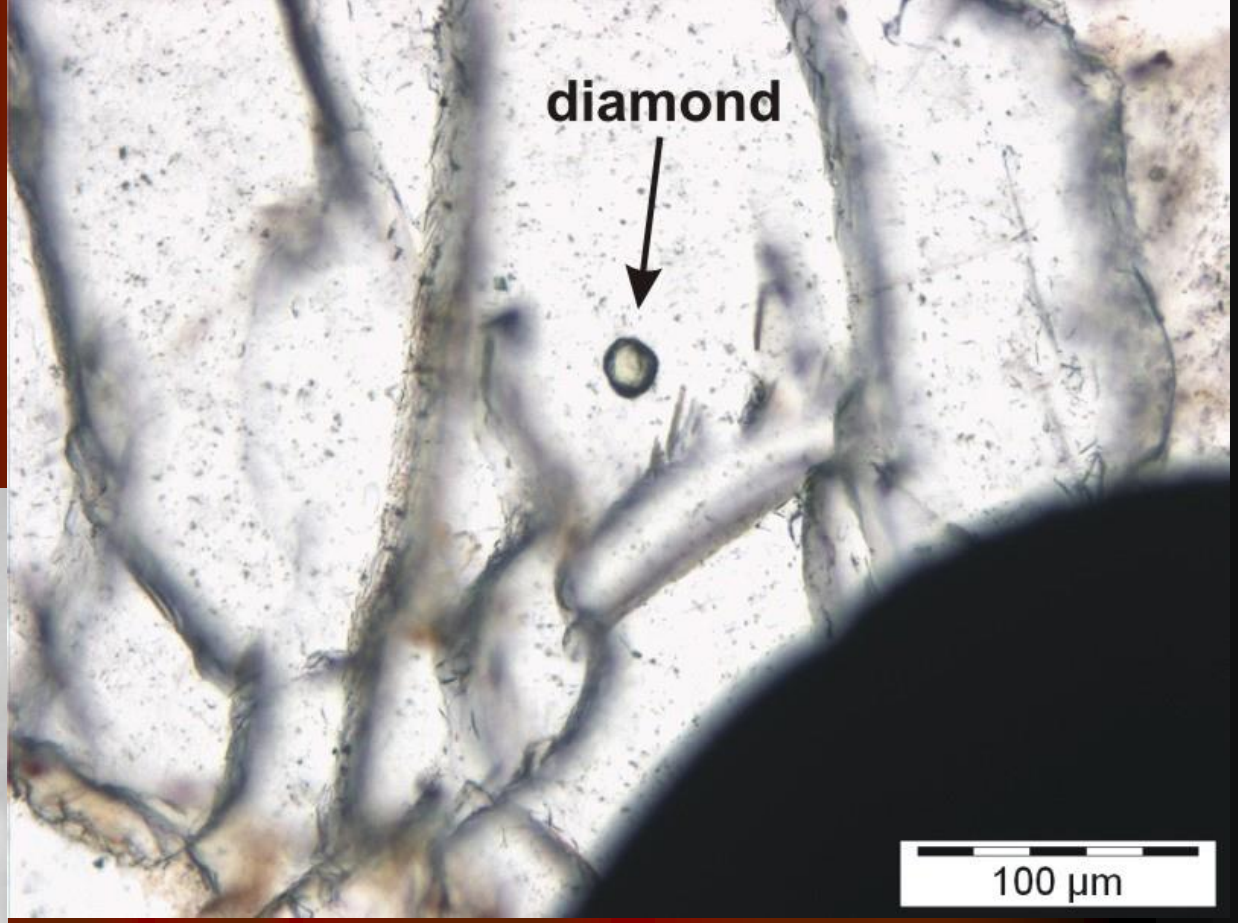


Fig.1.8: Brilhante, um dos formatos da lapidação e da dispersão da luz.


diamond
100 µm

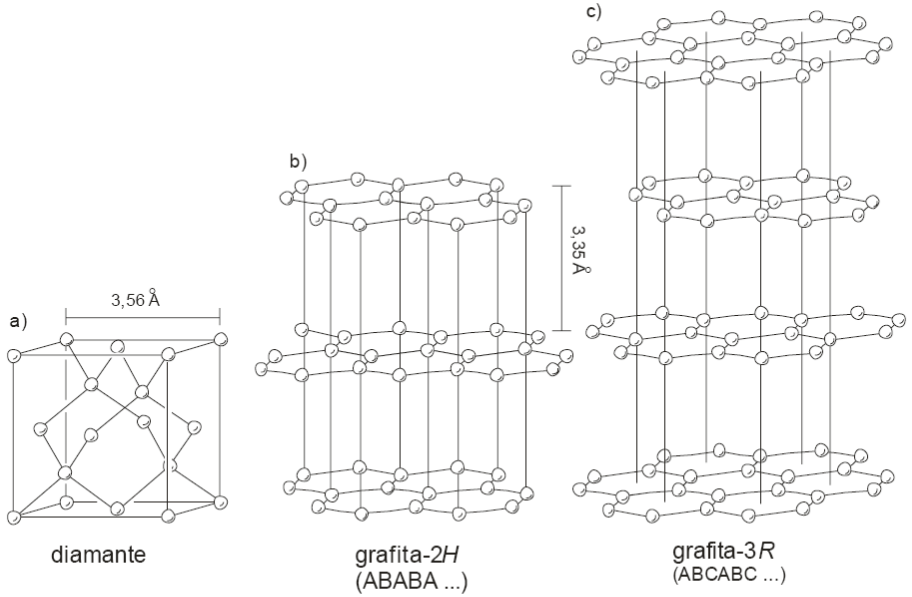


Fig.1.6: Estrutura do diamante (a), da grafita-2*H* (b) e da grafita-3*R* (c)

Sinopse dos sulfetos mais importantes e análogos

2.1 SULFETOS *M* : S > 1			
chalcosita	Cu_2S	monoclínico	**
bornita	Cu_5FeS_4	ortorrômbico	**
acantita	Ag_2S	monoclínico	*
pentlandita	$(Fe,Ni)_9S_8$	cúbico	*

2.2 SULFETOS *M* : S = 1			
esfalerita	ZnS	cúbico	**
wurtzita	ZnS	hexagonal	*
calcopirita	$CuFeS_2$	tetragonal	**
estanita	Cu_2FeSnS_4	tetragonal	*
cubanita	$CuFe_2S_3$	ortorrômbico	*
pirrotita	$Fe_{1-x}S$	monoclínico e hexagonal	**
troilita	FeS	hexagonal	*
millerita	NiS	trigonal	*
galena	PbS	cúbico	**
alabandina	MnS	cúbico	*
cinábrio	HgS	trigonal	**
metacinábrio	HgS	cúbico	*
covelita	CuS	hexagonal	*

2.3 SULFETOS *M* : S < 1			
siegenita	$(Co,Ni)_3S_4$	cúbico	*
antimonita	Sb_2S_3	ortorrômbico	**
bismutinita	Bi_2S_3	ortorrômbico	*
pirita	FeS_2	cúbico	***
marcassita	FeS_2	ortorrômbico	**
laurita	RuS_2	cúbico	*
molibdenita	MoS_2	hexagonal	**

2.4 SULFETOS (SULFOSAIS) COMPLEXOS			
tetraedrita	$Cu_{12}Sb_4S_{13}$	cúbico	**
tennantita	$Cu_{12}As_4S_{13}$	cúbico	*
freibergita	$Ag_{12}Sb_4S_{13}$	cúbico	*
enargita	Cu_3AsS_4	ortorrômbico	*
pirargirita	Ag_3SbS_3	trigonal	*
proustita	Ag_3AsS_3	trigonal	*
bournonita	$CuPbSbS_3$	ortorrômbico	*
boulangerita	$Pb_5Sb_4S_{11}$	ortorrômbico	*
jamesonita	$Pb_4FeSb_6S_{14}$	monoclínico	*
auripigment	As_2S_3	monoclínico	*
realgar	AsS	monoclínico.	*

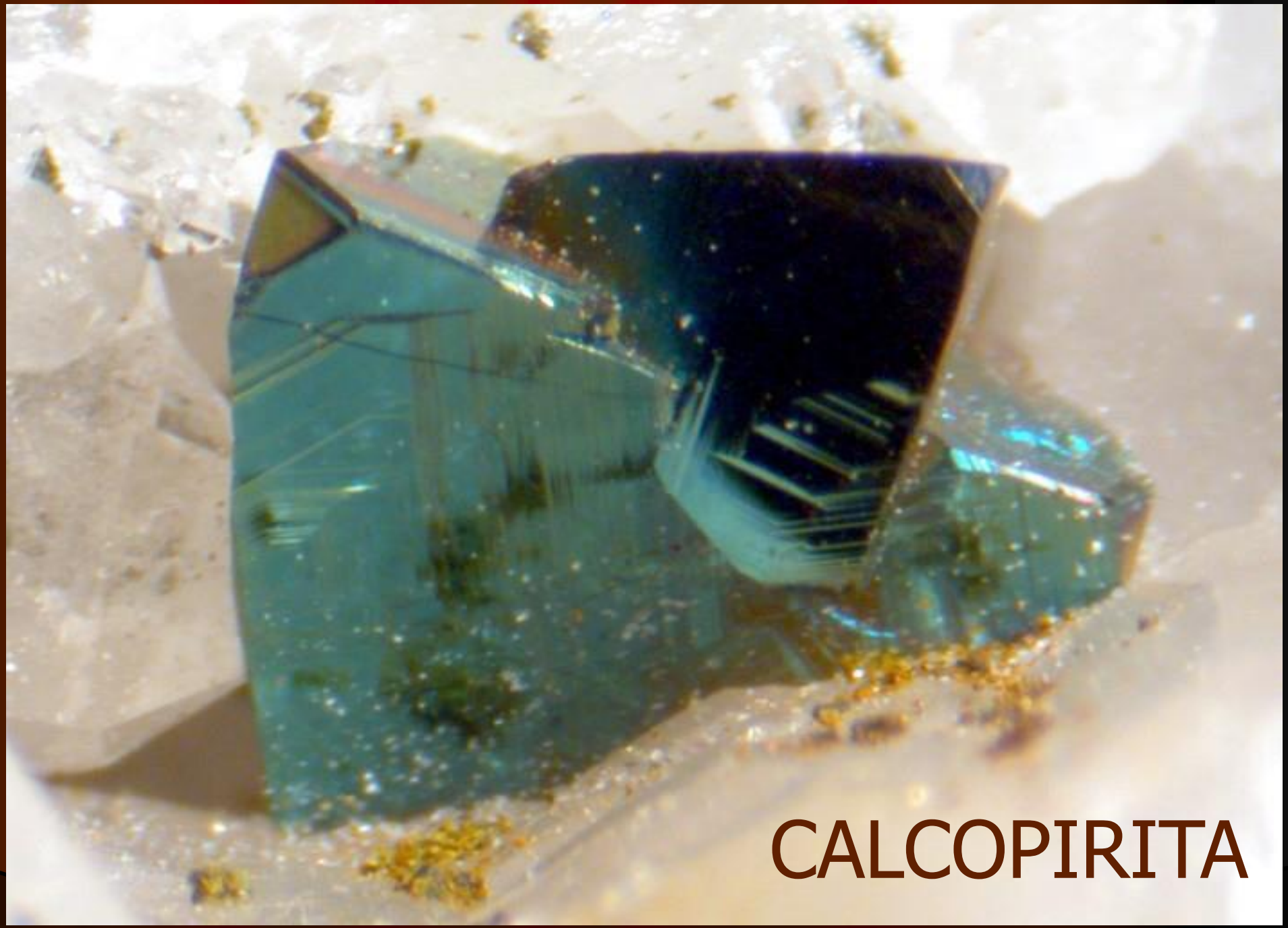
2.5 SULFOARSENETOS			
arsenopirita	FeAsS	triclínico ?	**
cobaltita	CoAsS	ortorrômbico	*
gersdorffita	NiAsS	cúbico	*

2.6 ARSENETOS			
niquelíta	NiAs	hexagonal	*
rammelsbergita	$NiAs_2$	ortorrômbico	*
löllingita	$FeAs_2$	ortorrômbico	*
safflorita	$CoAs_2$	monoclínico	*
skutterudita	$CoAs_3$	cúbico	*
sperrylita	$PtAs_2$	cúbico	*

2.7 SELENETOS	*

2.8 TELURETOS	*

ESFALERITA


CALCOPIRITA


GALENA
PbS

CINÁBRIO

PIRITA


MOLYBDENITE
MoS2
LAB

• tetraedrita	$Cu_{12}Sb_4S_{13}$	cúbica ($I\bar{4}3m$)
• tennantita	$Cu_{12}As_4S_{13}$	– " –
• freibergita	$Ag_{12}Sb_4S_{13}$	– " –

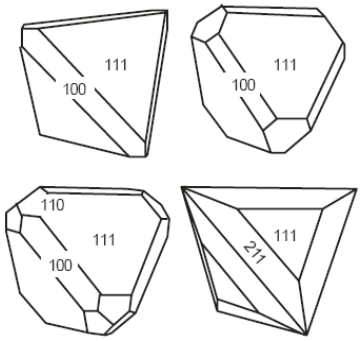


Fig.2.18: Tetraedrita ,exemplos da morfologia dos cristais $\bar{4}3m$

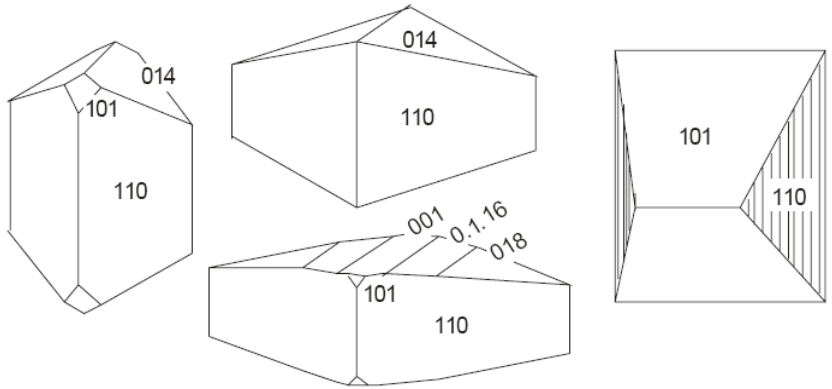
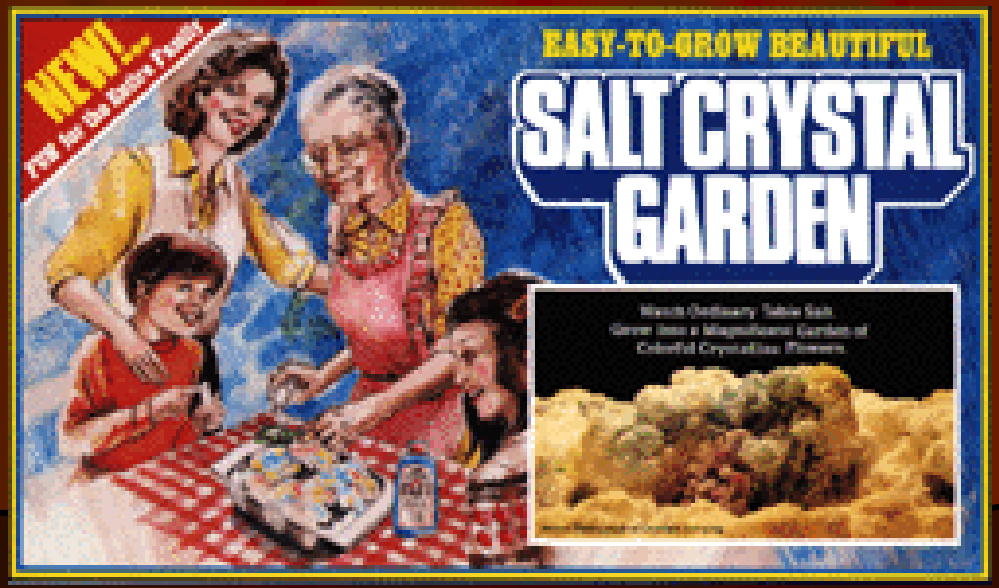
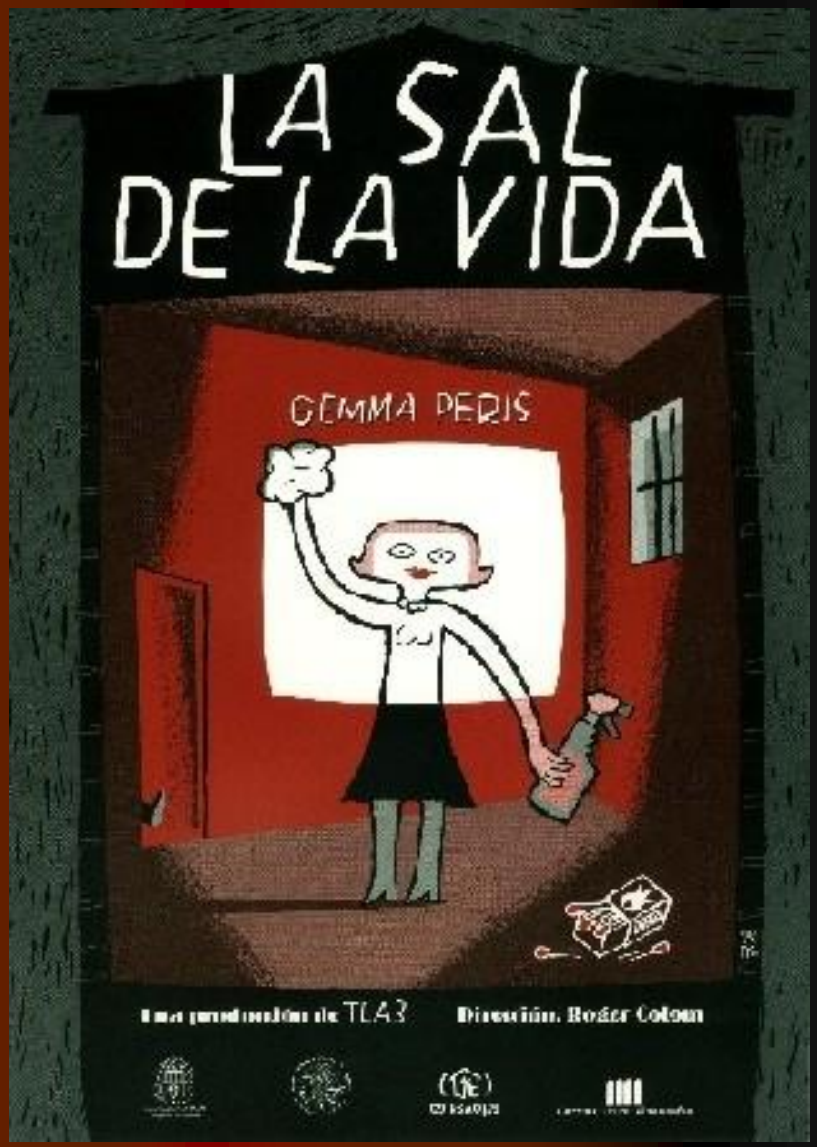


Fig.2.19: Arsenopirita ,exemplos da morfologia dos cristais.
Pseudos simetria 2/m 2/m 2/m


LA SAL DE LA VIDA
UXÍA
NA SALGADO
RASHA
PIMENTEL


NEW!
EASY-TO-GROW BEAUTIFUL
SALT CRYSTAL GARDEN


LA SAL DE LA VIDA
GEMMA PERIS


ICE CONTROL
HALITE
Halite 50lb Bag
40 per pallet


Melts Ice and Snow
Provides Instant Traction
Makes Shoveling Easier
Keeps Ice from Forming
Halite
ROCK SALT
Deicing Crystals
25

9.1 Anhydrous and Hydrated Halides where A X

9.1.1

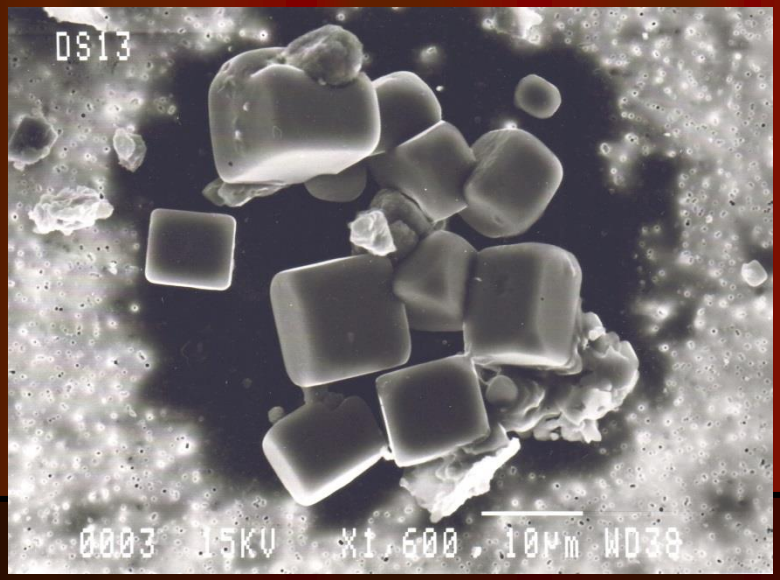
9.1.1.1 Halite NaCl F m3m 4/m $\bar{3}$ 2/m

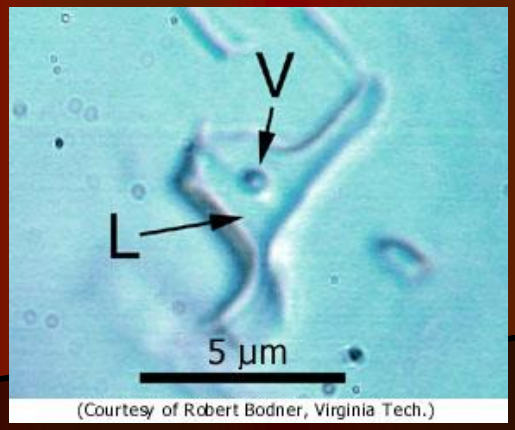
9.1.1.2 Sylvite KCl F m3m 4/m $\bar{3}$ 2/m

9.1.1.3 Villiaumite NaF F m3m 4/m $\bar{3}$ 2/m

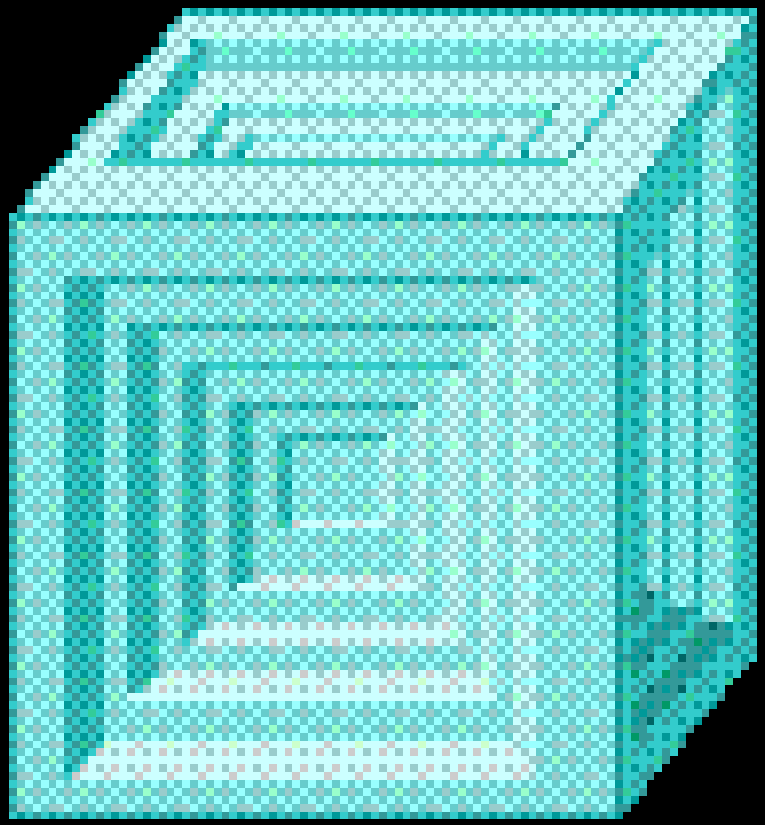
9.1.1.4 Carobbiite KF F m3m 4/m $\bar{3}$ 2/m

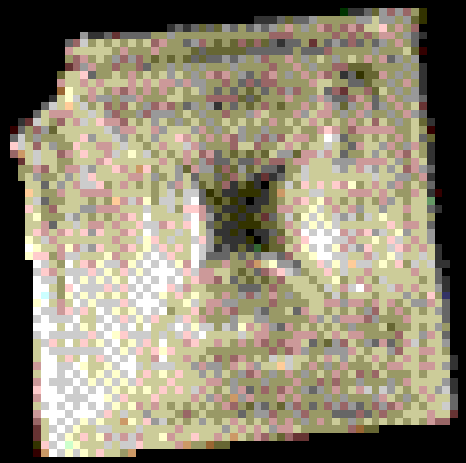
9.1.1.5 Griceite LiF F m3m 4/m $\bar{3}$ 2/m



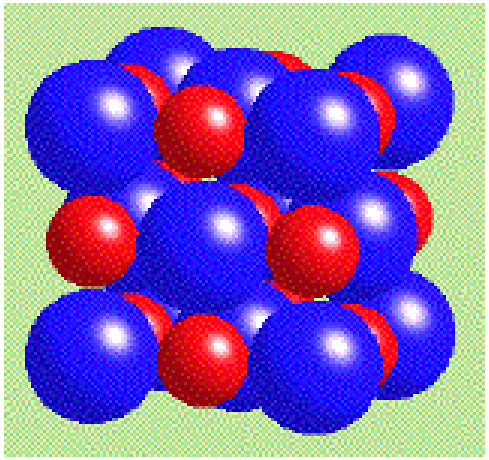


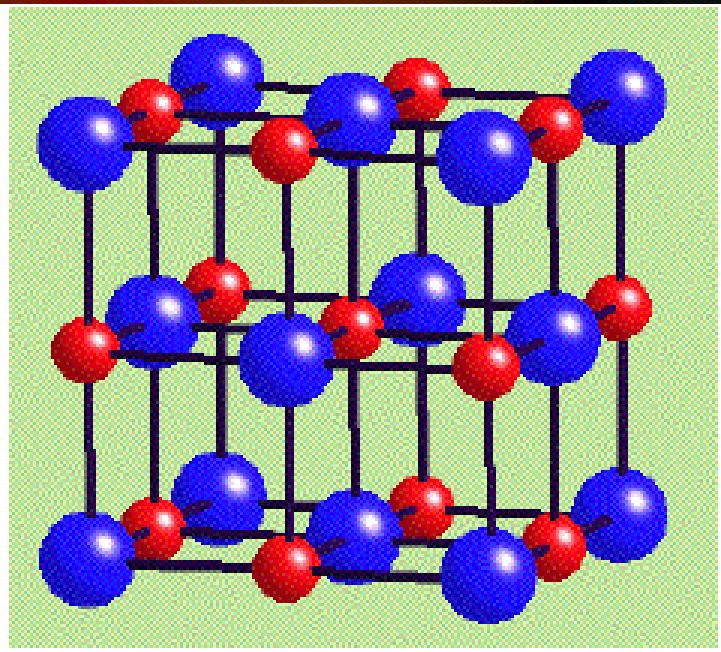
(Courtesy of Robert Bodner, Virginia Tech.)

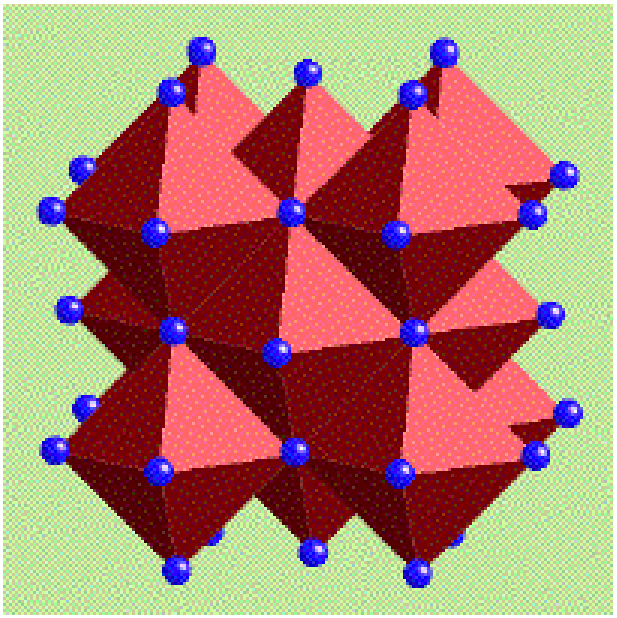


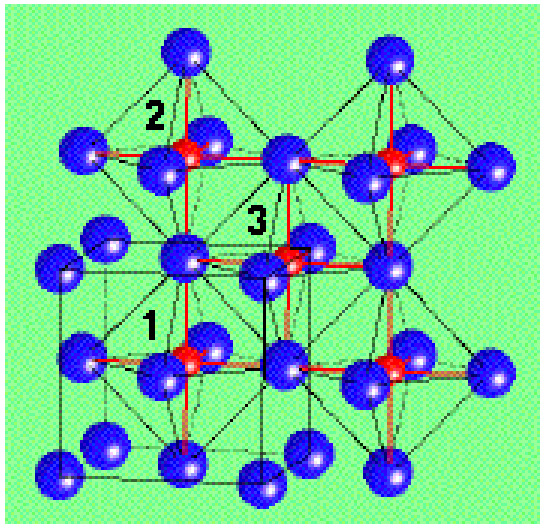


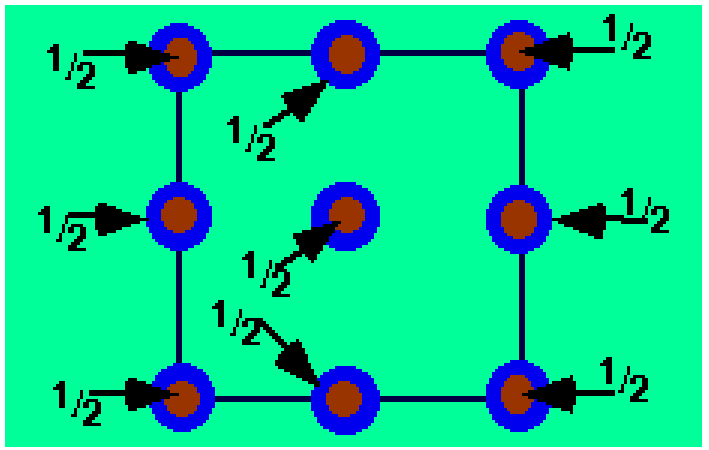
NaCl
Rock Salt
(*Halite*)









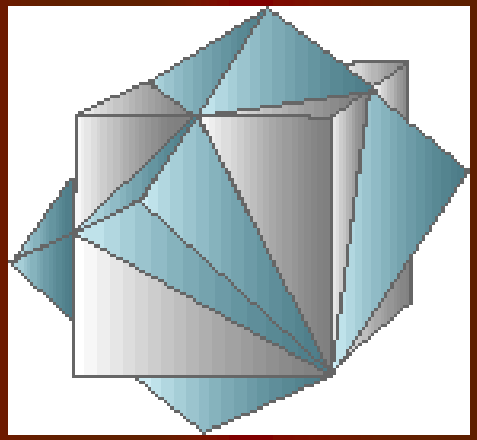


Sylvite

GROUP OF COMPANIES

9.2 Anhydrous and Hydrated Halides where A (X)2

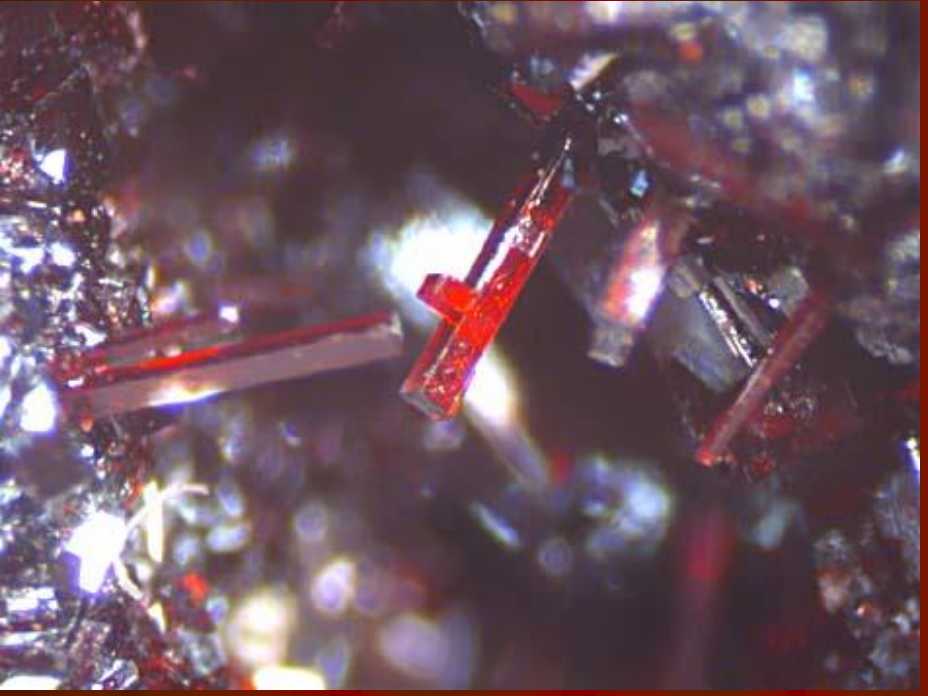
- 9.2.1
  - 9.2.1.1 Fluorite CaF2 F m3m 4/m $\bar{3}$ 2/m
  - 9.2.1.2 Frankdicksonite BaF2 F m3m 4/m $\bar{3}$ 2/m
  - 9.2.1.3 Tveitite-(Y) Ca1-xYxF2+x, x~0.3 Unk Mono
- 9.2.2
  - 9.2.2.1 Sellaite MgF2 P 4_1/mnm 4/m 2/m 2/m

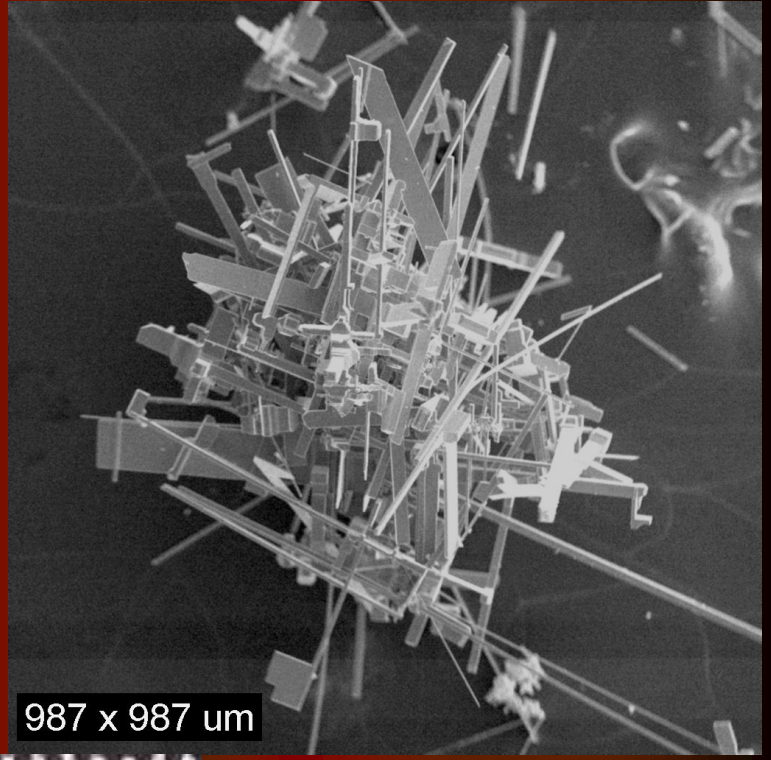


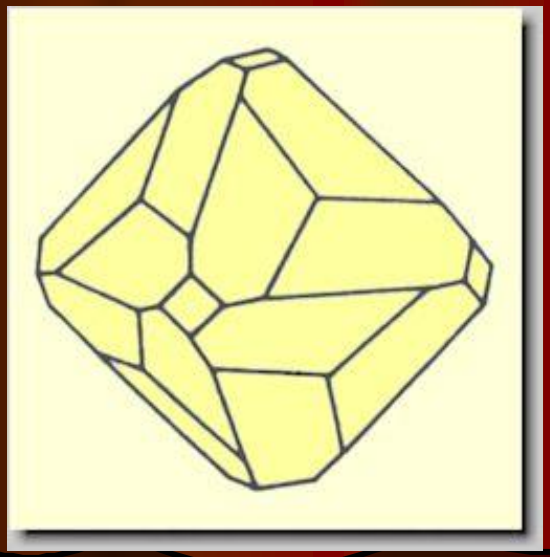
ÓXIDOS

4.1 Simple Oxides with a cation charge of 1+ (A+2 O)

4.1.1 4.1.1.1 Cuprite Cu2O P n3m 4/m 3 2/m
4.1.2 4.1.2.1 Ice H2O P 63/mmc 6/m 2/m 2/m

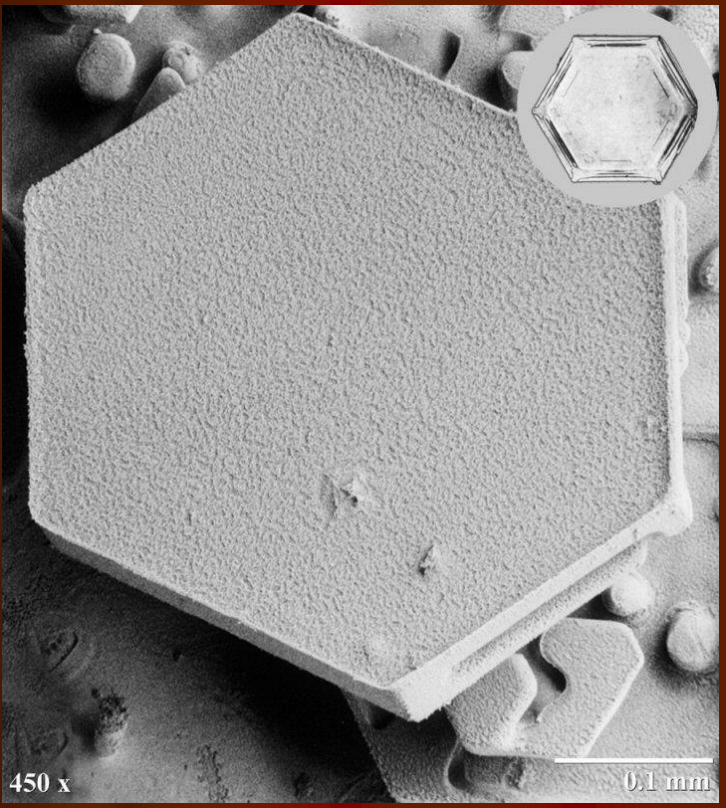


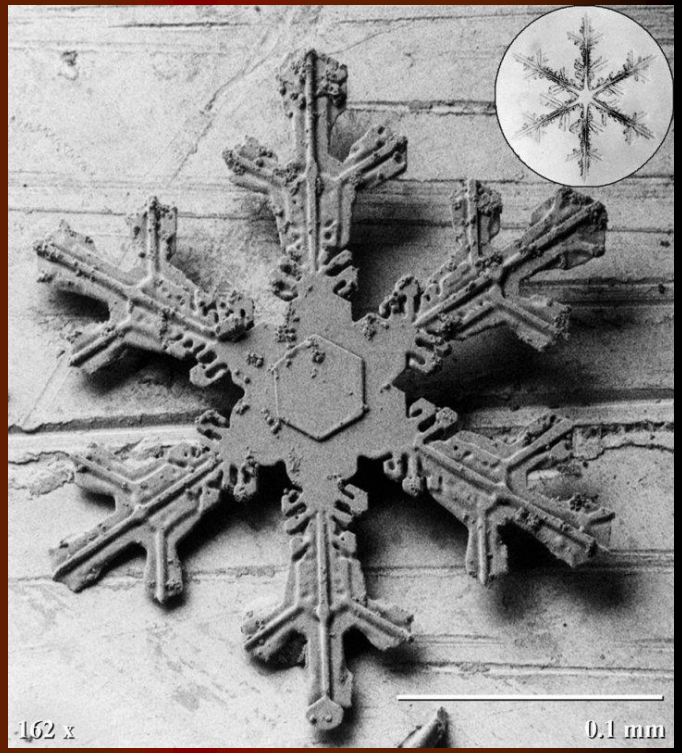

987 x 987 um

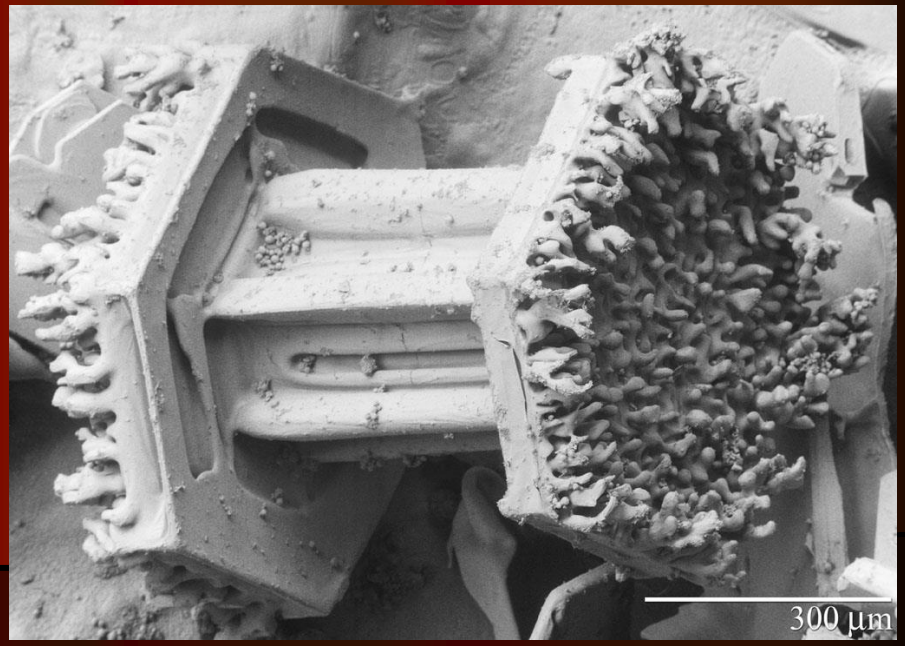



SWA
7c
Kuprit • Cuprite Cu2O
1989

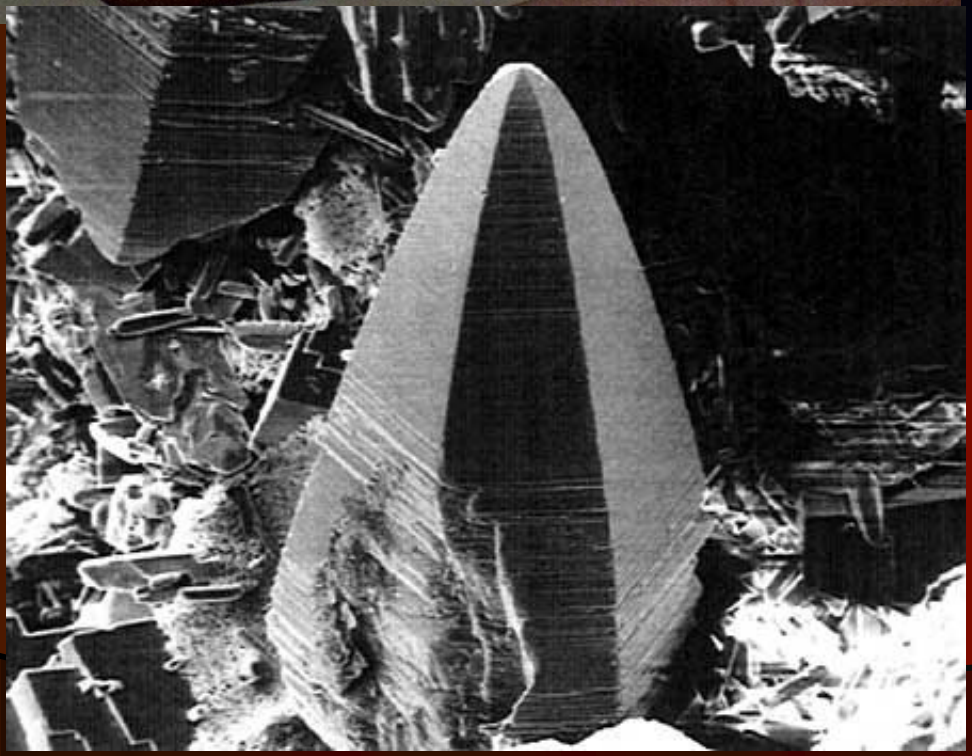

RUDABÁNYA
KUPRIT
MAGYAR POSTA
5 Ft


450 x
0.1 mm

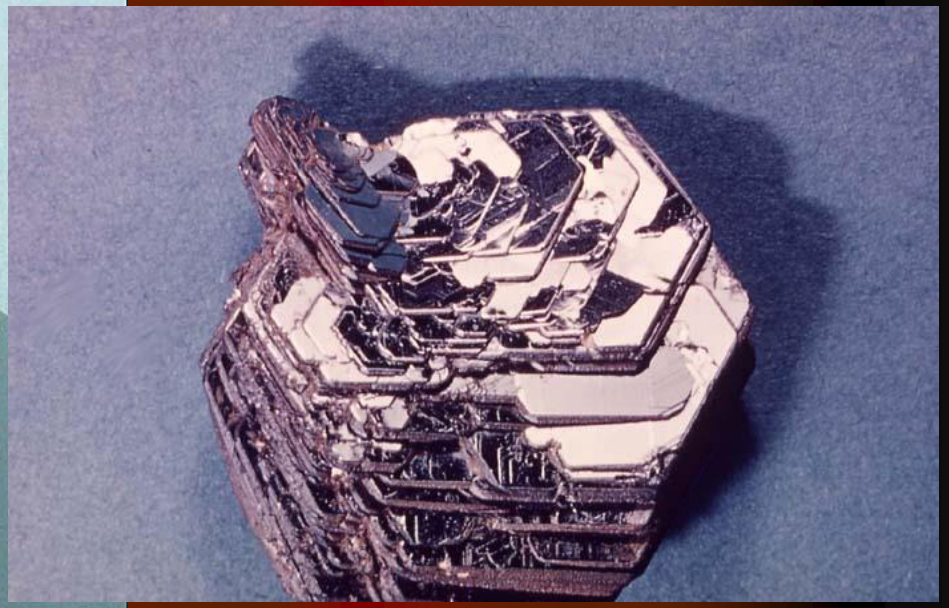

1.62 x
0.1 mm


300 µm

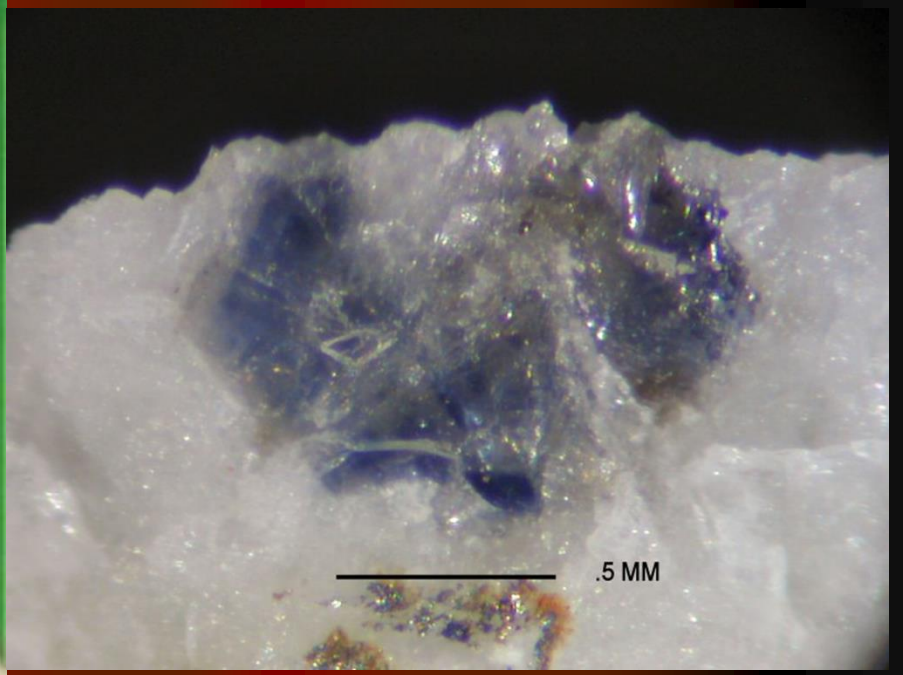

化鉱物
Zincite
紅亜鉛鉱
ZnO
Franklin 父 New Jersey

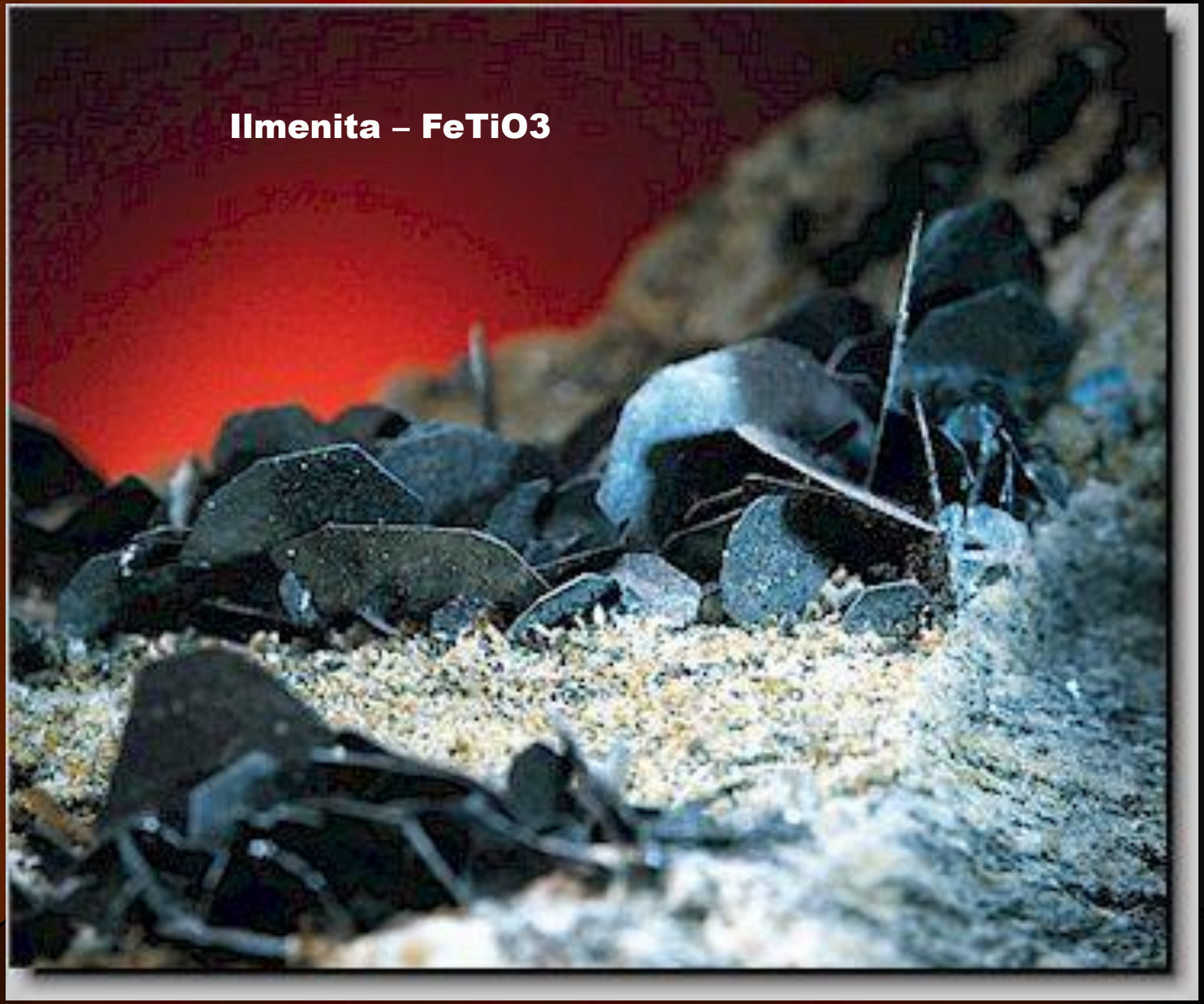


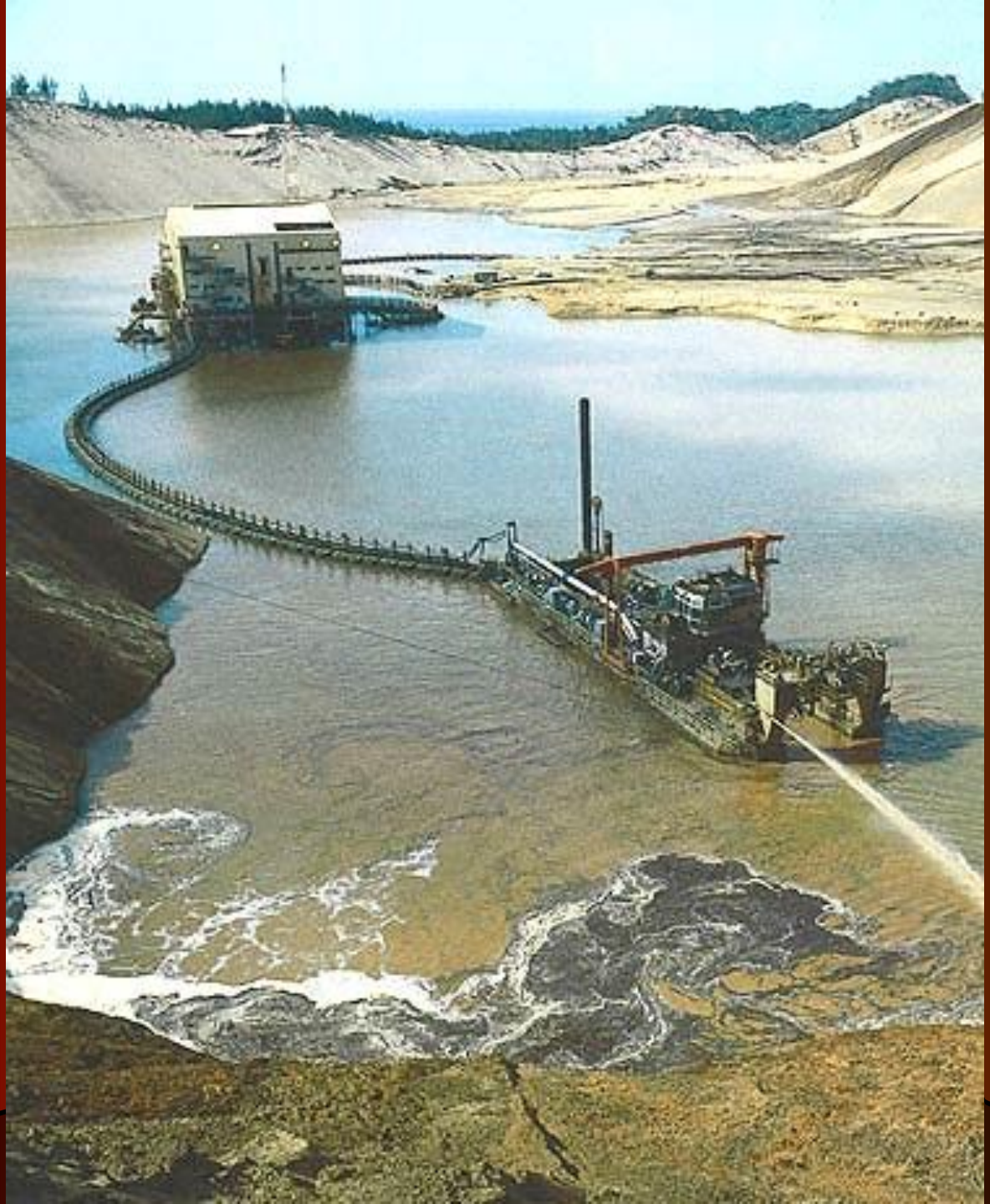
Hematita – Fe2O3



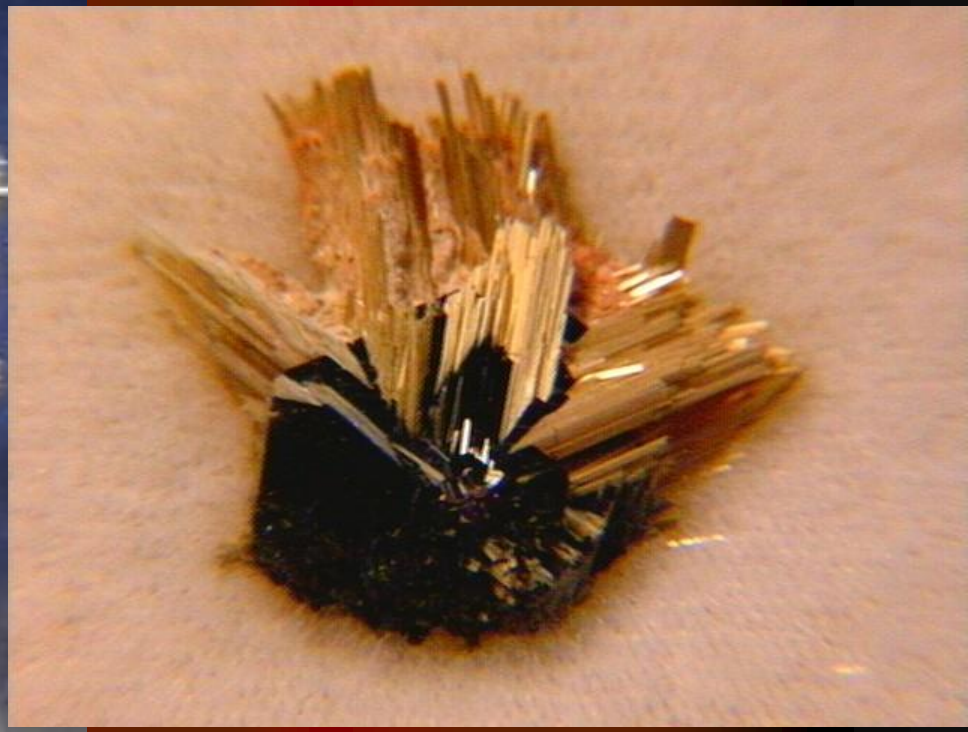
Coríndon – Al2O3




Ilmenita – FeTiO3

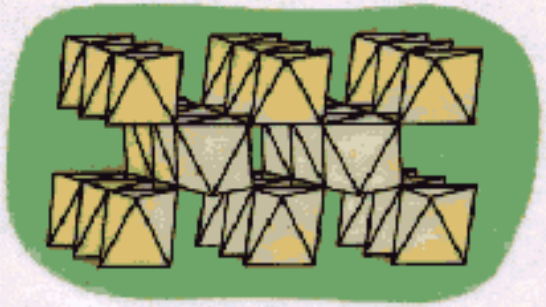


Rutilo – TiO2



PYROLUSITE

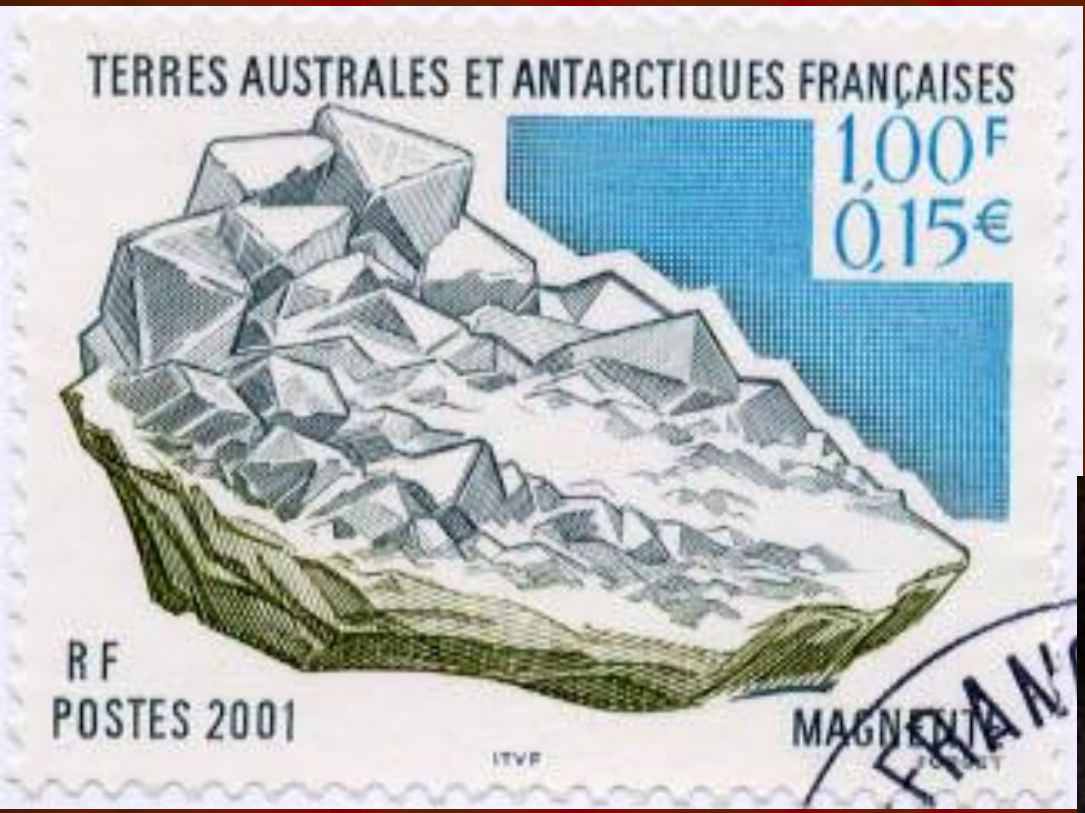
MnO_2

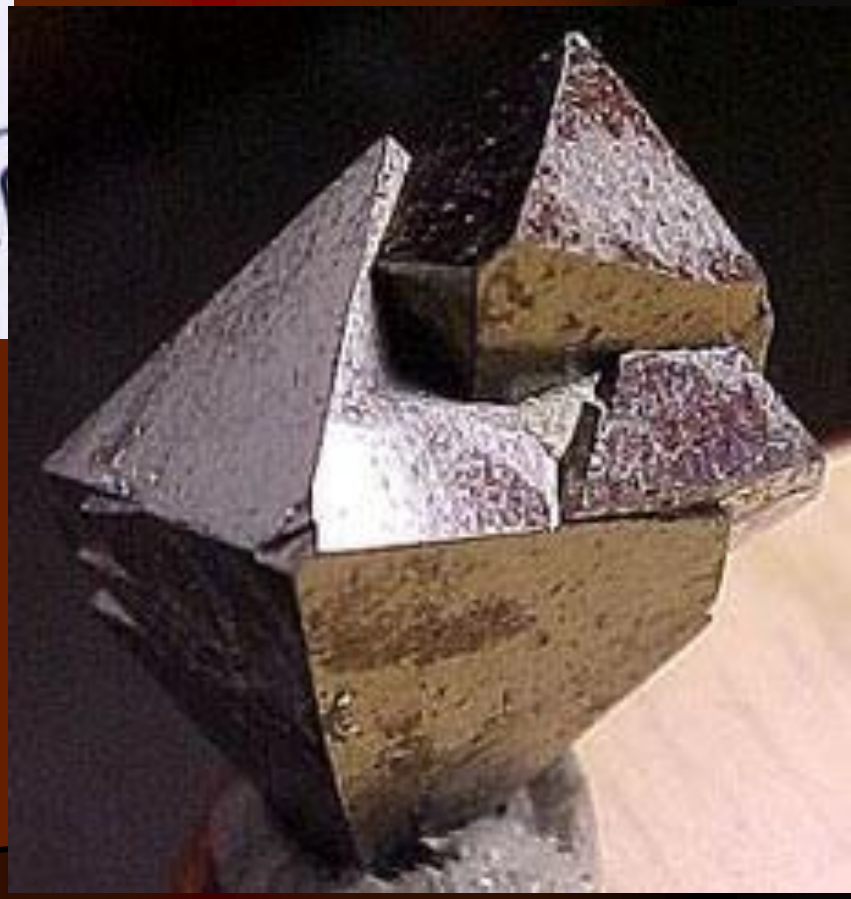


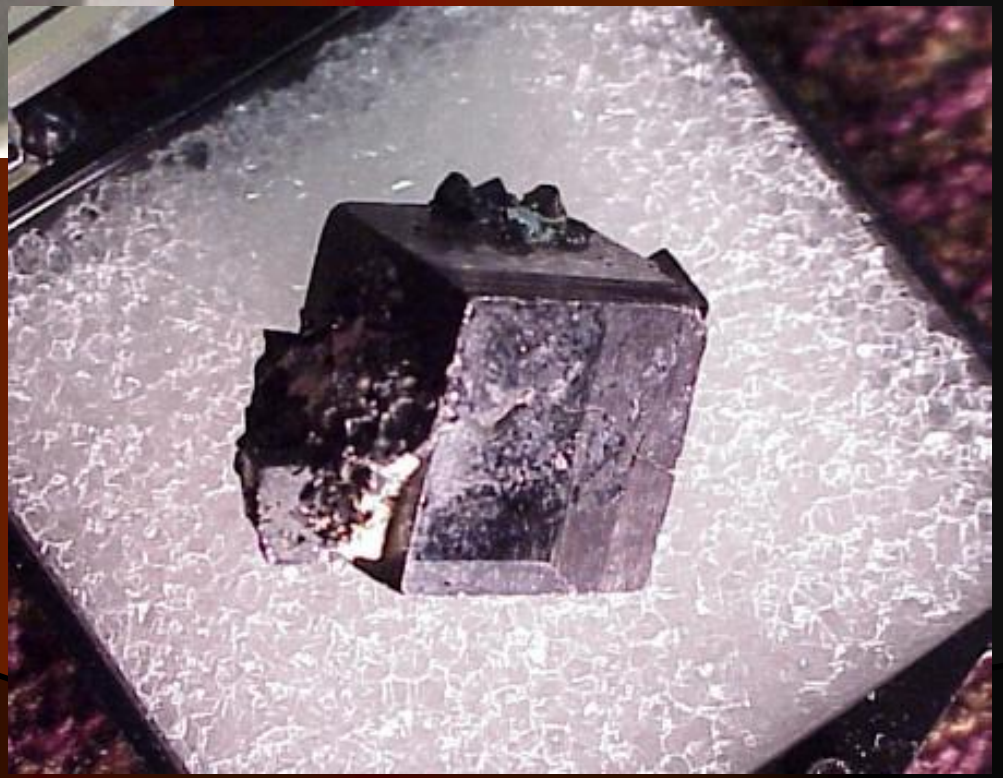

CASSITERITE
SnO2
2.85ct $171

URANINITA

Espinélio - $MgAl_2O_4$


TERRES AUSTRALES ET ANTARCTIQUES FRANÇAISES
1,00 F
0,15 €
RF
POSTES 2001



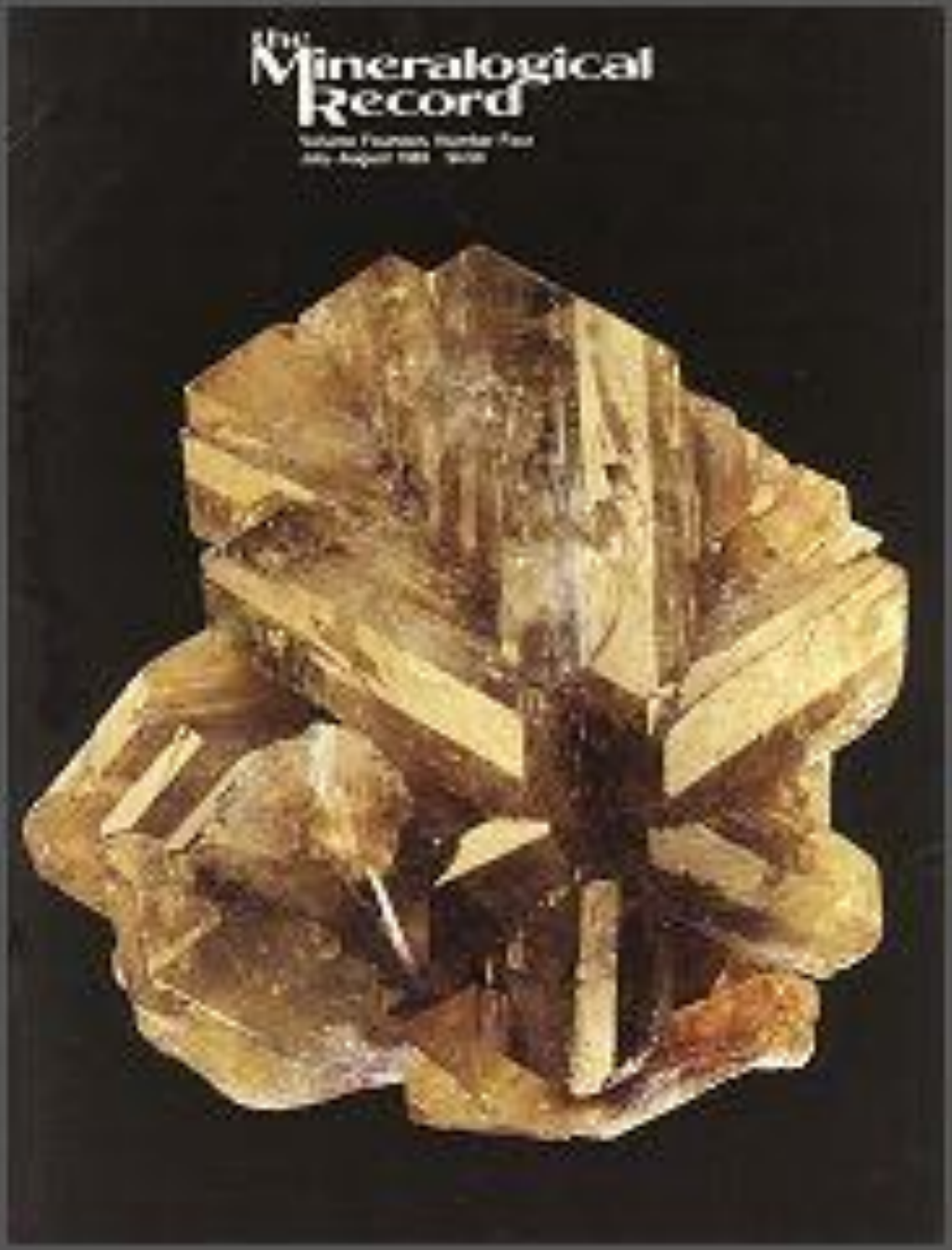


Chromite

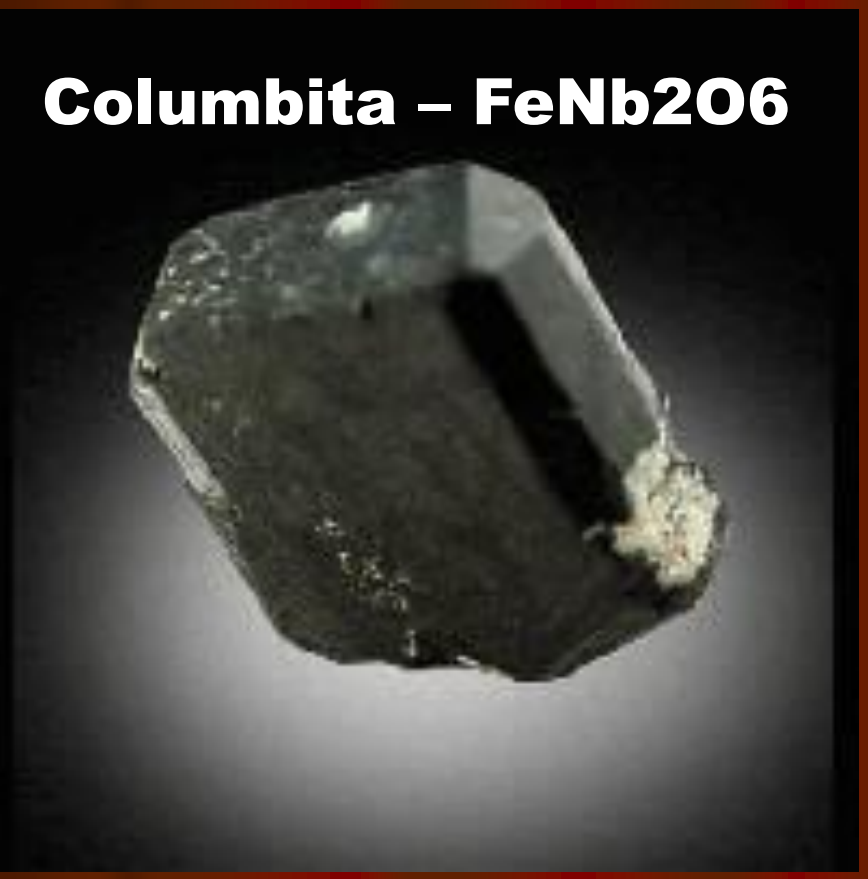

CHRYSOBERYL
BeAl2O3
1.15ct $115


CAT'S EYE
1·15


CHRYSOBERYL
Fazenda Santa
Isabel, Espirito
Brazil
95.00

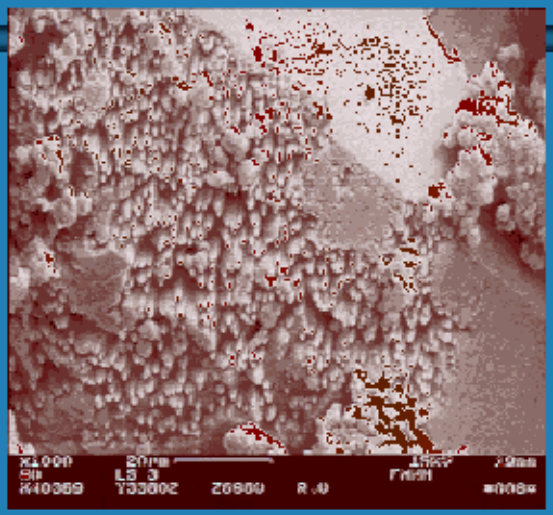

The Mineralogical Record

Columbita – $FeNb_2O_6$



Carbonates

- sparry calcite
- micrite mud



14.1 Anhydrous Carbonates with Simple Formula A+ CO_3

14.1.1 Calcite Group (Trigonal: $R\bar{3}c$)

14.1.1.1 Calcite $CaCO_3$ $R\ \bar{3}c\ \bar{3}\ 2/m$

14.1.1.2 Magnesite $MgCO_3$ $R\ \bar{3}c\ \bar{3}\ 2/m$

14.1.1.3 Siderite $Fe^{++}CO_3$ $R\ \bar{3}c\ \bar{3}\ 2/m$

14.1.1.4 Rhodochrosite $MnCO_3$ $R\ \bar{3}c\ \bar{3}\ 2/m$

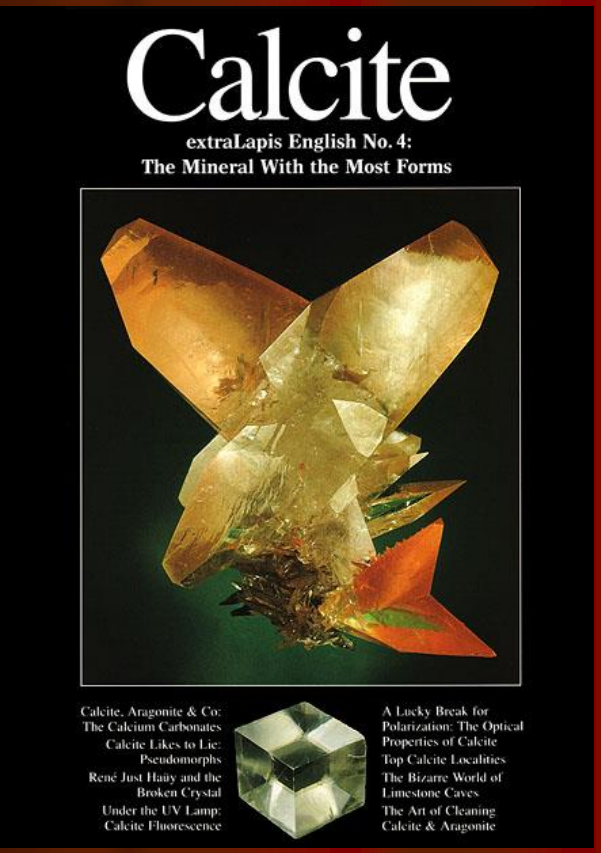
14.1.1.5 Sphaerocobaltite $CoCO_3$ $R\ \bar{3}c\ \bar{3}\ 2/m$

14.1.1.6 Smithsonite $ZnCO_3$ $R\ \bar{3}c\ \bar{3}\ 2/m$

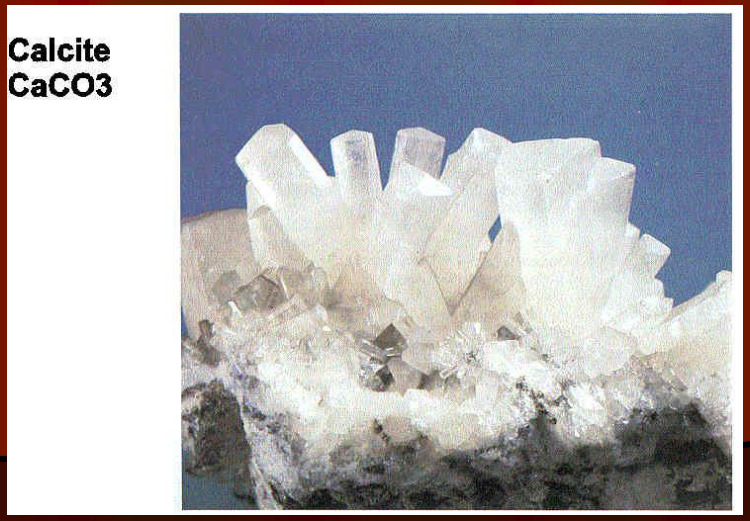
14.1.1.7 Otavite $CdCO_3$ $R\ \bar{3}c\ \bar{3}\ 2/m$

14.1.1.8 Gaspeite $(Ni,Mg,Fe^{++})CO_3$ $R\ \bar{3}c\ \bar{3}\ 2/m$

14.1.2

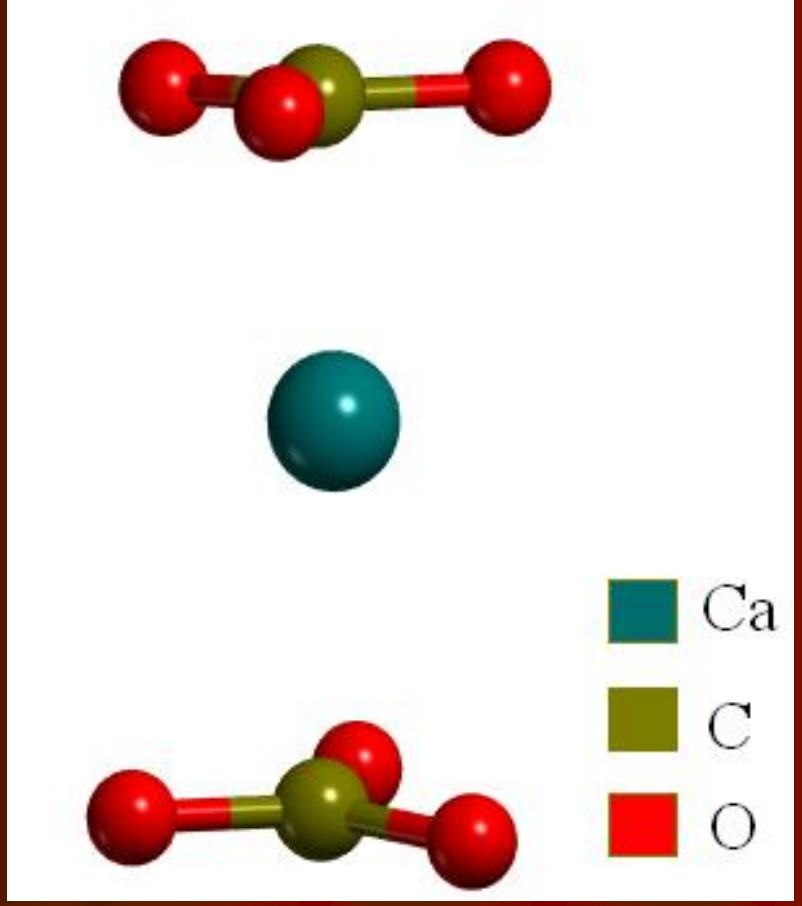

Calcite
extraLapis English No. 4:
The Mineral With the Most Forms
Calcite, Aragonite & Co: The Calcium Carbonates
Calcite Likes to Lie: Pseudomorphs
René Just Haüy and the Broken Crystal
Under the UV Lamp: Calcite Fluorescence
A Lucky Break for Polarization: The Optical Properties of Calcite
Top Calcite Localities
The Bizarre World of Limestone Caves
The Art of Cleaning Calcite & Aragonite

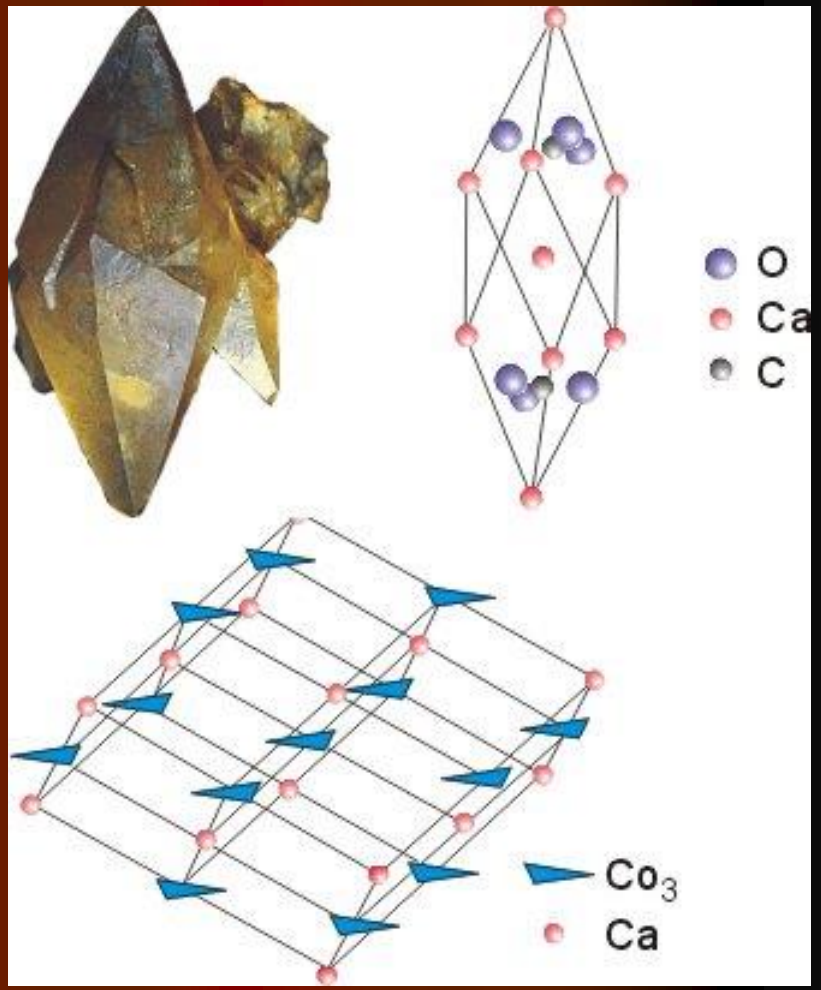

CaCO3
BELGIË-BELGIQUE 0,49


Calcite
CaCO3

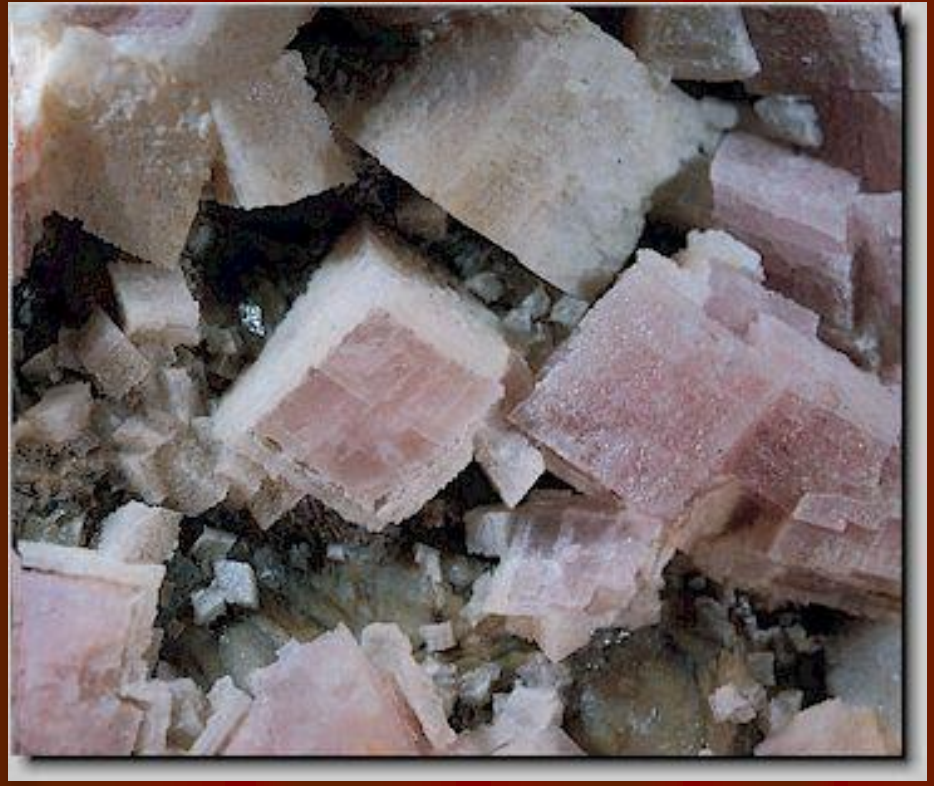
Calcite #R 024

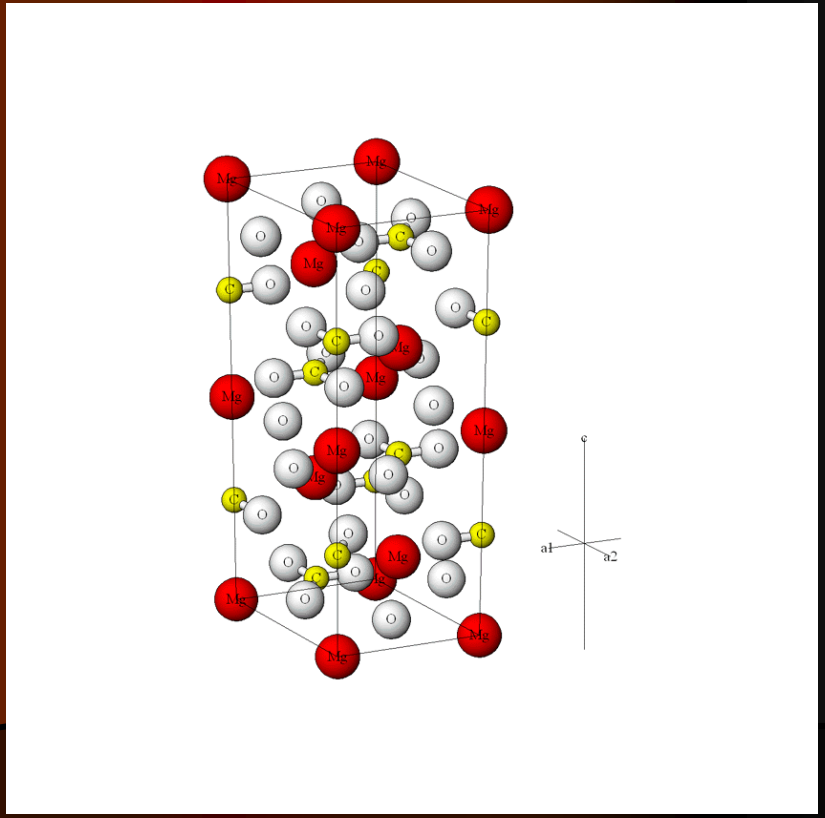
Red - Blue - Green - Orange


Ca
C
O


O
Ca
C
Co3
Ca

Magnesita





14.2.1 Dolomite Group (Trigonal: $R\bar{3}\bar{3}$)

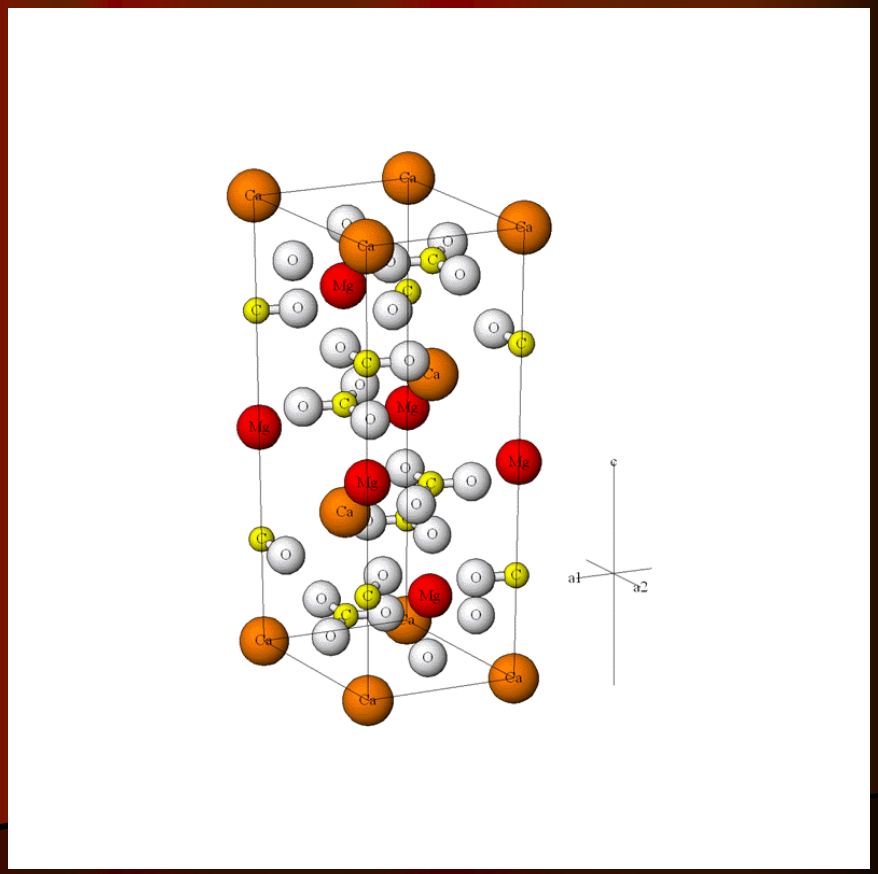
14.2.1.1 Dolomite $CaMg(CO_3)_2$ $R\bar{3}\bar{3}$

14.2.1.2 Ankerite $Ca(Fe^{++},Mg,Mn)(CO_3)_2$ $R\bar{3}\bar{3}$

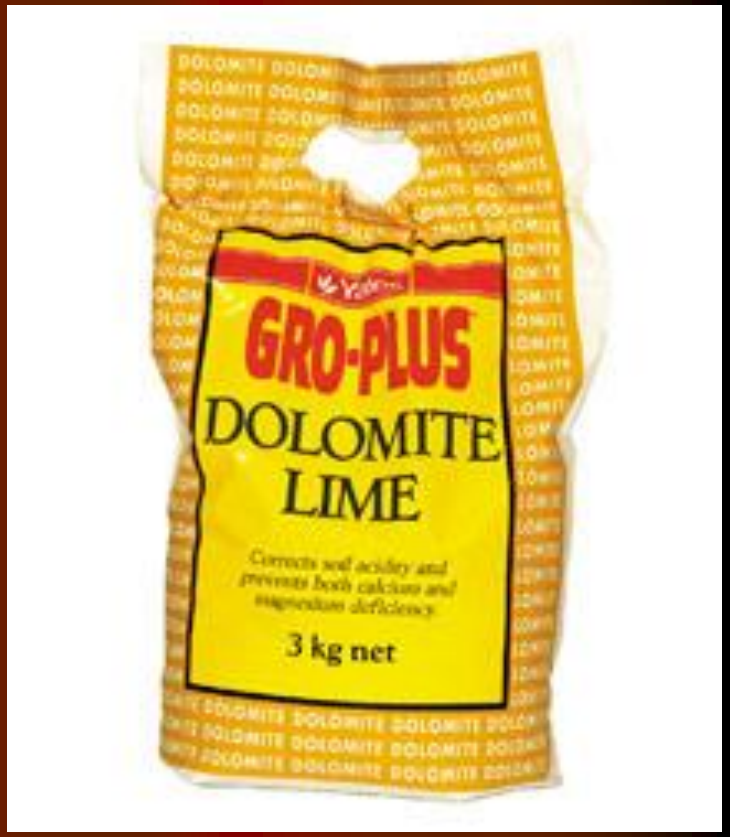
14.2.1.3 Kutnohorite $Ca(Mn,Mg,Fe^{++})(CO_3)_2$ $R\bar{3}\bar{3}$

14.2.1.4 Minrecordite $CaZn(CO_3)_2$ $R\bar{3}\bar{3}$

14.2.2




DOLOMITE
Calcium
et Magnésium


GRO-PLUS
DOLOMITE
LIME
Corrects soil acidity and prevents both calcium and magnesium deficiency
3 kg net


TRIUMPH DOLOMITE 1939 / DY 17
1990


Dolomite
(c)2002 Walter Feller


OUE 829W

14.1.3 Aragonite Group (Orthorhombic: Pmcn)

- 14.1.3.1 Aragonite $CaCO_3$ Pmcn 2/m 2/m 2/m
- 14.1.3.2 Witherite $BaCO_3$ Pmcn 2/m 2/m 2/m
- 14.1.3.3 Strontianite $SrCO_3$ Pmcn 2/m 2/m 2/m
- 14.1.3.4 Cerussite $PbCO_3$ Pmcn 2/m 2/m 2/m


5.10
POSTES
TERRES
AUSTRALES
ET
ANTARCTIQUES
FRANÇAISES
R.F.
ARAGONITE


No Waiting ... Just Add Fish
INSTANT CYCLING
BIO-ACTIV LIVE ARAGONITE
REEF SAND


A.R.M.
ARAGONITE
REACTOR
MEDIA

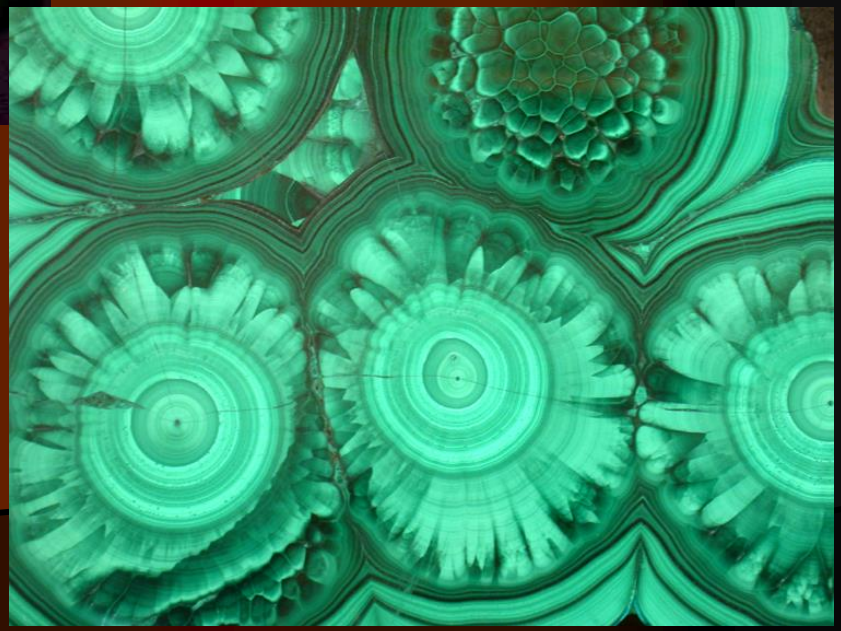

SPEED
LIMIT
75
EXIT 56
Aragonite
1 MILE

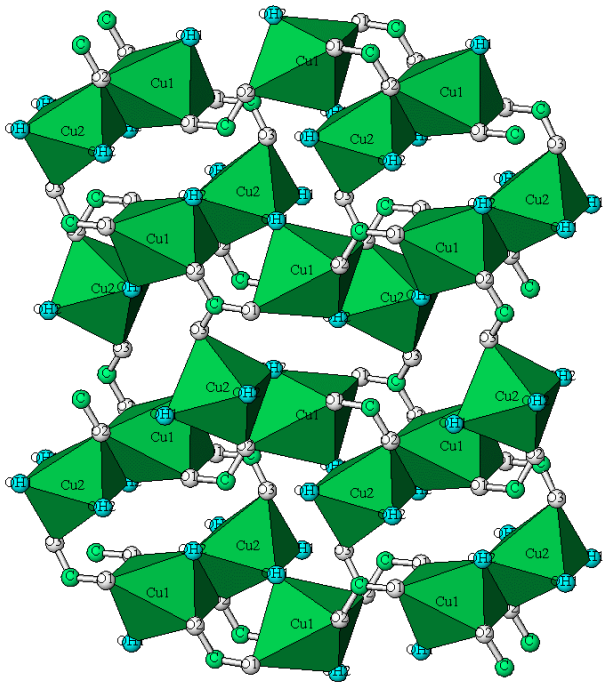
16a.3.2 Malachite Group

16a.3.2.1 Malachite $Cu_2(CO_3)(OH)_2$ $P\ 2_1/a\ 2/m$

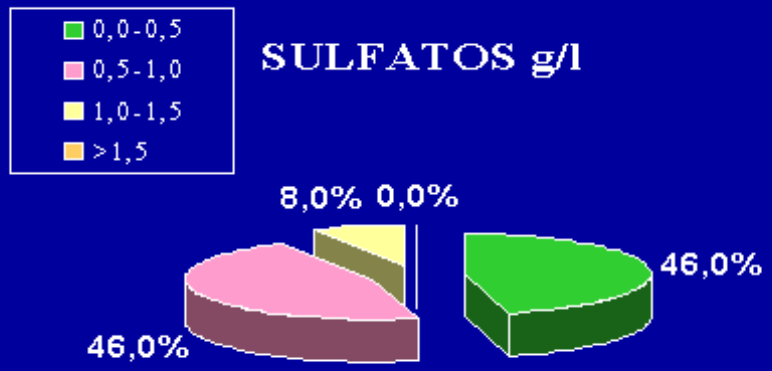
16a.3.2.2 Nullaginite $Ni_2(CO_3)(OH)_2$ $P\ 2_1/m, P\ 2_1$ Mono

16a.3.2.3 Pokrovskite $Mg_2(CO_3)(OH)_2 \cdot 0.5(H_2O)$ $P\ 2_1/a\ 2/m$




Cu1
Cu2
b
a
c


ETS G. MENARD
Nimes



28.3.1 Barite Group

28.3.1.1 Barite $BaSO_4$ Pbnm 2/m 2/m 2/m

28.3.1.2 Celestine $SrSO_4$ Pbnm 2/m 2/m 2/m

28.3.1.3 Anglesite $PbSO_4$ Pbnm 2/m 2/m 2/m

28.3.2

28.3.2.1 Anhydrite $CaSO_4$ Amma 2/m 2/m 2/m

28.3.3

28.3.3.1 Chalcocyanite $CuSO_4$ Pmnb 2/m 2/m 2/m

28.3.4


BARITE CRYSTALS
MESA COUNTY, CO


BARYTE
КЫРГЫЗСТАН
KYRGYZSTAN
110т


REPUBLICA PORTUGUESA
5$00
ANGOLA

29.6.3.1 Gypsum $CaSO_4 \cdot 2(H_2O)$ A2/a 2/m

29.6.4

29.6.4.1 Sanderite $MgSO_4 \cdot 2(H_2O)$ Mono ? Mono

29.6.5


TERRITOIRE FRANÇAIS
DES AFARS ET DES ISSAS
RF
85F
POSTE AERIENNE
LAC ASSAL
CRISTALLISATION SUR BOIS MORT


1998
Gypsum
25 ΚΥΠΡΟΣ CYPRUS KIBRIS


ALGERIE
الجزائر
الجزيرة
0,70

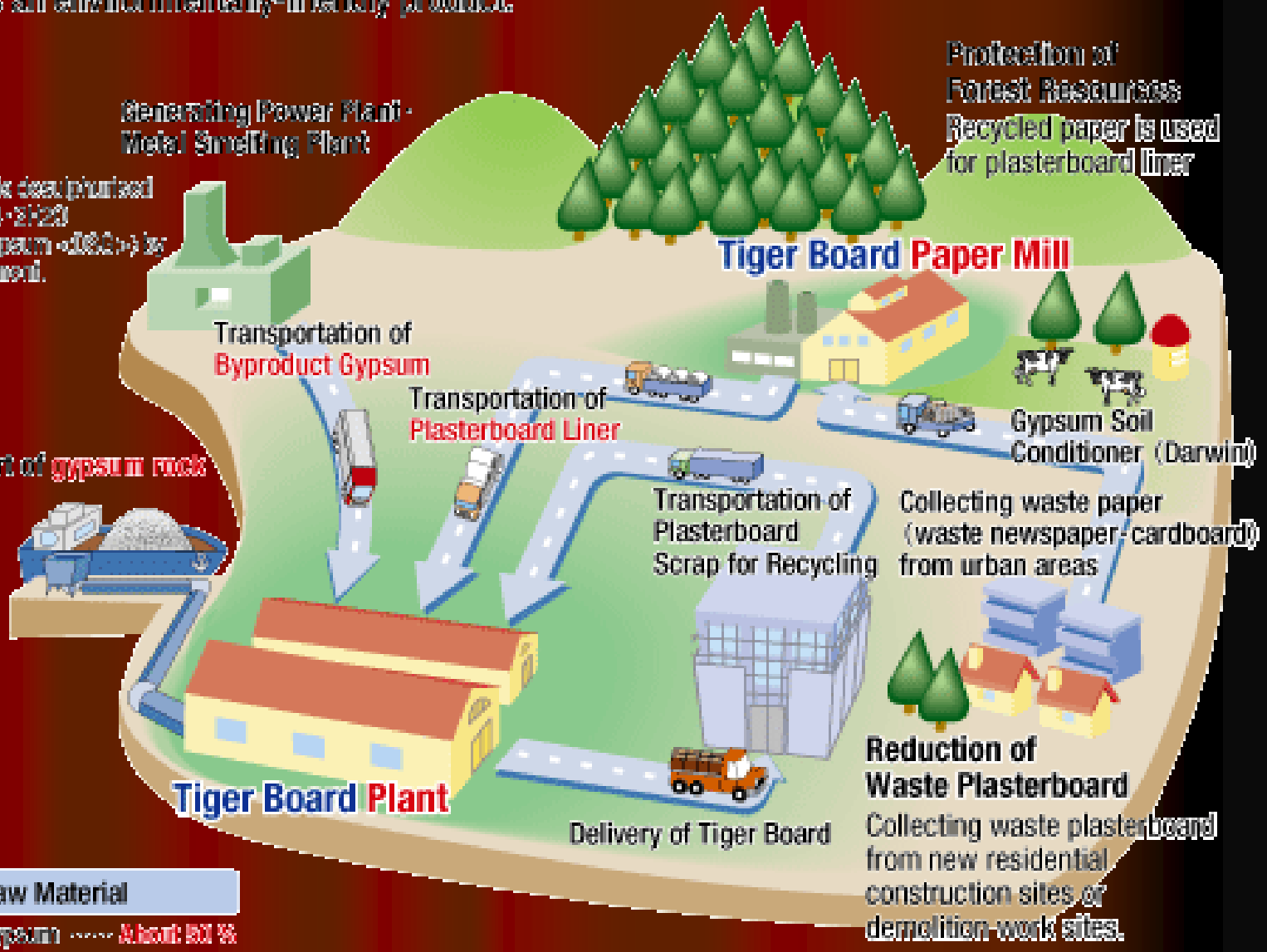

REPUBLIQUE CENTRAFRICAINE
2000F


Gips Eisleben
5
DDR


Kenya
10c


POSTES
250
LA ROSE DE SABLE
REPUBLIQUE TUNISIENNE

■ Tiger Board is an environmentally-friendly product.



Gypsum Raw Material

Domestic Byproduct Gypsum ····· About 50 %
Imported Raw Gypsum ····· About 45 %
Collected Waste Plasterboard ····· About 5 %

Gypsum Raw Material

Recycled paper used for waste newspaper and cardboard ····· 100 %

Pelletized Gypsum

Loosen/Aerate Hard-Packed or Clay Soils!

This is the perfect soil conditioner! It works through a chemical reaction to loosen and aerate hard-packed or heavy clay soils. It improves drainage and root penetration, enhances proper cell development and growth, plus it is gentle acting and ecologically safe to use. Gypsum works like a thousand little rototillers, conditioning the soil so that everything can penetrate down to the roots. It works great on "doggy damage" and tire tracks, too! 4 lbs. in a handy shaker canister.

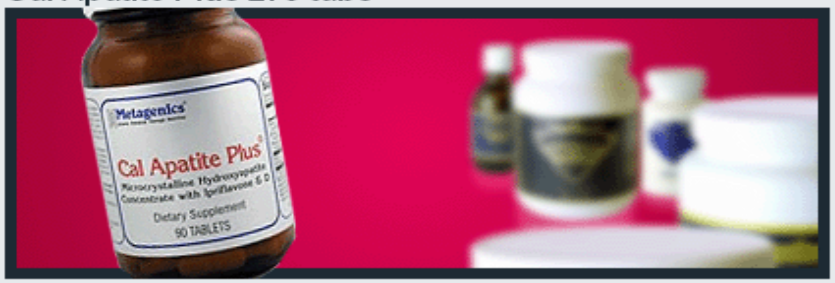
Item #1631 **Your Cost $9.95**

Handy Shaker Canister

FOSFATOS

Apatite
$Ca_5(PO_4)F$

Cal Apatite Plus 270 tabs



Price: $65.00

Quantity 1

ADD TO CART

Manufacturer
Unit
SKU

E-mail a friend about this item.

Cal Apatite Plus provides a unique combination of the same calcium-rich MCHC found in original Cal Apatite®, but with key nutritional factors added to help maintain healthy bone density.

Features ipriflavone, a unique isoflavone derivative that helps support healthy bone metabolism.

Supplies vitamin D, an essential nutrient for the maintenance of healthy bones that stimulates intestinal calcium absorption and helps to regulate calcium and phosphorus homeostasis in the body.

THREE TABLETS SUPPLY:
Microcrystalline Hydroxyapatite Concentrate (MCHC)† 1,500 mg
Vitamin D (as cholecalciferol) 600 IU
Calcium (as MCHC and dicalcium phosphate) 660 mg
Phosphorus (as MCHC and dicalcium phosphate) 423 mg
Ipriflavone 150 mg

Recommendations: Up to six tablets daily.

SEARCH

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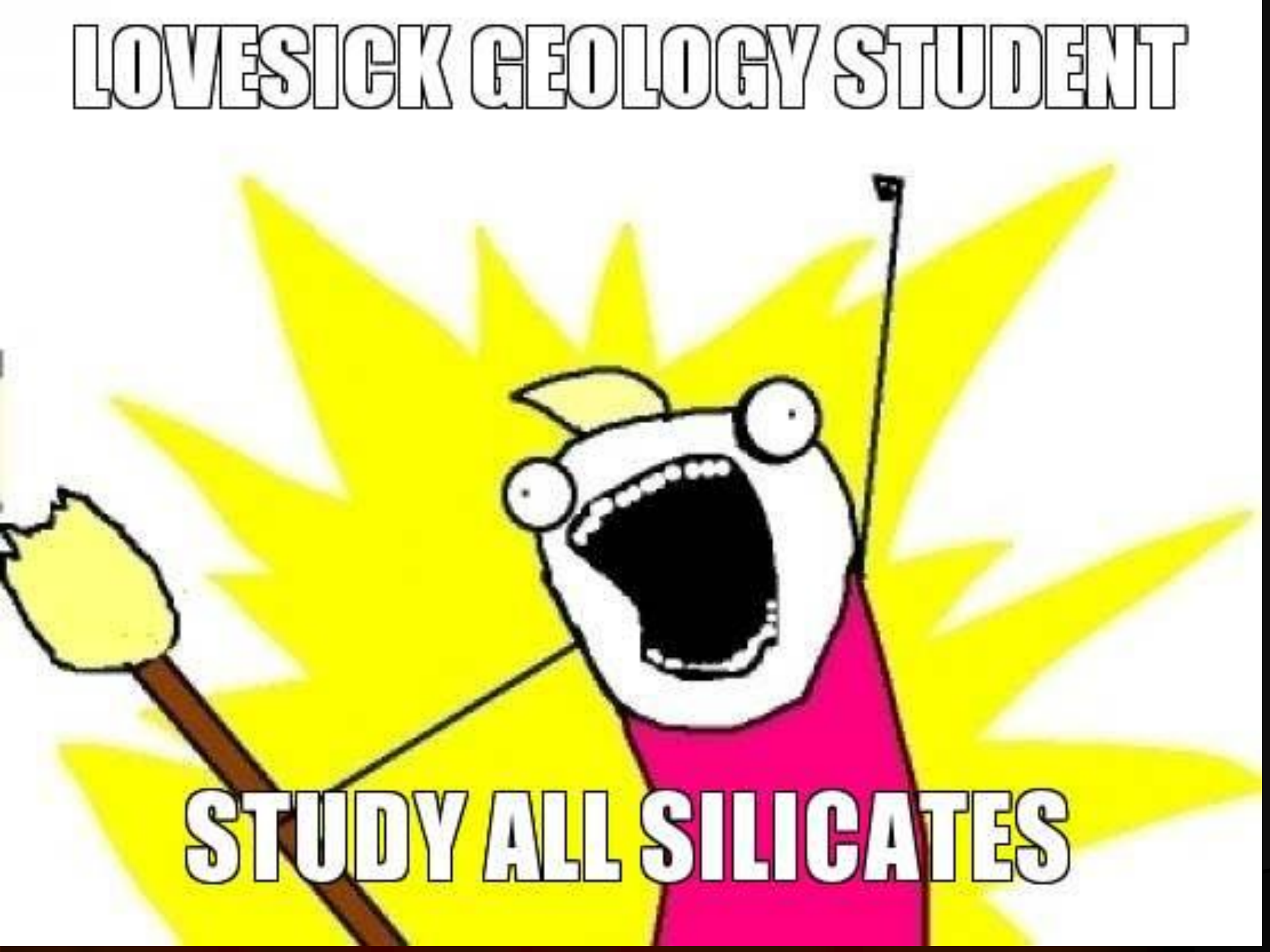
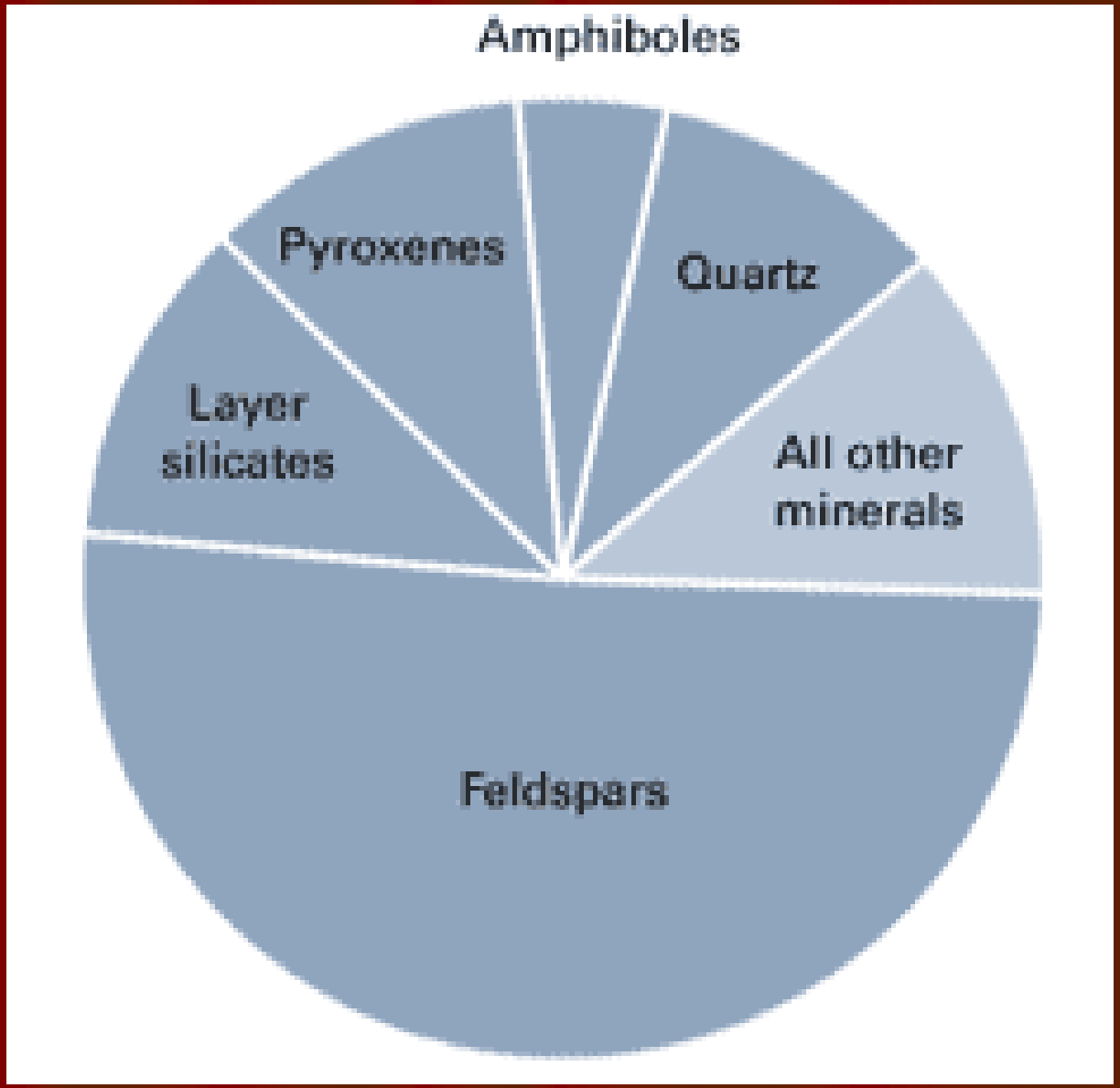
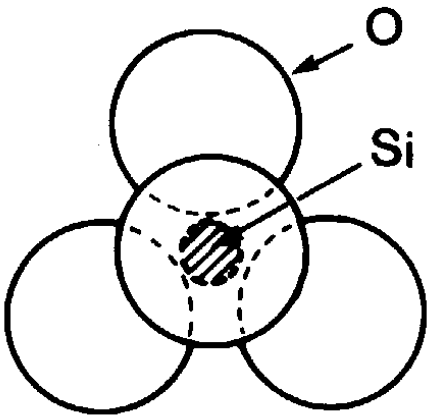

LOVESICK GEOLOGY STUDENT
STUDY ALL SILICATES

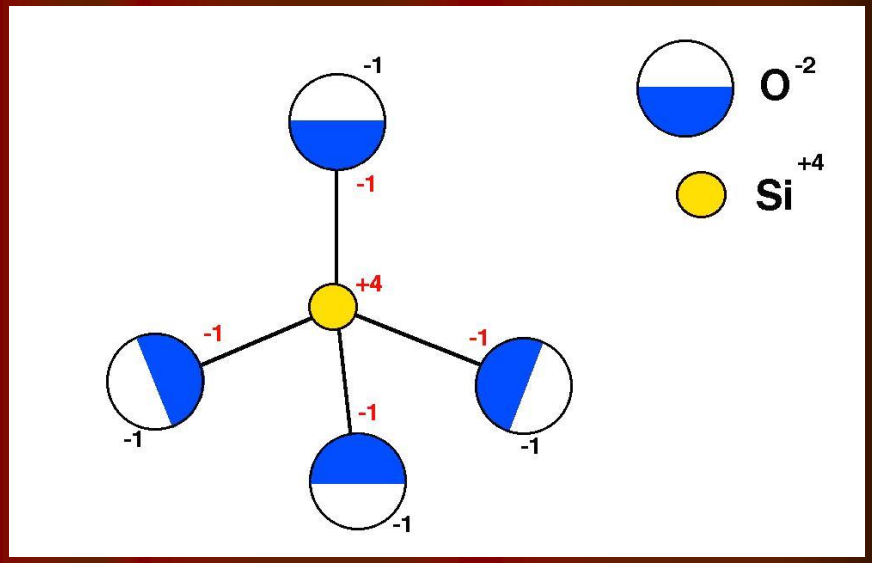
Os Silicatos


Amphiboles
Pyroxenes
Quartz
Layer silicates
All other minerals
Feldspars

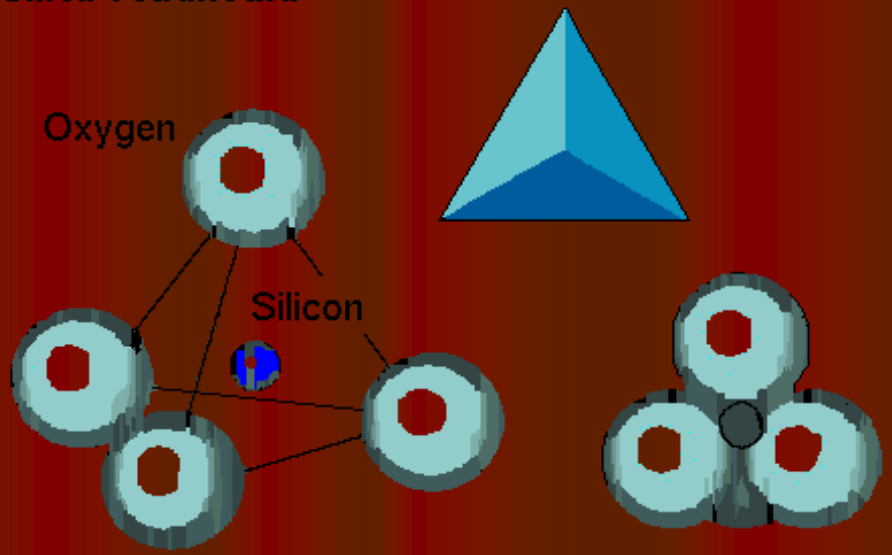
Minerais comuns da crosta terrestre (continental e oceânica)

Plagioclásio	**39%**	**Micas**	**5%**
FK	**12%**	**Argilominerais**	**5%**
Quartzo	**12%**	**Outros silicatos**	**3%**
Piroxênio	**11%**	**Não silicatos**	**8%**
Anfibólio	**5%**		





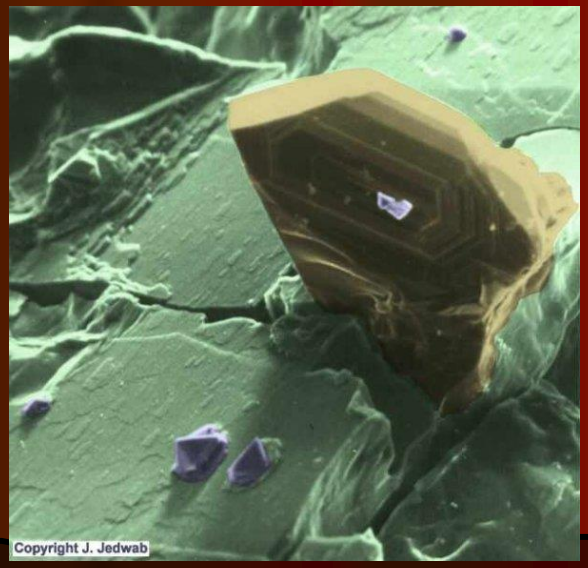
Silica Tetrahedra

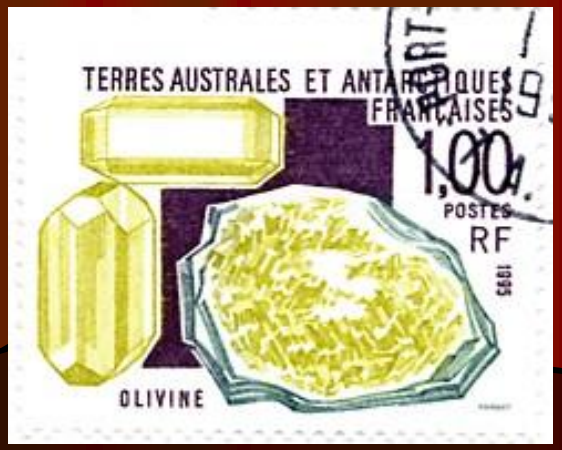


Subgroup*	Structure	Si:O Ratio
Nesosilicates	single tetrahedrons (no oxygens shared between neighboring tetrahedra) joined by bonds with other cations	1:4
Sorosilicates	two neighboring tetrahedra share one point	2:7
Cyclosilicates	all tetrahedra share 2 oxygens, each one with a different neighbor, building up 3, 4, 6 or 12 tetrahedra into a ring structure	1:3
Inosilicates Single Chain	all tetrahedra share 2 oxygens, each one with a different neighbor, building a chain structure	1:3
Inosilicates Double Chain	alternate tetrahedra share 2 then 3 oxygens, each one with a different neighbor, building a side-by-side double chain structure	4:11
Phyllosilicates	each tetrahedron shares 3 basal oxygens, each one with a different neighbor, building a sheet structure	2:5
Tectosilicates	each tetrahedron shares all 4 oxygens, each one with a different neighbor, building a 3-D framework structure	1:2

51.3 Nesosilicates Nesosilicate Insular SiO4 Groups Only with all cations in octahedral [6] coordination

- 51.3.1 Olivine group
  - 51.3.1.0 Olivine* (Mg,Fe)2SiO4 Pbnm 2/m 2/m 2/m
  - 51.3.1.1 Fayalite Fe++2SiO4 Pbnm 2/m 2/m 2/m
  - 51.3.1.2 Forsterite Mg2SiO4 Pbnm 2/m 2/m 2/m
  - 51.3.1.3 Liebenbergite (Ni,Mg)2SiO4 Pbnm 2/m 2/m 2/m
  - 51.3.1.4 Tephroite Mn2SiO4 P nma 2/m 2/m 2/m
  - 51.3.1.5 Laihunite Fe++Fe+++2(SiO4)2 P $2_1/b$ 2/m
- 51.3.2 Monticellite - Kirschsteinite series
  - 51.3.2.1 Monticellite CaMgSiO4 P nma 2/m 2/m 2/m
  - 51.3.2.2 Kirschsteinite CaFe++SiO4 Pbmn 2/m 2/m 2/m
  - 51.3.2.3 Glaucochroite CaMnSiO4 Pbnm 2/m 2/m 2/m
- 51.3.3
  - 51.3.3.1 Ringwoodite Mg2SiO4 F d3m 4/m $\bar{3}$ 2/m
- 51.3.4
  - 51.3.4.1 Wadsleyite (Mg,Fe++)2SiO4 I2/m 2/m





Olivina


Granada

Alaska Garnet Mining & Manufacturing Corporation

The First All-Woman Mining Corporation in the United States


GARNET CLEANERS
DRY CLEANING
HOUSEHOLDS
ALTERATIONS
RUG STORAGE
WE'RE
OPEN

51.5.2 Zircon group

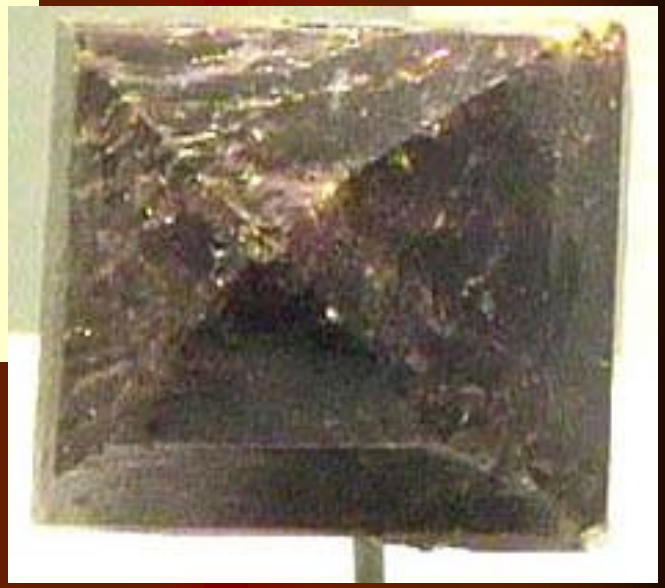
51.5.2.1 Zircon $ZrSiO_4$ $I\ 4_1/amd\ 4/m\ 2/m\ 2/m$

51.5.2.2 Hafnon $HfSiO_4$ $I\ 4_1/amd\ 4/m\ 2/m\ 2/m$

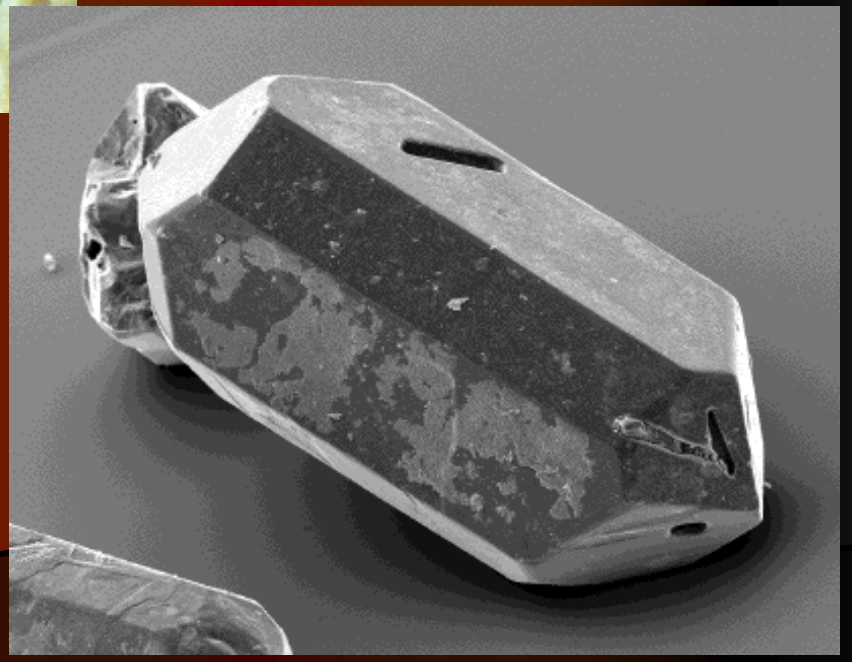
51.5.2.3 Thorite $ThSiO_4$ $I\ 4_1/amd\ 4/m\ 2/m\ 2/m$

51.5.2.4 Coffinite $U(SiO_4)_{1-x}(OH)_{4x}$ $I\ 4_1/amd\ 4/m\ 2/m\ 2/m$

51.5.2.5 Thorogummite $Th(SiO_4)_{1-x}(OH)_{4x}$ $I\ 4_1/amd\ 4/m\ 2/m\ 2/m$



ZIRCÃO



ZIRCÃO

estaurolita


DUPONT
COARSE
Staurolite
BLASTING
ABRASIVE
CAUTION: Avoid Breathing Dust
NET 50 lbs (22.68 kg)
USA


STAUROLITE
INN & SUITES
INDOOR
WHIRLPOOL
CONFERENCE
CENTER


STAUROLITE
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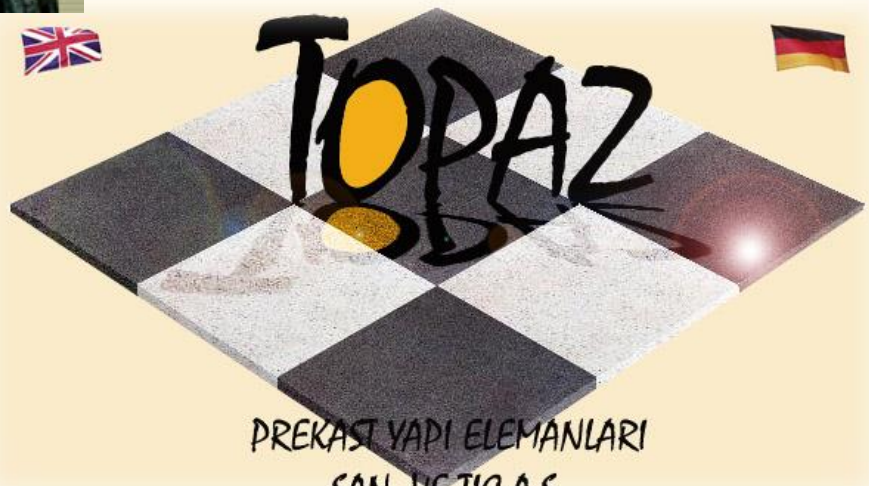
BROOKINGS, SD
ABOUT THE STAUROLITE INN & SUITES

TOPAZ

TOPAZ CL s.r.o.

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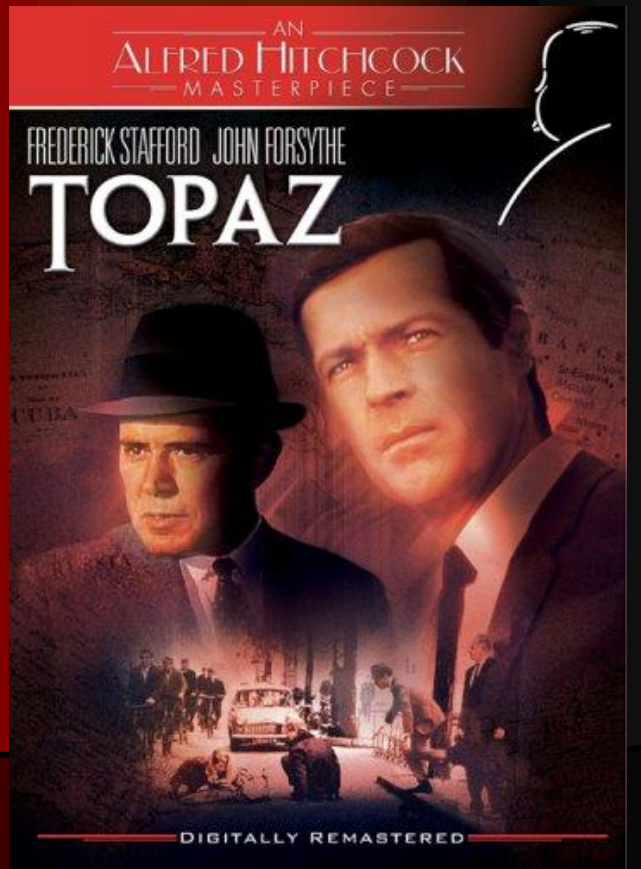
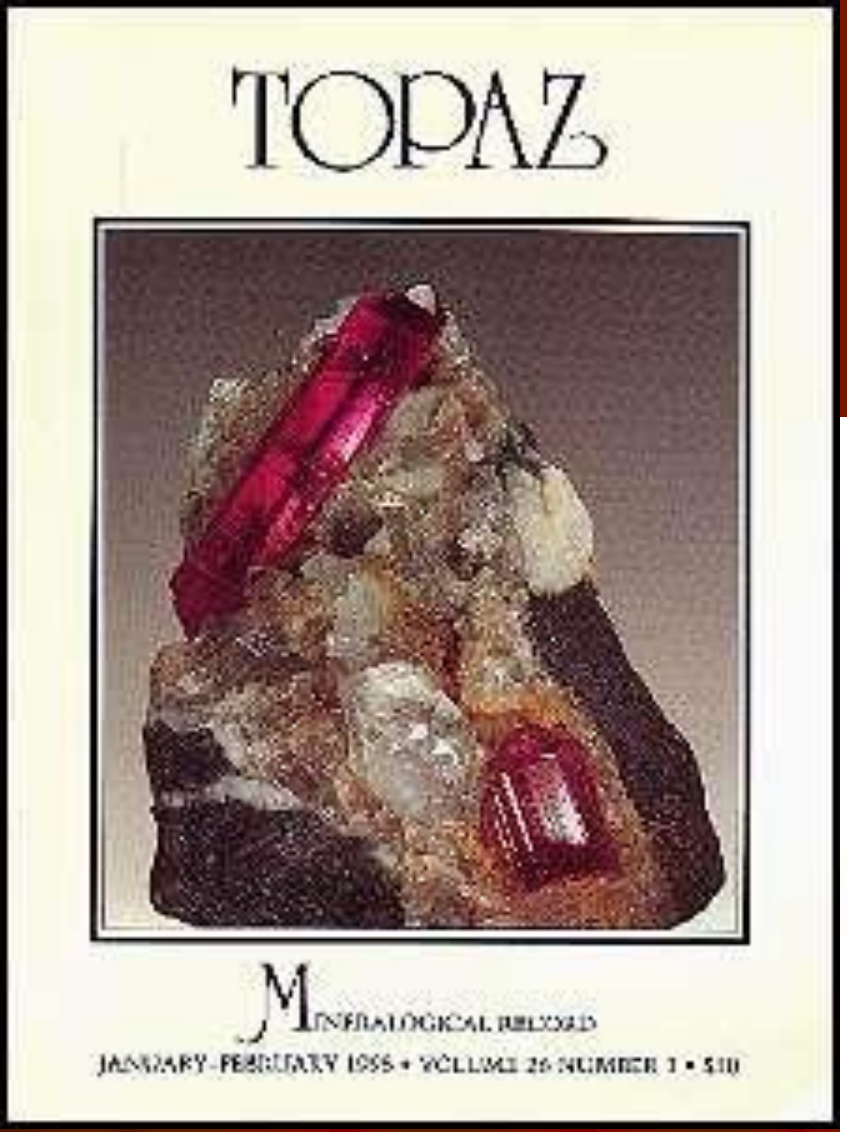
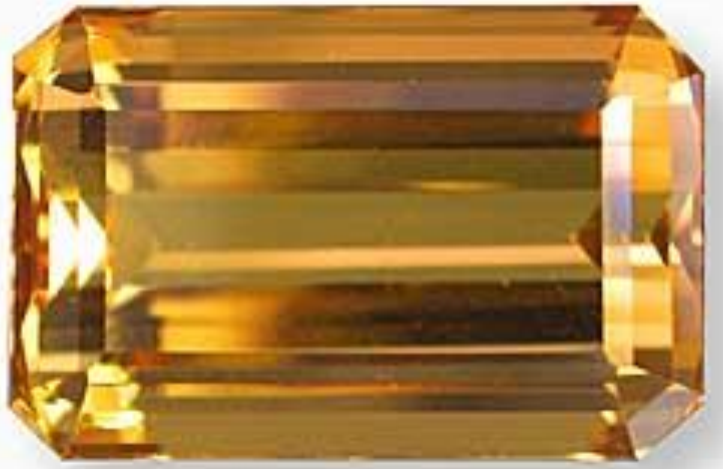
MICHEL SUBOR · JOHN FORSYTHE · MUSIC · MAURICE JARRE · SCREENPLAY BY SAMUEL TAYLOR · DIRECTED BY ALFRED HITCHCOCK
A UNIVERSAL PICTURE · TECHNICOLOR®


AN ALFRED HITCHCOCK MASTERPIECE
FREDERICK STAFFORD JOHN FORSYTHE
TOPAZ
DIGITALLY REMASTERED

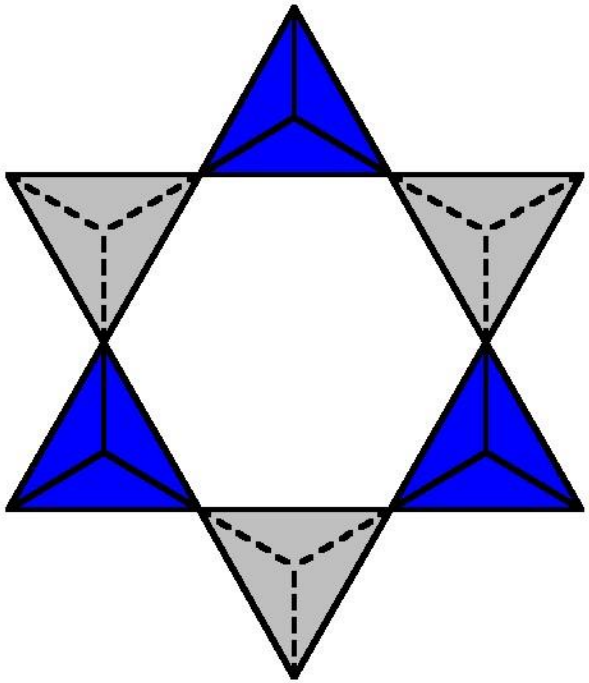

TOPAZ
MINERALOGICAL RECORD


Topaz
Aoyama
Produced by Trinity Corsetiere

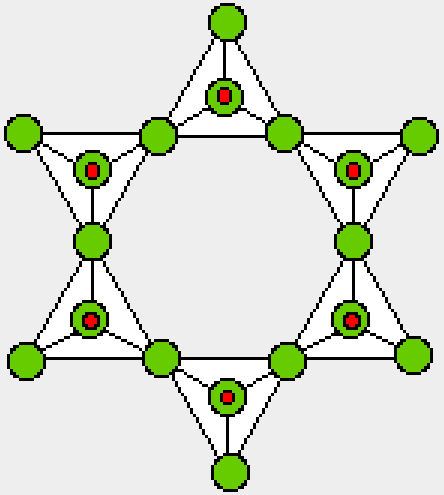
Topázio

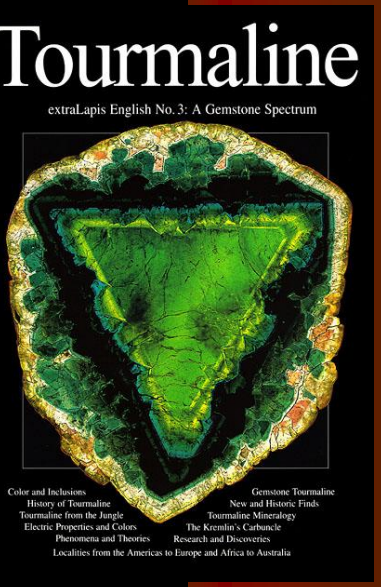


Topázio



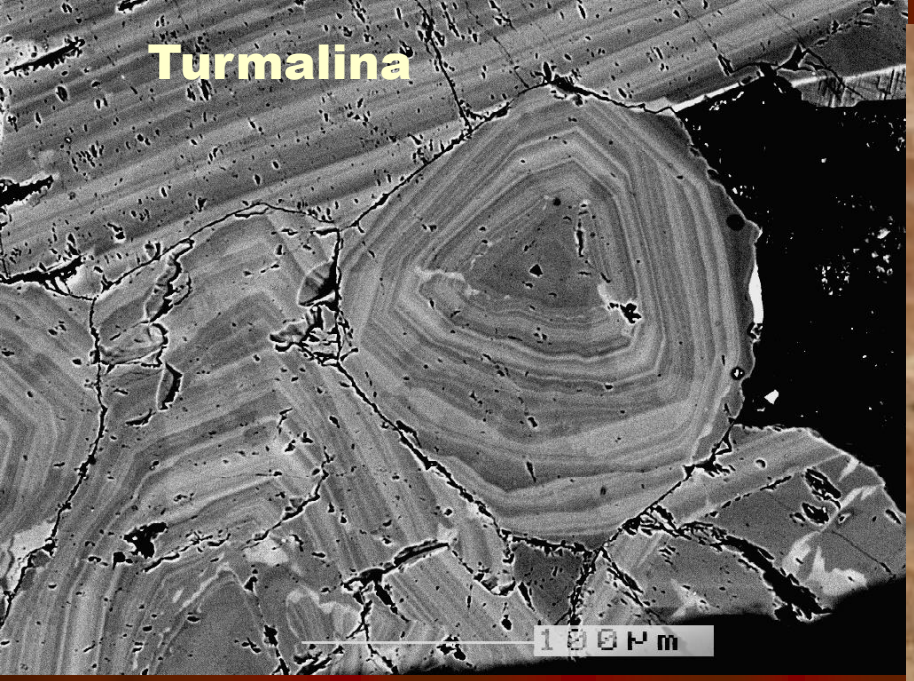
Cyclosilicate

Arrangement of silica tetrahedra	Formula of complex ion	Common minerals
	$(Si_6O_{18})^{12-}$	Tourmaline Beryl


Tourmaline
extraLapis English No. 3: A Gemstone Spectrum
Color and Inclusions
History of Tourmaline
Tourmaline from the Jungle
Electric Properties and Colors
Phenomena and Theories
Gemstone Tourmaline
New and Historic Finds
Tourmaline Mineralogy
The Kremlin's Carbuncle
Research and Discoveries
Localities from the Americas to Europe and Africa to Australia

Turmalina

Turmalina



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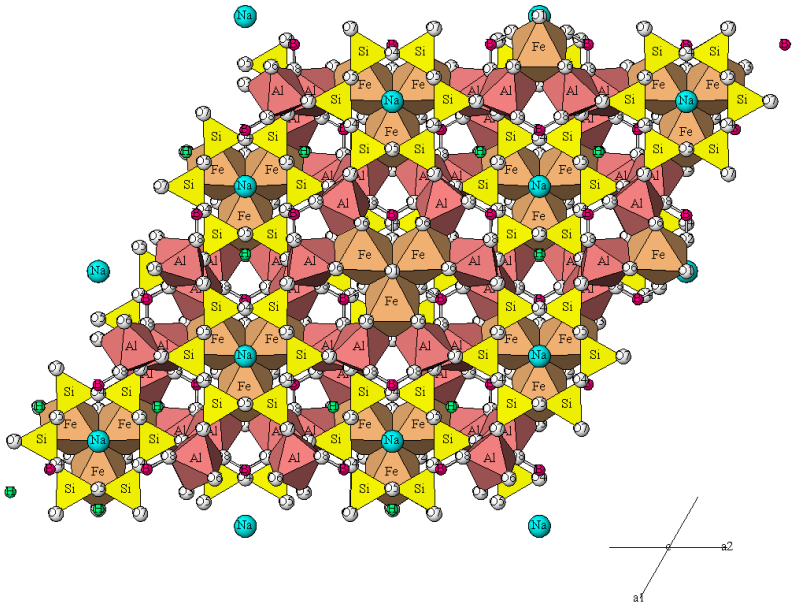
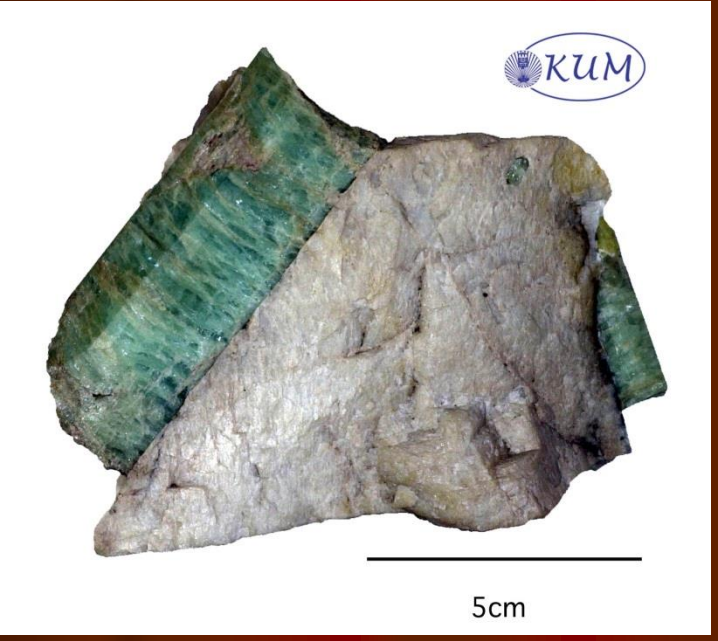
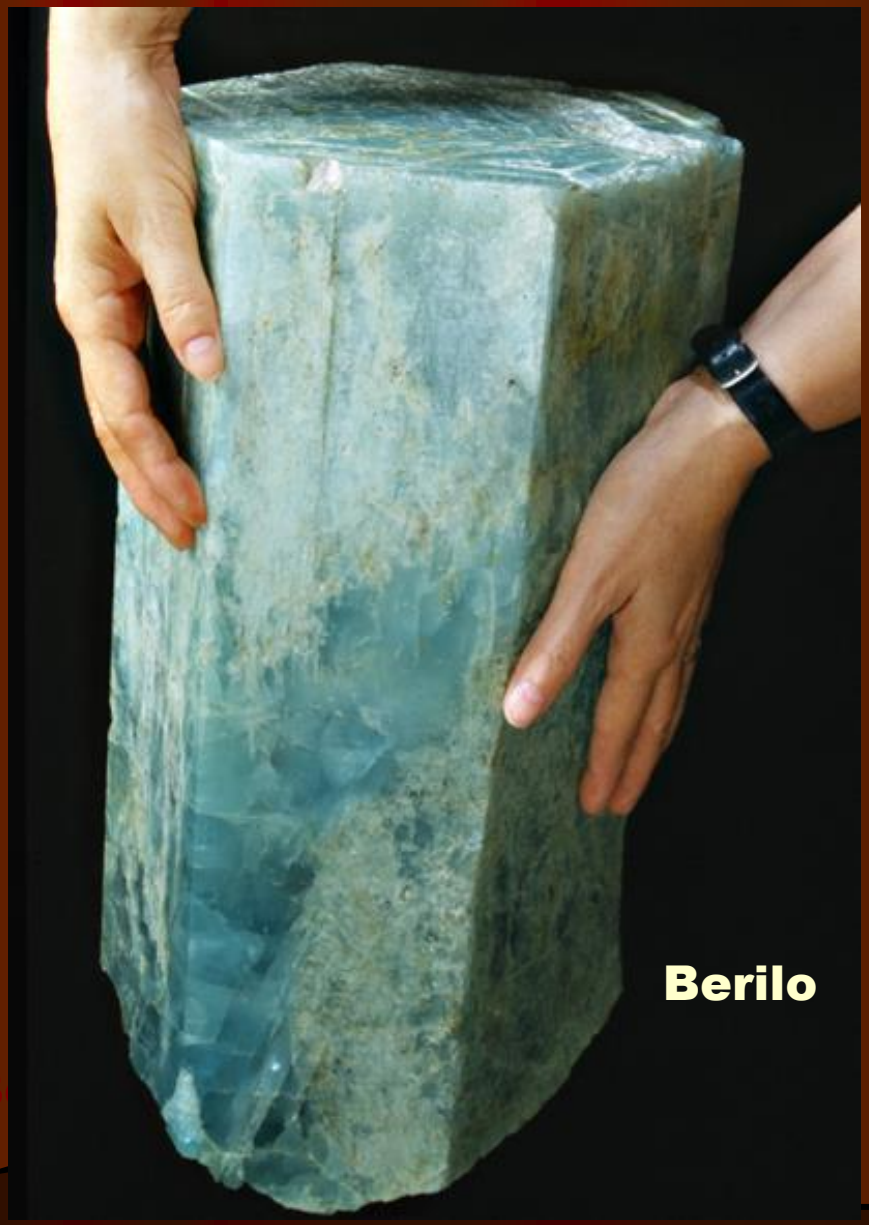
15.) Brights by OPI
16.) Vivitone Cream Hair Color
17.) - Japanese Nail Lacquers
18.) Bliss Poetic Cosmetics Fat Girl Slim
19.) DevaCurl B'Leave-In
20.) Divinyls Lipgloss




KUM
5cm


Berilo


BERYL
Geology 306
University of Wisconsin - Madison


Berilo

Beryl

And Its Color Varieties

Aquamarine, Heliodor, Morganite
Goshenite, Emerald, and Red Beryl

Beryl

And Its Color Varieties:
Aquamarine, Heliodor, Morganite, Goshenite, Emerald, and Red Beryl

The colorful varieties of beryl, from clear goshenite to vibrant emerald to serene aquamarine, have been inspiring scientists, mystics and poets for millennia. Found in a range of shapes, sizes and colors, beryl is as diverse as the Earth in which it forms. Today, much is known and much remains unknown about the gemstone, mineral specimen and strategic ore that is beryl.

Beryl And Its Color Varieties
Lapis International, LLC
East Hampton, Connecticut, USA
ISBN 0-971537-16-X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SILICA TETRAHEDRA

IRON

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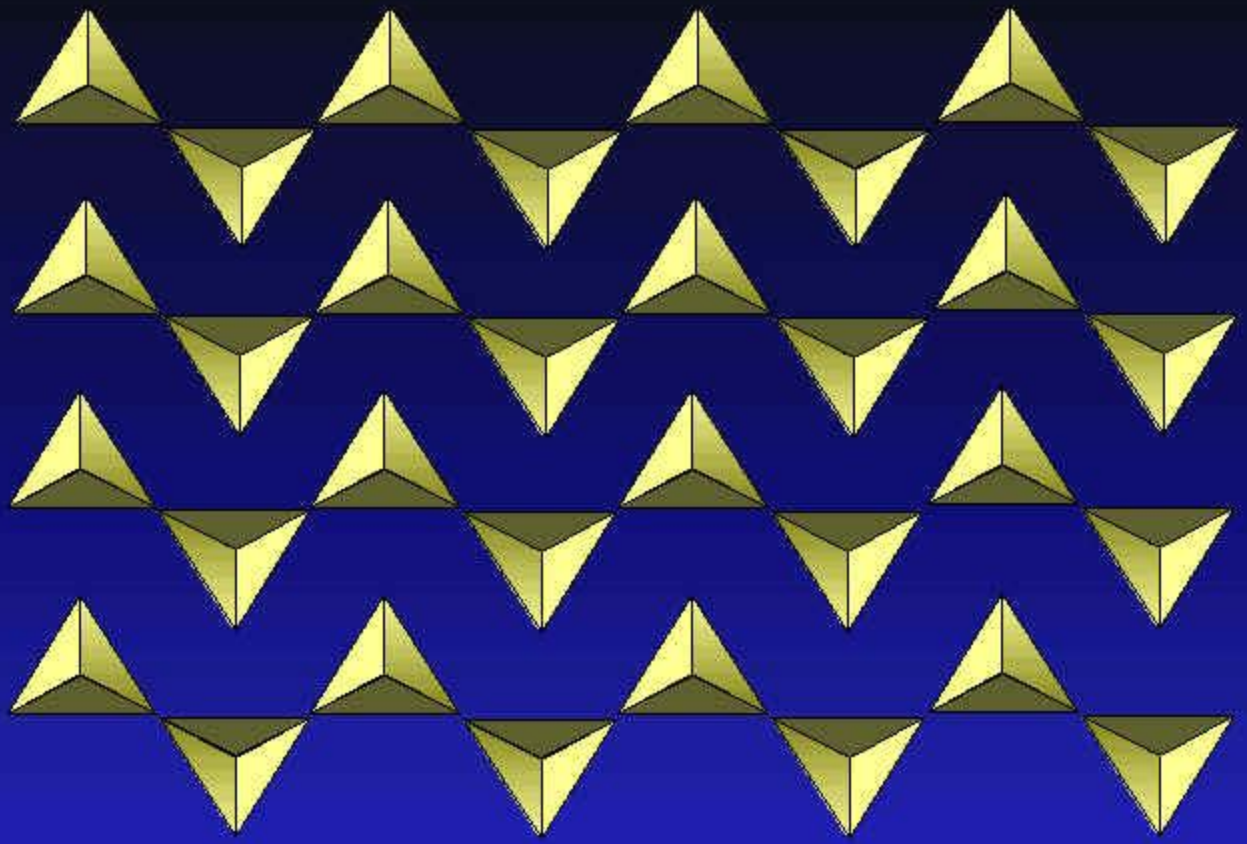
CALCIUM

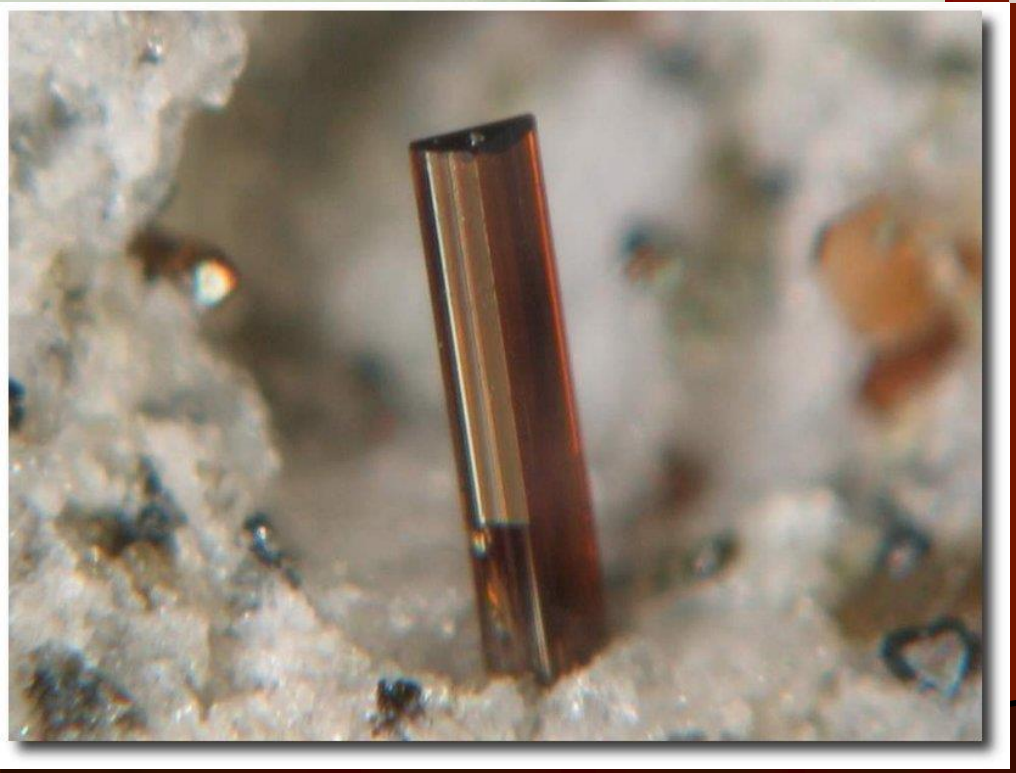
MAGNESIUM



PYROXENE STRUCTURE
(AUGITE)

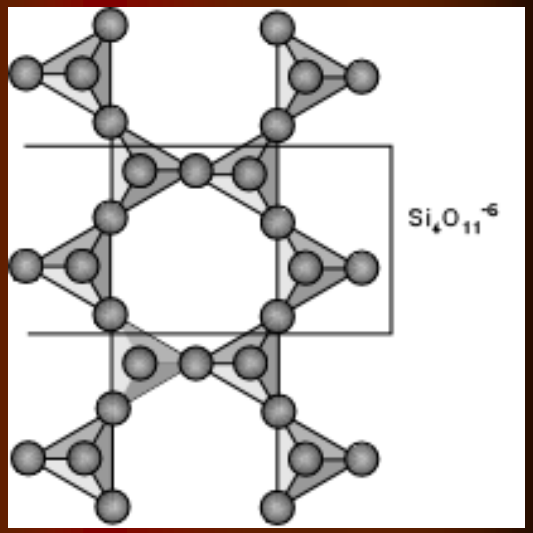
URL: http://comp.uark.edu/~sboss

University of Arkansas



PIROXÊNIOS

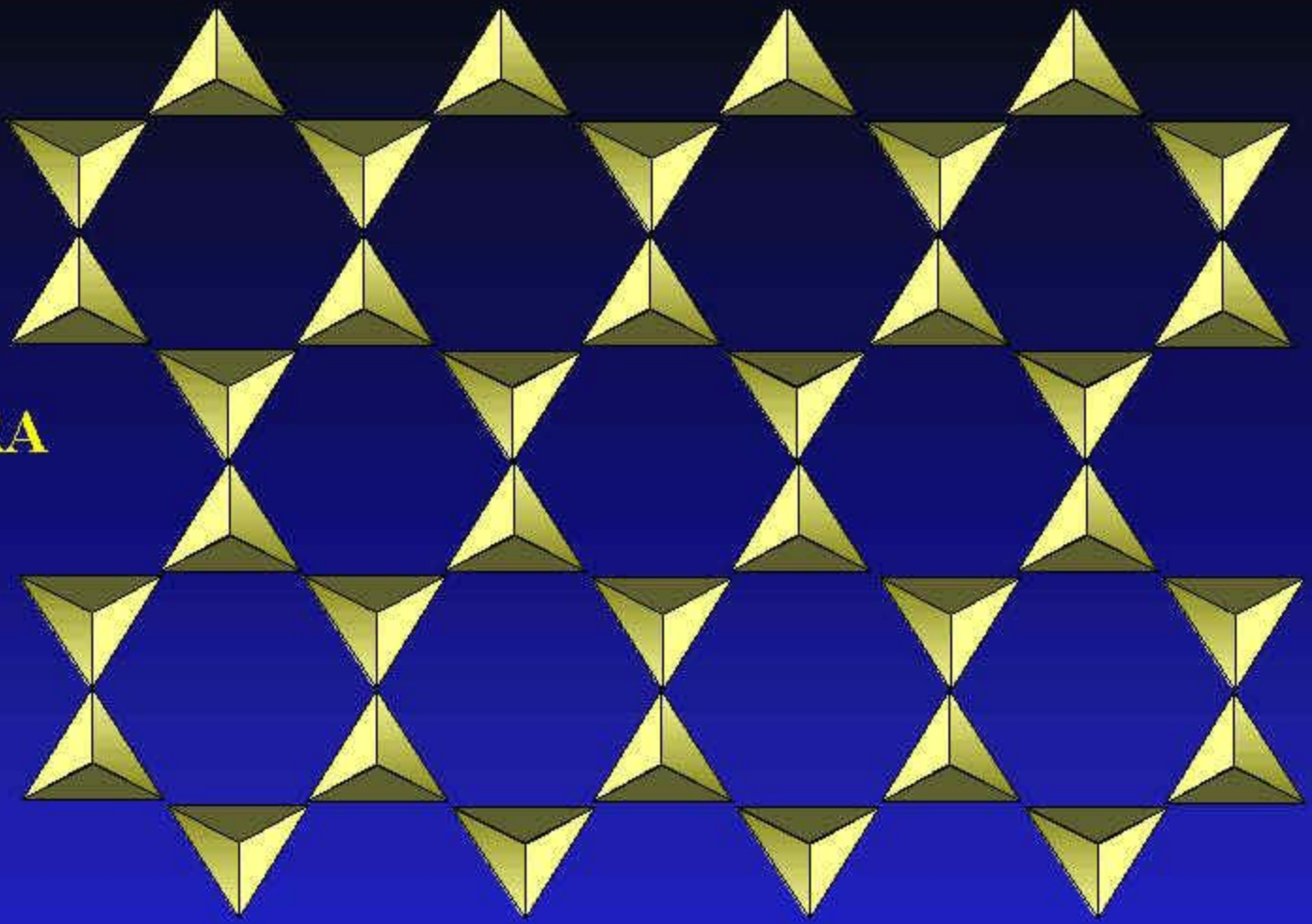
Anfibólio



SHEET SILICATES

SILICA
TETRAHEDRA

HYDROXYL



MICA STRUCTURE
(BIOTITE, MUSCOVITE)

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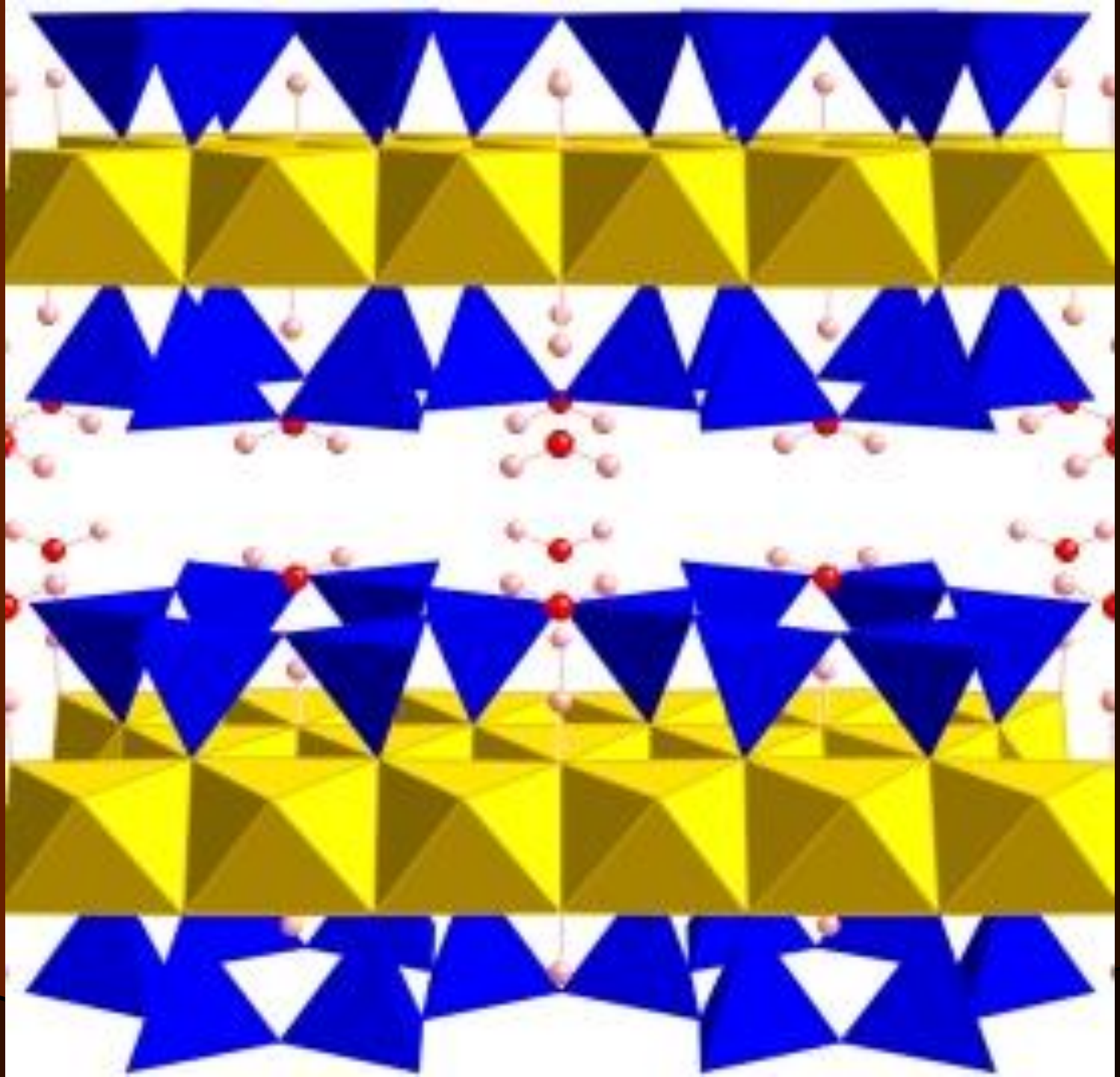
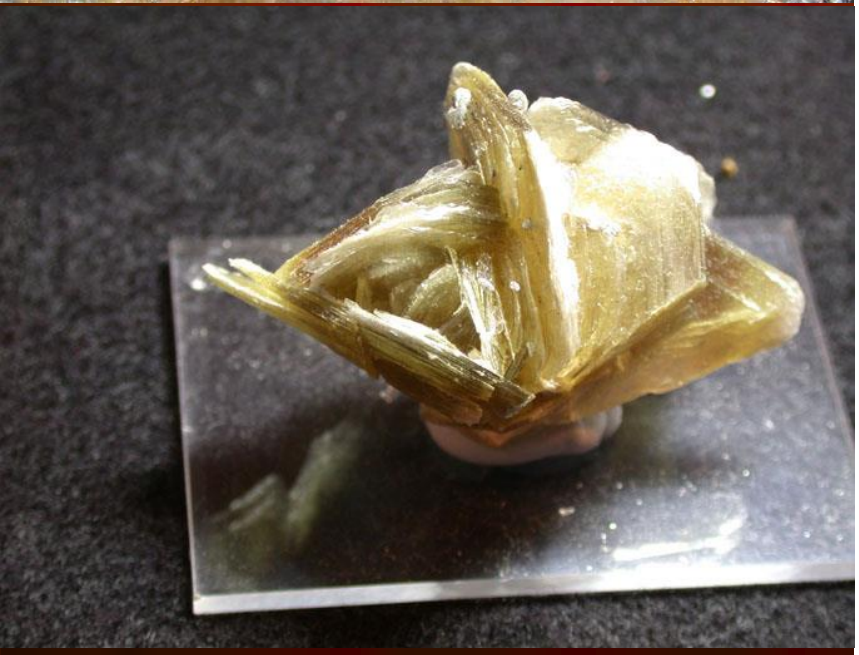
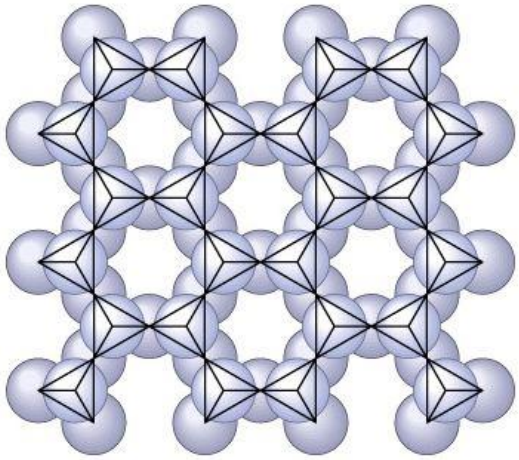






Sheet Silicate
$(Si,Al)_4O_{10}$

Muscovite: $K_2Al_4[Si_6Al_2O_{20}](OH,F)_4$

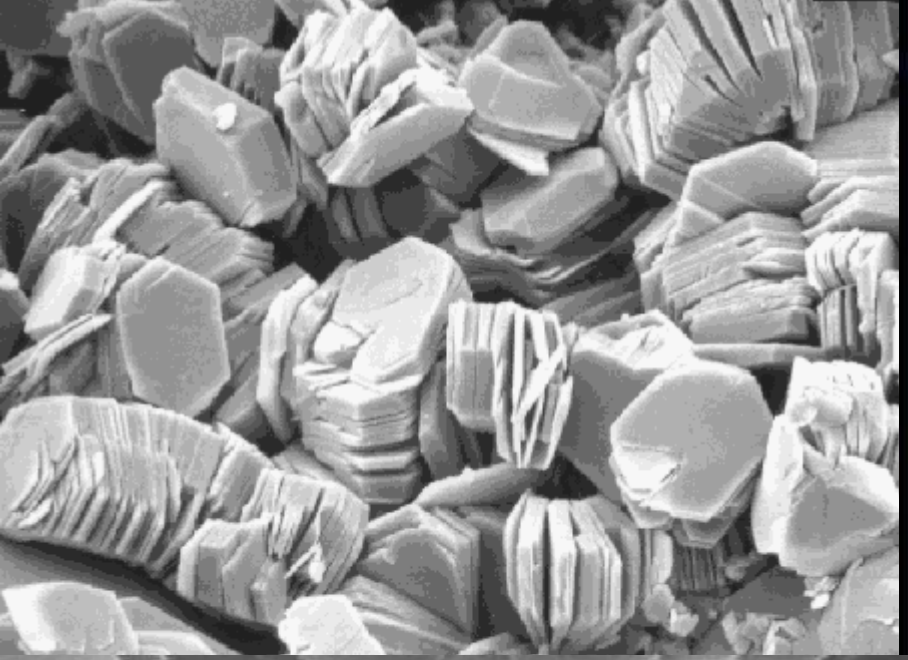
Biotite

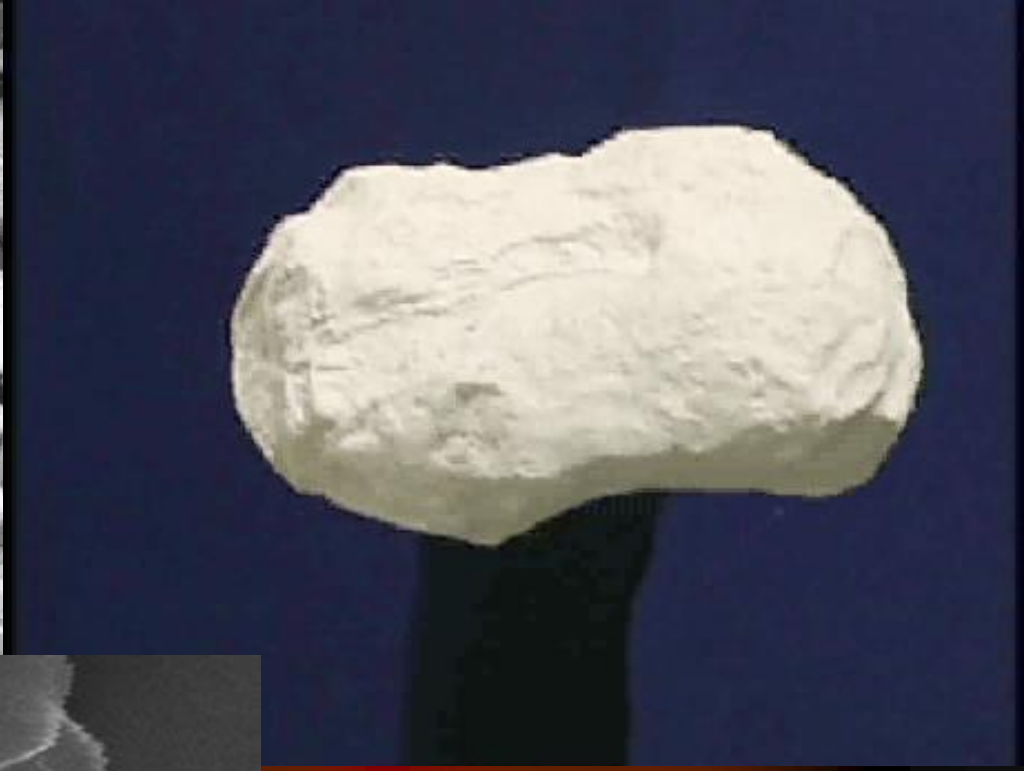

lepidolita

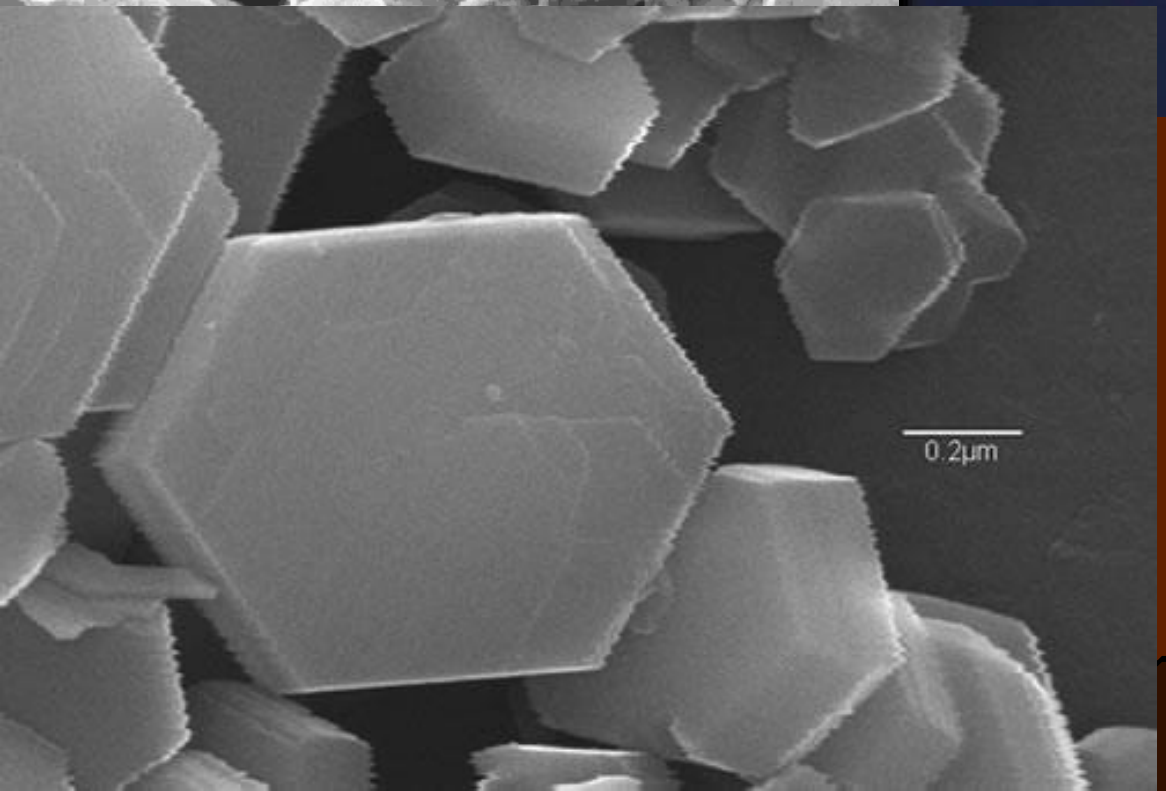
flogopita

flogopita

serpentina







Caulinita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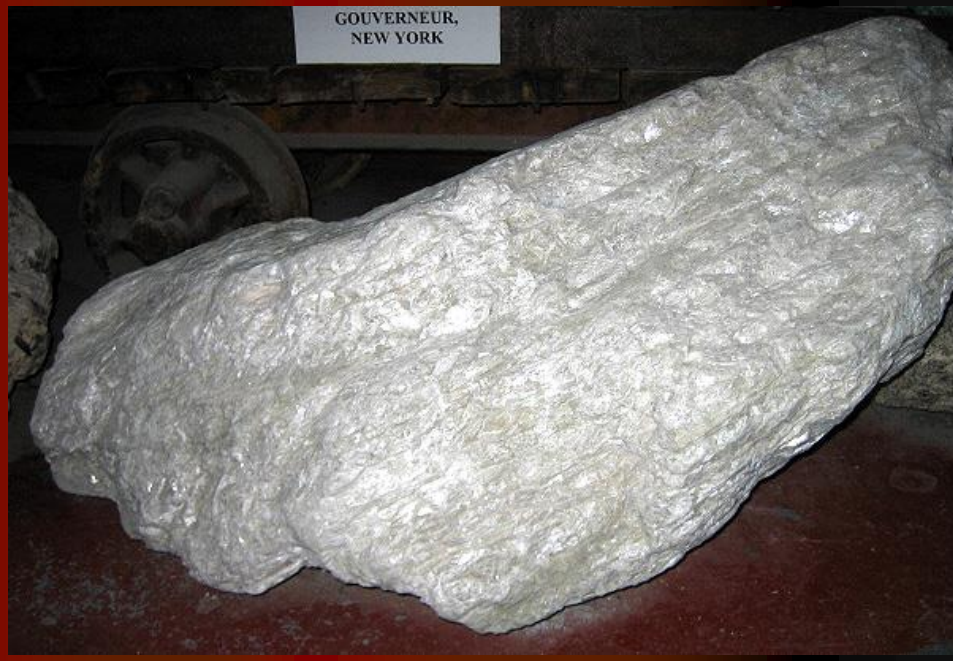
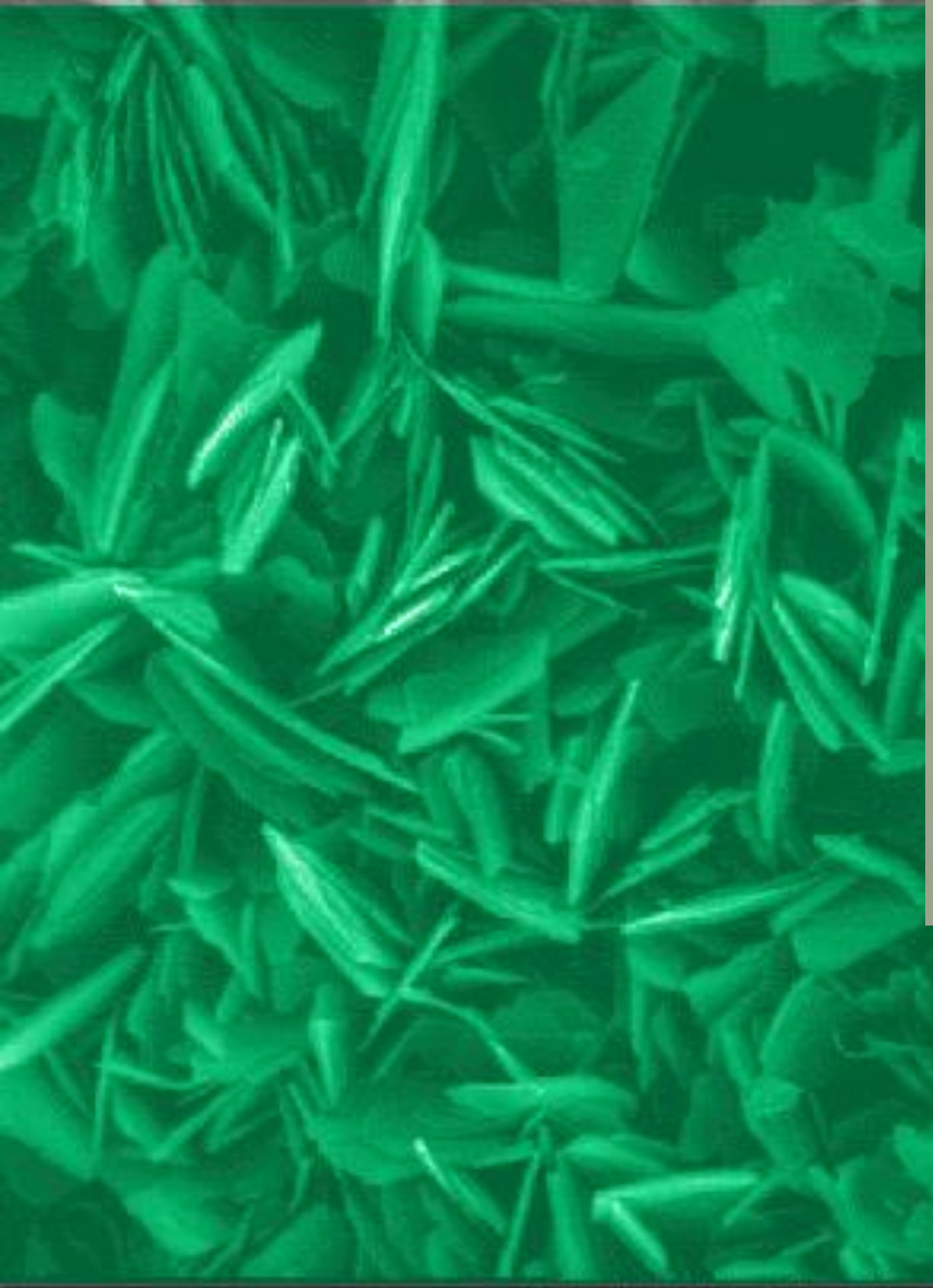


Talco



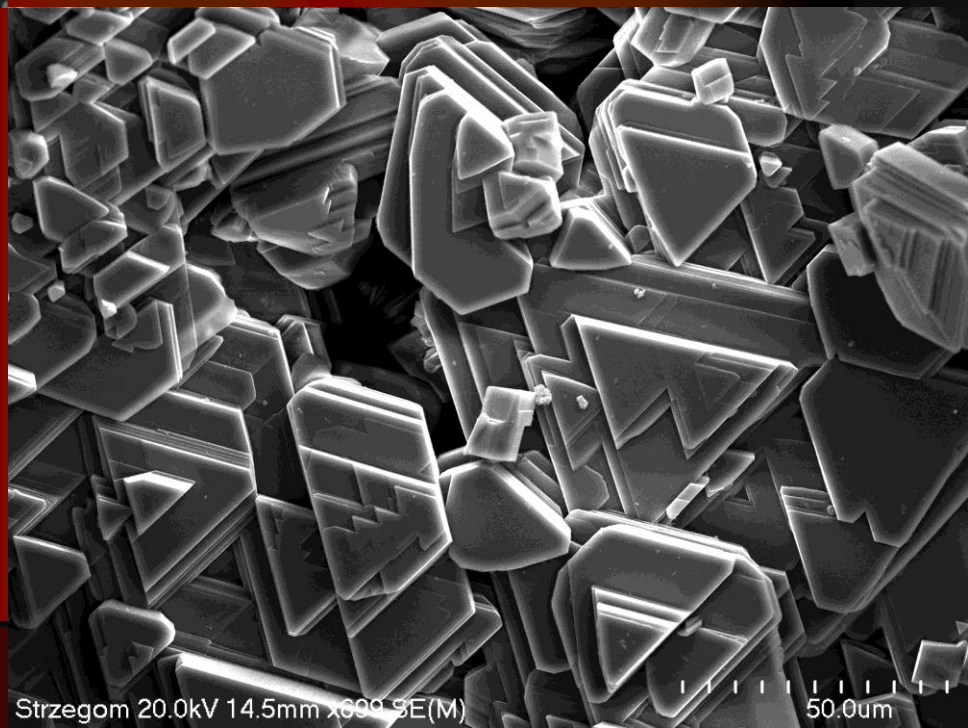
#33

Chlorite


100um

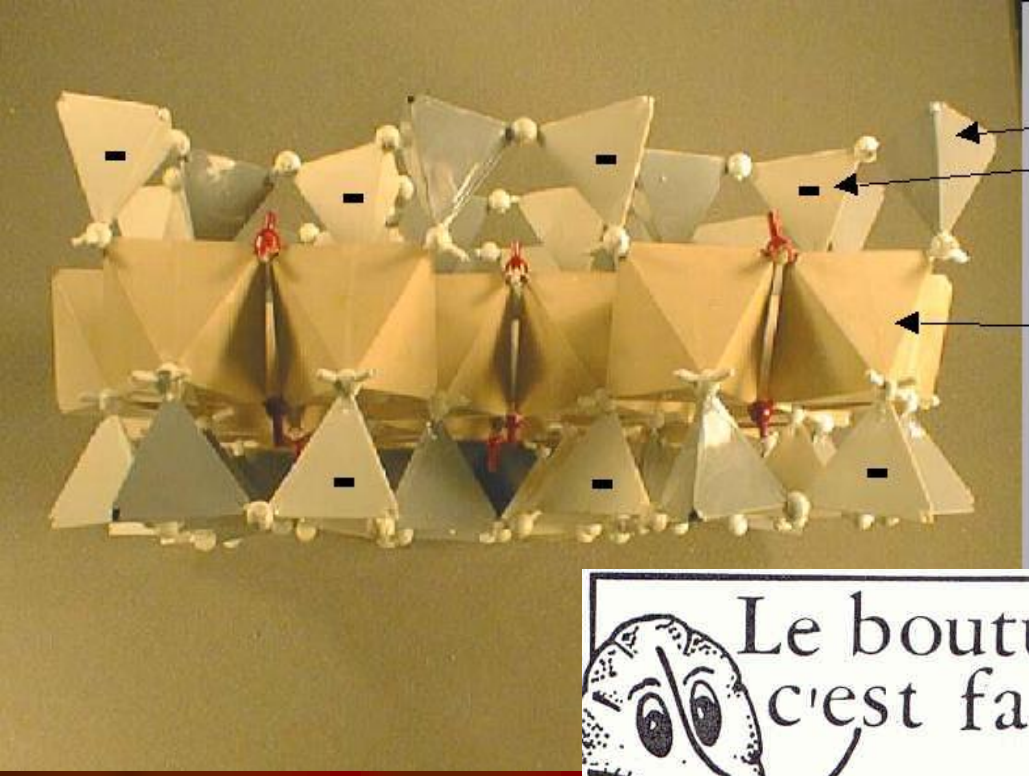

monaco
3,80
PARC NATIONAL DU MERCANTOUR
MICROMINERAUX
CHLORITE

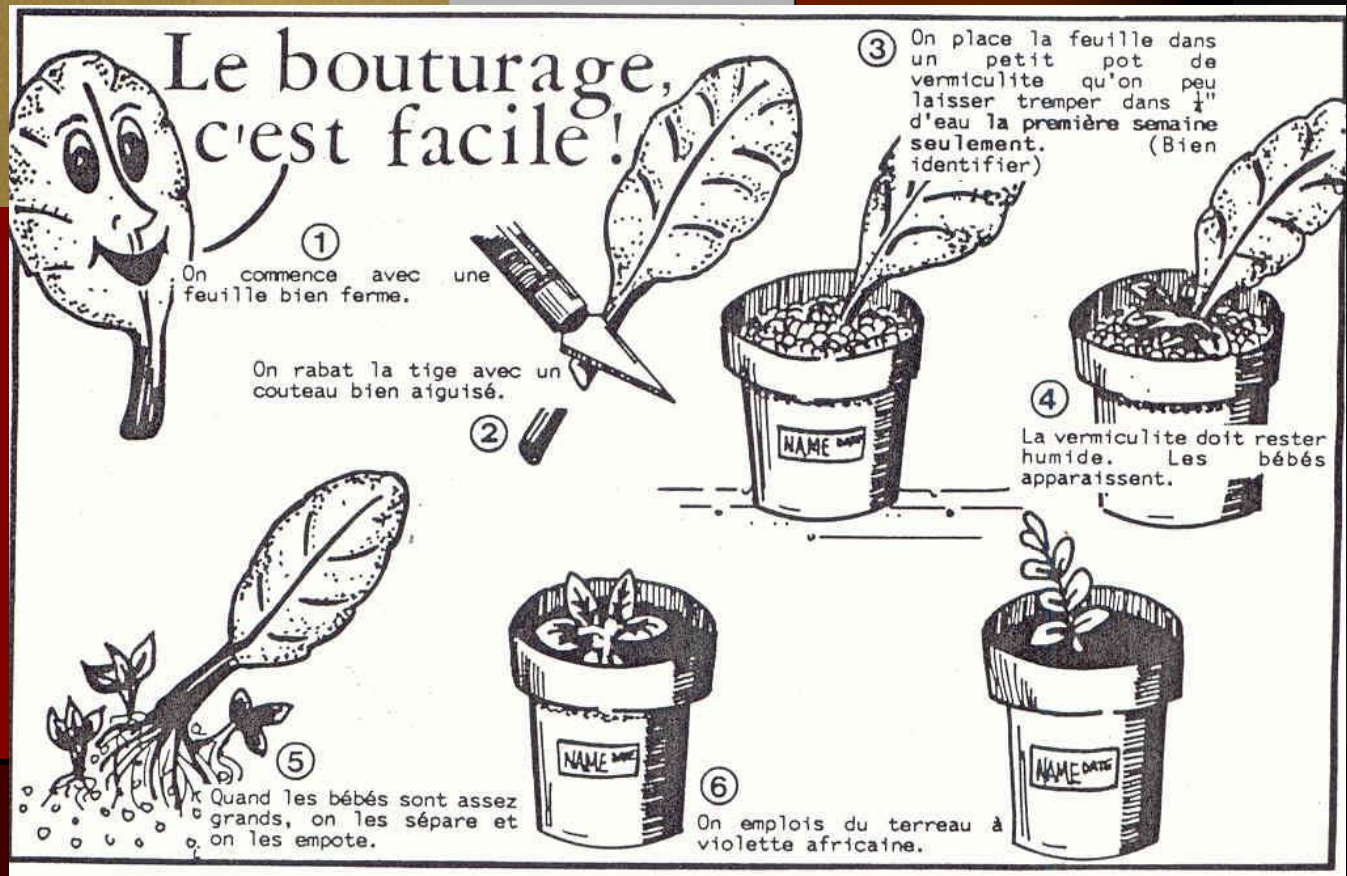
Clorita

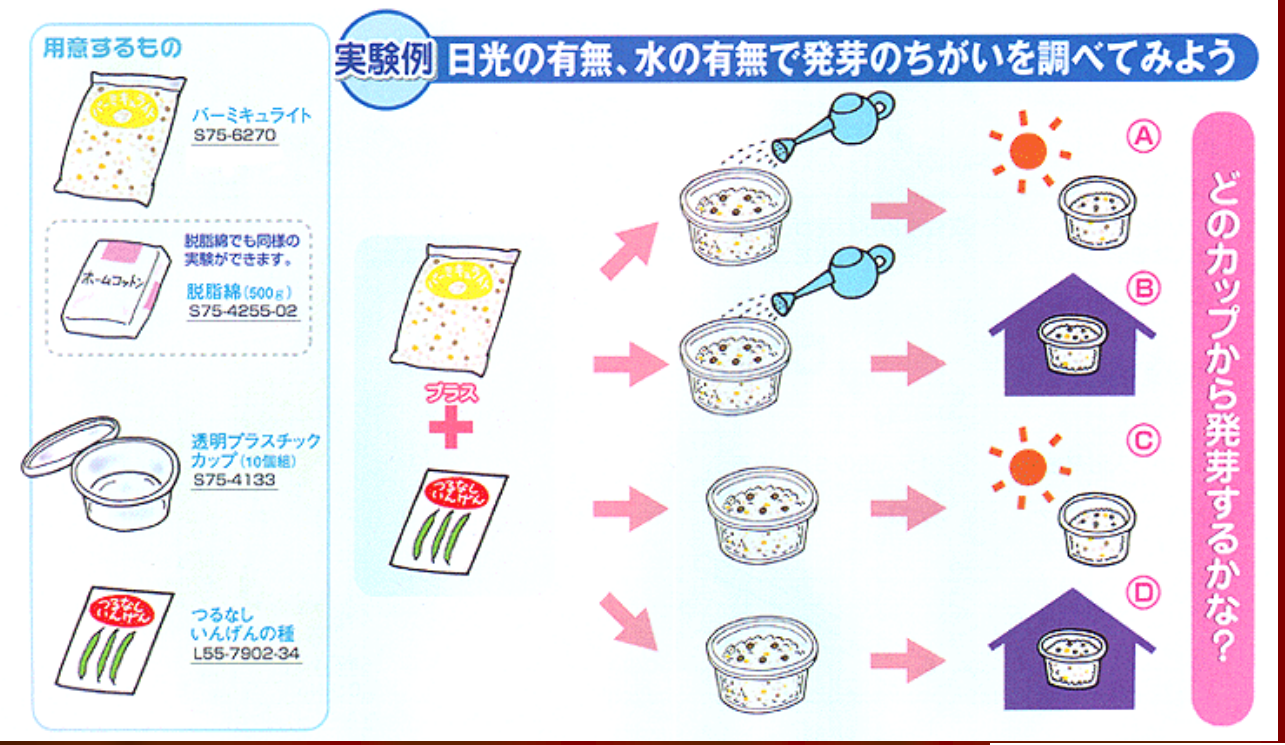

50.0um

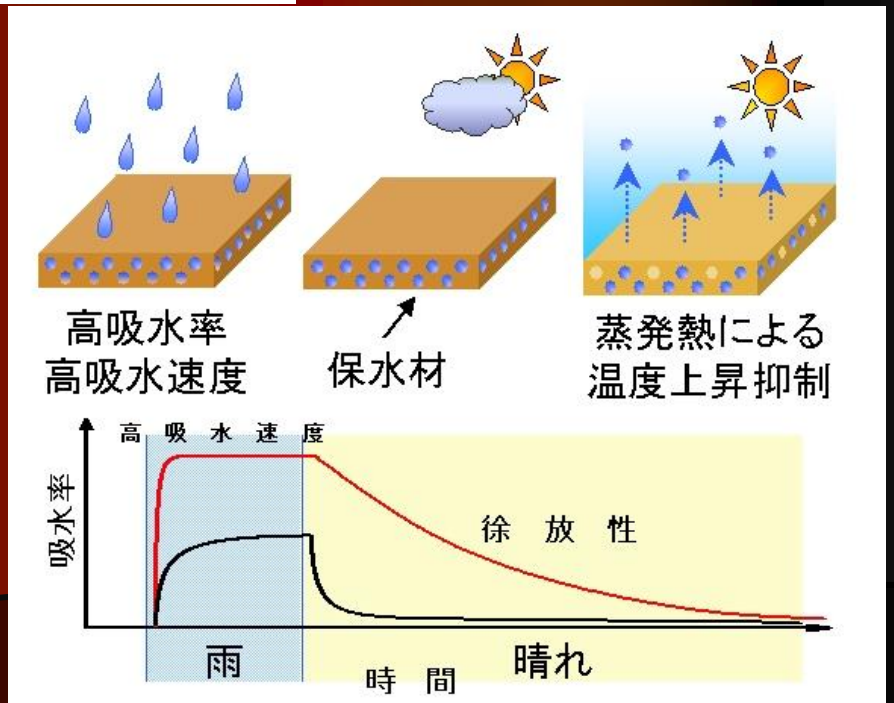

westland
Vermiculite
Vermiculite


vermiculite
DRY QUARTS


Vermiculite
Si4+ Tetrahedra
Al3+ Tetrahedra
Al3+ Octahedra


Le bouturage, c'est facile!
1 On commence avec une feuille bien ferme.
2 On rabat la tige avec un couteau bien aiguisé.
3 On place la feuille dans un petit pot de vermiculite qu'on peu laisser tremper dans ¼" d'eau la première semaine seulement. (Bien identifier)
4 La vermiculite doit rester humide. Les bébés apparaissent.
5 Quand les bébés sont assez grands, on les sépare et on les empote.
6 On emplois du terreau à violette africaine.
NAME
DATE


用意するもの
バーミキュライト
S75-6270
脱脂綿でも同様の実験ができます。
脱脂綿(500g)
S75-4255-02
透明プラスチックカップ(10個組)
S75-4133
つるなしいんげんの種
L55-7902-34
実験例 日光の有無、水の有無で発芽のちがいを調べてみよう
プラス
A
B
C
D
どのカップから発芽するかな?


高吸水率
高吸水速度
保水材
蒸発熱による
温度上昇抑制
高吸水速度
吸水率
徐放性
雨
時間
晴れ

:: Vermiculite

Mineral enriched food for domestic and farm animals

Vermiculite contains as mineral a lot of trace elements in their natural appeareances...

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CANCER INSTITUTE

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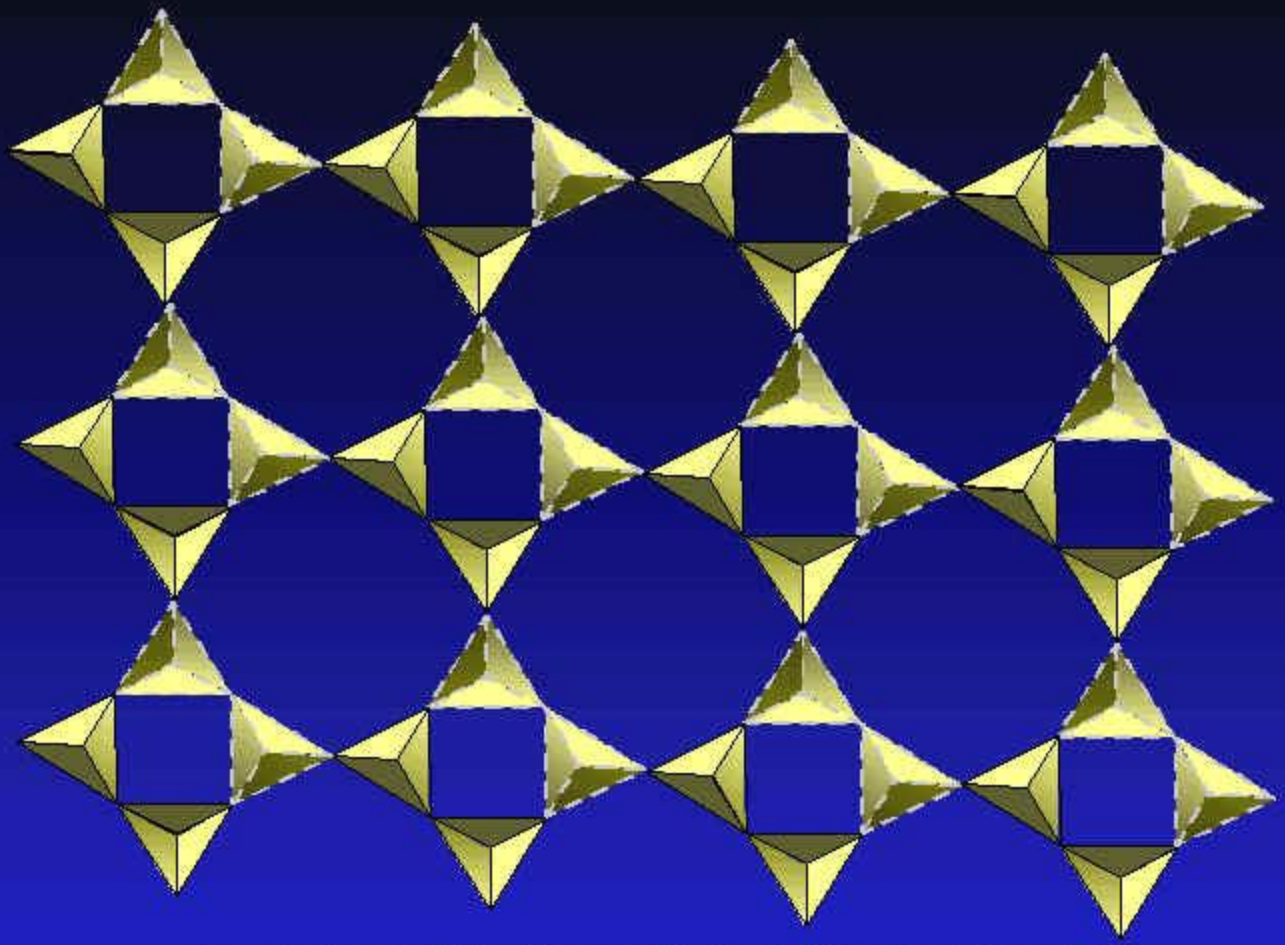
FRAMEWORK SILICATES

SILICA TETRAHEDRA

POTASSIUM

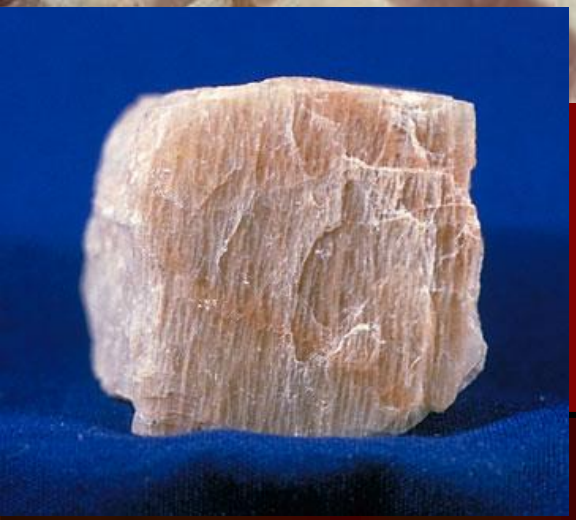


FELDSPAR STRUCTURE
(ORTHOCLASE)

URL: http://comp.uark.edu/~sboss

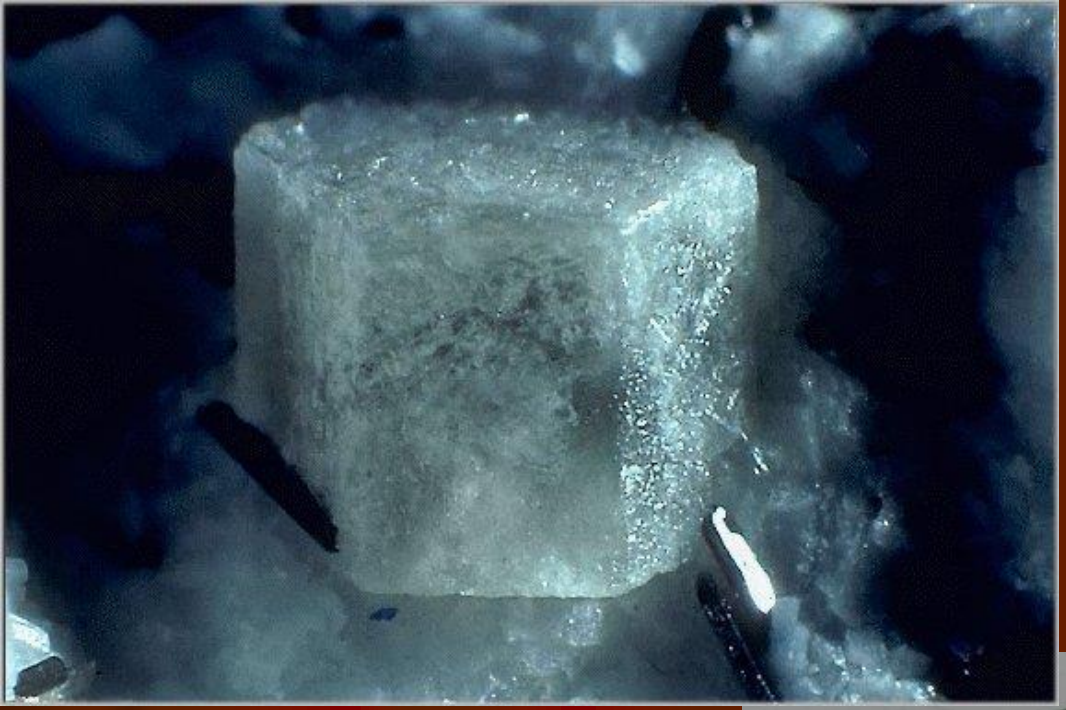
University of Arkansas

Feldspar	Formula	Cation Charge	Cation Size	Substitutions
Orthoclase	$KAlSi_3O_8$	K^{+1}	1.33 Å	Charges ok, but size difference to large for substitution
Sodium Plagioclase	$NaAlSi_3O_8$	Na^{+1}	0.95 Å	Sizes ok, but charges must be balanced for substitution. Done with Al and Si substitution
Calcium Plagioclase	$CaAl_2Si_2O_8$	Ca^{+2}	0.99 Å	



Feldspato

Feldspato



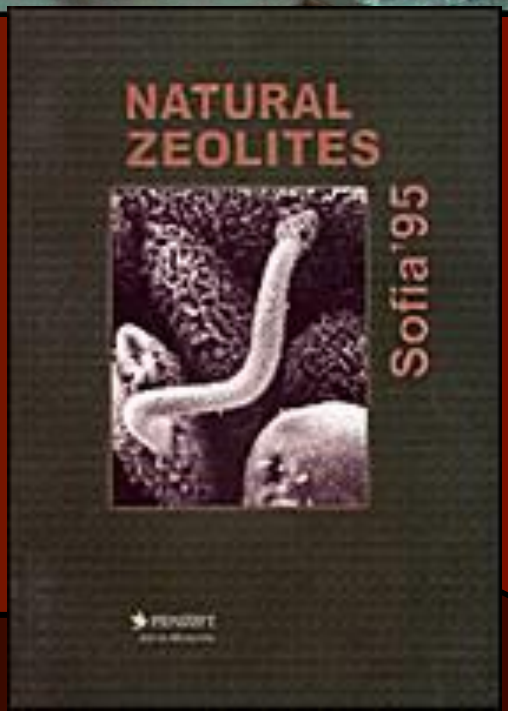
Nefelina


Sodalita

Quartzo

Quartzo

Quartzo


NATURAL
ZEOLITES
Sofia'95


Zeolite A

1. As amostras de minerais observadas nas vitrinas do museu foram distribuídas de acordo com algum critério científico. Qual seria este critério e porque ele foi adotado?

12 CLASSES MINERAIS

- Elementos nativos
- Sulfetos
- Sulfossais
- Óxidos
- Halóides
- Carbonatos
- Nitratos
- Boratos
- Fosfatos
- Sulfatos
- Tungstatos
- Silicatos

- Minerais com mesmo radical aniônico apresentam propriedades físicas e morfológicas muito mais semelhantes entre si que minerais com o mesmo cátion
- Minerais com mesmo radical aniônico tendem a ocorrer associados na natureza, sendo originados por processos físico-químicos semelhantes
- Esta prática de classificação está de acordo com a nomenclatura de compostos utilizada na Química Inorgânica

2. Alguns minerais apresentam faces planas. São os chamados **cristais**. Observe essa característica e procure identificar quando superfícies planas nas amostras não são naturais.


NATURAL
HISTORY
MUSEUM
LOS ANGELES COUNTY

3. Liste pelo menos 5 “minerais gemológicos” que estão no museu e que você sabe que são utilizados para a confecção de joias. Quais são as características comuns a estes minerais?

4. Existem alguns minerais que, em grandes quantidades, tornam-se importante fonte econômica de elementos como S, Pb, Fe, Mn, etc. Estes minerais são denominados “minérios”. Você reconhece algum mineral desses entre os que estão no museu? Liste pelo menos 5 nomes de minérios e os elementos que eles fornecem.

Argentita: Ag_2S - para a extração de prata
Barita: $BaSO_4$ - para a extração de bário
Bauxita: para a extração de alumínio
Berilo: $Be_3Al_2(SiO_3)_6$ - para a extração de berílio
Esfalerita: ZnS - para a extração de zinco
Bornita: Cu_5FeS_4 - para a extração de cobre
Calaverita: $AuTe_2$ - para a extração de ouro
Calcopirita: $CuFeS_2$ - fundamentalmente, para a extração de cobre
Calcocita: Cu_2S - para a extração de cobre
Cassiterita: SnO_2 - para a extração de estanho
Cinábrio: HgS - para a extração de mercúrio
Cobaltita: (Co,Fe)AsS - para a extração de cobalto
Cromita: $(Fe,Mg)Cr_2O_4$ - para a extração de crômio
Galena: PbS - para a extração de chumbo
Hematita: Fe_2O_3 - para a extração de ferro
Magnetita: Fe_3O_4 - para a extração de ferro
Molibdenita: MoS_2 - para a extração de molibdénio
Ouro: Au - associado ao quartzo e à pirita
Pentlandita:$(Fe,Ni)_9S_8$ - para a extração de níquel
Petalita :$LiAlSi_4O_{10}$ - para extração de lítio
Rutilo: TiO_2- para a extração de titânio
Pirolusita:MnO_2 - para a extração de manganês
Scheelita: $CaWO_4$ - para a extração de volfrâmio
Sperrylita:$PtAs_2$ - para a extração de platina
Uraninita UO_2 - para a extração de urânio
Volframita: $(Fe,Mn)WO_4$ - para a extração de volfrâmio

5. Diferentes tipos de meteoritos se encontram expostos no museu. Procure observar alguma diferença significativa entre eles.

Meteoritos

- Corpos metálicos ou rochosos caídos na superfície terrestre;
- Corpos pequenos que atingem a atmosfera com alta velocidade, sendo freados com o atrito com o ar;
- Calor produzido pelo atrito chega a fundir parcialmente as partes externas do meteorito, formando uma crosta de material vitrificado.

meteoritosbrasil.weebly.com

Cometa

Pequeno corpo sólido composto de rocha, gelo e gases congelados. Quando se aproxima do Sol exibe atmosfera e cauda.

Meteoroide

Pequeno "asteroide" ou fragmento de algum corpo sólido do Sistema Solar. Possui de microns a 1 metro de diâmetro.

Asteroide

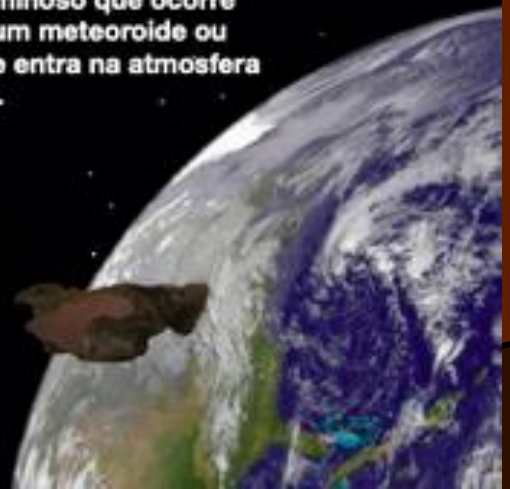
Corpo rochoso ou metálico que vaga pelo espaço. Possui de 1 metro a centenas de quilômetros de diâmetro.

Meteoro (Estrela Cadente)

Efeitò luminoso que ocorre quando um meteoroide ou asteroide entra na atmosfera terrestre.

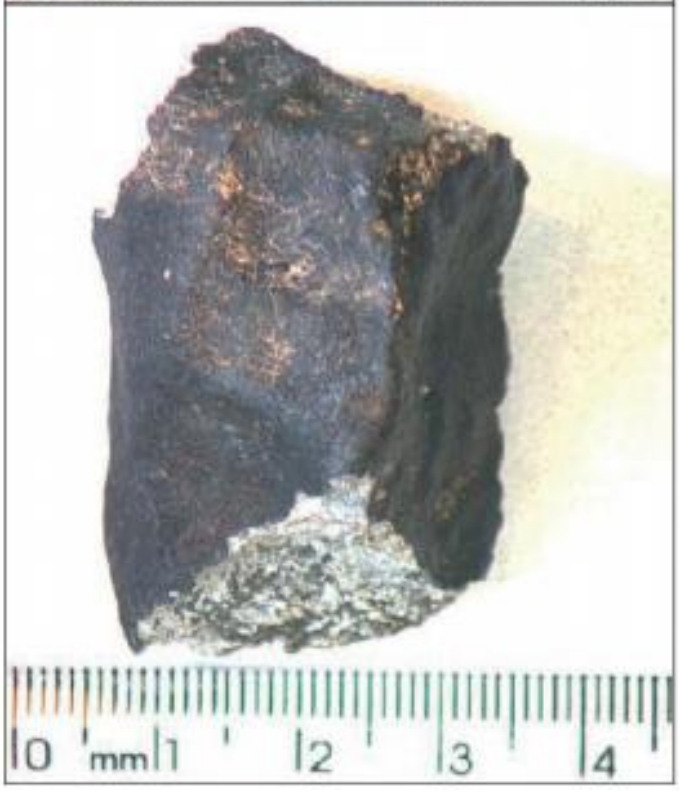
Meteorito

Fragmento de um meteoroide ou asteroide que sobrevive à passagem pela atmosfera e chega até a superfície.




0 mm 1 2 3 4

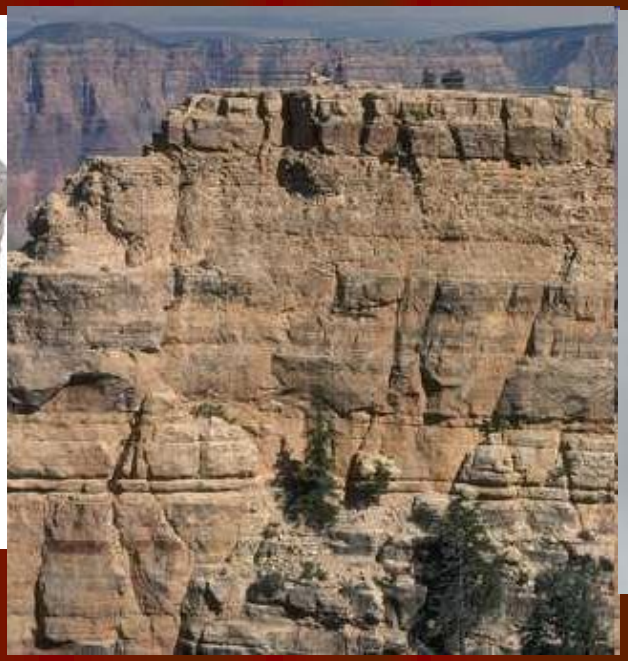

0 mm 1 2 3


0 mm 1 2 3 4

ROCHAS

ÍGNEAS

SEDIMENTARES



METAMÓRFICAS

Ciclo das rochas

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- http://map.gsfc.nasa.gov/universe/WMAP_Universe.pdf