

Mineral name: Chlorite

General Mineral formula: $(\text{Mg}, \text{Fe}, \text{Al})_3(\text{Si}, \text{Al})_4\text{O}_{10}(\text{OH})_2 \cdot (\text{Mg}, \text{Fe}, \text{Al})_3(\text{OH})_6$

Mineral chemical class: Phyllosilicate

Specific Gravity: 2.6-3.3	Crystal System: Monoclinic
Hardness: 2-3	Crystal Class: 2/m
Cleavage: Basal Cleavage, brittle fracture	Crystal description (common forms, habit, etc.):
Luster: Waxy	<ul style="list-style-type: none">• Sheeted, scaly rock
Streak: White	<ul style="list-style-type: none">• Subhedral
Characteristic Color(s): Green, Gray	

Environment (where you find the mineral): <ul style="list-style-type: none">• occurs in low-grade metamorphic rocks. It can be found in some igneous rocks• Weathering	Common Mineral Associations (in samples; also consult text, notes): <ul style="list-style-type: none">• 	
Scientific use/significance: <ul style="list-style-type: none">• 	Industrial or societal use/significance: <ul style="list-style-type: none">• Clay materials• Construction Stone• 	Environmental significance: <ul style="list-style-type: none">• Greenschist Indicator



Mineral name: Talc

General Mineral formula: $Mg_3Si_4O_{10}(OH)_2$

Mineral chemical class: Phyllosilicate

Specific Gravity: Medium-Light (2.58–2.83)	Crystal System: Triclinic or Monoclinic	
Hardness: 1	Crystal Class: 2/m or 1 or 1 bar	
Cleavage: Basal Cleavage	Crystal description (common forms, habit, etc.):	
Luster: Pearly / Greasy	<ul style="list-style-type: none">Waxy flakes, feels slipperyAnhedralFlaky, rocky.	
Streak: White		
Characteristic Color(s): White / Green		
Environment (where you find the mineral): <ul style="list-style-type: none">forms in hydrothermally altered mafic or ultramafic rocksMetamorphic settingshydrothermal alteration of the oceanic crust at mid-ocean ridges.	Common Mineral Associations (in samples; also consult text, notes): <ul style="list-style-type: none">Chloritemagnetite, tremolite, chlorite, anthophyllite, or serpentine	
Scientific use/significance: <ul style="list-style-type: none">may cause cancer	Industrial or societal use/significance: <ul style="list-style-type: none">Filler and colorant of paint, plastics, papersCeramicsBaby powder, lotionsmedicines	Environmental significance: <ul style="list-style-type: none">

Greasy / Pearly Lustre



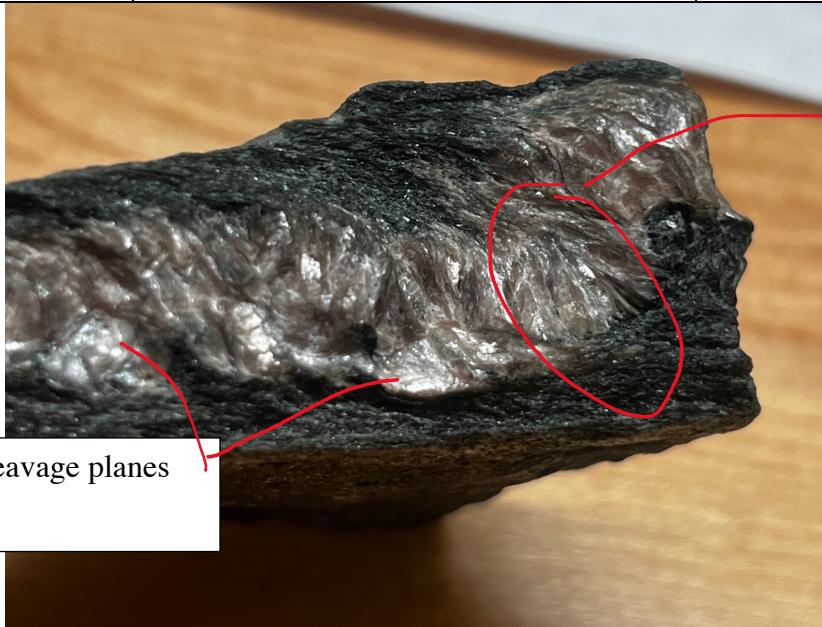
Mineral name: Margarite

General Mineral formula: $\text{CaAl}_2(\text{Al}_2\text{Si}_2)\text{O}_{10}(\text{OH})_2$

Mineral chemical class: Phyllosilicate

Specific Gravity: 2.99-3.08	Crystal System: Monoclinic
Hardness: 3.5-4.5	Crystal Class: 2/m
Cleavage: One plane of cleavage, brittle	Crystal description (common forms, habit, etc.):
Luster: Vitreous / Pearly	<ul style="list-style-type: none">Sheeted, scaly rock. Almost fiberous?Thick cylinders.SubhedralBrittle
Streak: White	
Characteristic Color(s): Pinkish	

Environment (where you find the mineral): <ul style="list-style-type: none">metamorphic rocks whose protoliths were relatively rich in Al and Ca	Common Mineral Associations (in samples; also consult text, notes): <ul style="list-style-type: none">andalusite and corundum	
Scientific use/significance: <ul style="list-style-type: none">	Industrial or societal use/significance: <ul style="list-style-type: none">None	Environmental significance: <ul style="list-style-type: none">



Mineral name: Lepidolite

General Mineral formula: $K(Li,Al)_3(Si,Al)_4O_{10}(F,OH)_2$

Mineral chemical class: Phyllosilicate

Specific Gravity: 2.8-2.9	Crystal System: Monoclinic
Hardness: 2.5 on basal plane	Crystal Class: 2/m
Cleavage: One plane of cleavage, brittle	Crystal description (common forms, habit, etc.):
Luster: Vitreous	<ul style="list-style-type: none">• Micaceous, scaly flaky. Can be tabular• Can also Anhedral crystal clusters
Streak: White	
Characteristic Color(s): Purple, Lilac	

Environment (where you find the mineral): <ul style="list-style-type: none">• Li-bearing granitic pegmatites• Can also crystallize from Li rich pegmatic fluids	Common Mineral Associations (in samples; also consult text, notes): <ul style="list-style-type: none">• quartz, feldspars, tourmaline, beryl, and topaz.• spodumene and amblygonite.
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Scientific use/significance: <ul style="list-style-type: none">• 	Industrial or societal use/significance: <ul style="list-style-type: none">• Mined for lithium• Traditional remedy	Environmental significance: <ul style="list-style-type: none">•
----------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------

Lilac Purple
(Is a deep purple on the left 2 also, but not as visible)



Mineral name: Serpentine

General Mineral formula: $Mg_3Si_2O_5(OH)_4$

Mineral chemical class: Phyllosilicate

Specific Gravity: 2.55-2.65	Crystal System: Monoclinic
Hardness: 2.5 – 3.5	Crystal Class: 2/m
Cleavage: One plane of cleavage	Crystal description (common forms, habit, etc.):
Luster: Waxy, silky in chrysotile	<ul style="list-style-type: none">Chrysotile are silky and fiberous.Antigorite is mildly platy, not notisble due to waxy, soapy nature.Anhedral
Streak: White	
Characteristic Color(s): Seaweed Green	

Environment (where you find the mineral): <ul style="list-style-type: none">Ultramafic rockshydrothermal alteration of mafic and ultramafic rocks	Common Mineral Associations (in samples; also consult text, notes): <ul style="list-style-type: none">Antigorite, Chrysotile, Lizarditetalc, calcite, brucite, chlorite, magnetite, and chromite.
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Scientific use/significance: <ul style="list-style-type: none">Rocks forms into columns as an asbestos	Industrial or societal use/significance: <ul style="list-style-type: none">Used as an asbestosBrake shoesFireproof Insulation	Environmental significance: <ul style="list-style-type: none">
-----------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------



Mineral name: Phengite

General Mineral formula: $K(Li,Al)_3(Si,Al)_4O_{10}(F,OH)_2$

Mineral chemical class: Phyllosilicate

Specific Gravity: 2.77-2.88	Crystal System: Monoclinic
Hardness: 2.5 on basal plane, 4 at right angle	Crystal Class: 2/m
Cleavage: One plane of cleavage, Flaky	Crystal description (common forms, habit, etc.):
Luster: Vitreous	<ul style="list-style-type: none">• Micaceous, Flaky• Anhedral• Hints of red due to additional iron
Streak: White	
Characteristic Color(s): White, silvery, tinges of red	

Environment (where you find the mineral): <ul style="list-style-type: none">• low-grade regional metamorphic rocks(in textbook)• high-grade metamorphic rocks(in handout)	Common Mineral Associations (in samples; also consult text, notes): <ul style="list-style-type: none">• Muscovite, paragonite•
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------

Scientific use/significance: <ul style="list-style-type: none">• Mica with silicon ratio greater than 3:1	Industrial or societal use/significance: <ul style="list-style-type: none">• Glass, Windows in ovens/furnaces• Electronics- capacitors, transistors, inductors• Filler in paint• Makeup – Eye shadow, nail polish	Environmental significance: <ul style="list-style-type: none">•
--------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------



Mineral name: Muscovite

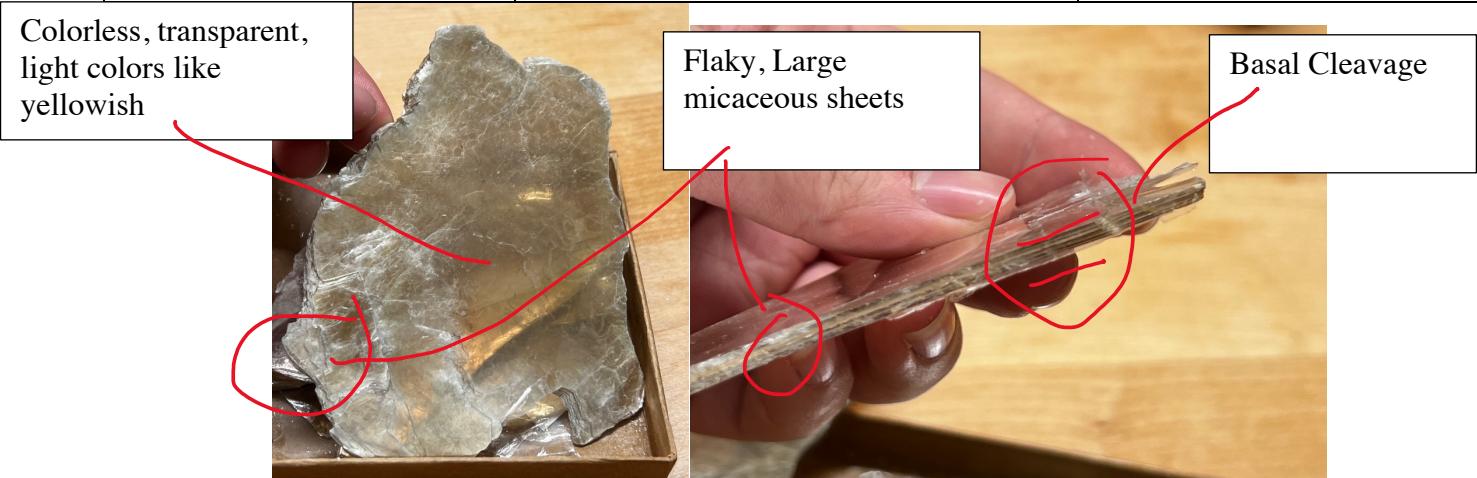
General Mineral formula: $KAl_2(AlSi_3)O_{10}(OH)_2$

Mineral chemical class: Phyllosilicate

Specific Gravity: 2.77-2.88	Crystal System: Monoclinic
Hardness: 2.5 on basal plane, 4 at right angle	Crystal Class: 2/m
Cleavage: One plane of cleavage, Flaky	Crystal description (common forms, habit, etc.):
Luster: Vitreous	<ul style="list-style-type: none">• Micaceous, Platy, large sheets and tabular• Flakes are clear, very flexible• subhedral•
Streak: White	
Characteristic Color(s): Colorless, tinges of yellow	

Environment (where you find the mineral): <ul style="list-style-type: none">• felsic igneous rocks, such as granites and pegmatites, and in metamorphic rocks like schist and gneiss	Common Mineral Associations (in samples; also consult text, notes): <ul style="list-style-type: none">•
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------

Scientific use/significance: <ul style="list-style-type: none">• Treatment for colitis in China	Industrial or societal use/significance: <ul style="list-style-type: none">• Glass, Windows in ovens/furnaces• Electronics- capacitors, transistors, inductors• Filler in paint• Makeup – Eye shadow, nail polish	Environmental significance: <ul style="list-style-type: none">• Drilling mud
----------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------



Mineral name: Biotite

General Mineral formula: $K(Mg,Fe)_3(AlSi_3)O_{10}(OH)_2$

Mineral chemical class: Phyllosilicate

Specific Gravity: 2.7-3.3	Crystal System: Monoclinic
Hardness: 2-3	Crystal Class: 2/m
Cleavage: Basal cleavage	Crystal description (common forms, habit, etc.):
Luster: Vitreous	<ul style="list-style-type: none">• Micaceous, Platy, large sheets• Bit more solid than muscovite• Euhedral
Streak: White	
Characteristic Color(s): Black	

Environment (where you find the mineral): <ul style="list-style-type: none">• Wide range of environments• in felsic igneous rocks like granite• Mafic rocks• Metamorphic rocks (green schist)	Common Mineral Associations (in samples; also consult text, notes): <ul style="list-style-type: none">• granite, granodiorite, quartz diotite, pegmatite, syenite, nepheline syenite, rhyolite, rhyodacite, dacite, and phonolite• Lepidolite, Muscovite
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Scientific use/significance: <ul style="list-style-type: none">• Can be altered to create vermiculite by leeching K cations through weathering/hydrothermal process.	Industrial or societal use/significance: <ul style="list-style-type: none">• Typically used as vermiculite an altered hydrous material.• Insulation, Construction• Additive for potted soil	Environmental significance: <ul style="list-style-type: none">•
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------

