

Differentiating Common Rocks From Minerals – Using Fleischer’s Glossary & I.M.A. List

When discussing rocks & minerals, common names are often used & most people are familiar with them. The Fleischer Glossary, [i.e. an index;] is specific about mineral names. If it’s NOT in Fleischer, it’s not a mineral, according to the IMA! So, persons studying minerals & rocks should be precise about the names used for rocks/minerals. [Note: some older references differ in naming & can be contradictory or out of date.] The I.M.A. also provides a free Pdf list of approved minerals which appears to match Fleischer. The I.M.A. list is more convenient, portable & searchable.

The list below, differentiates rock names from mineral names. There are many mineral groups; too many to mention here. [Take a look in Fleischer.] Listed are some of the common rock or group names that may cause confusion. The information is from Fleischer 2018. [Fleischer lists all the recognized groups at the back. N. B. - Fleischer’s Groups contain minerals with varying compositions.]

Common Rock Names	Contain These Minerals [+ signifies many other group minerals. NIF is Not in Fleischer] (Not a mineral)
Agate: Rock [Numerous types]	NIF. Quartz – multi coloured. Patterned bands
Albite: A plagioclase feldspar	Albite – [Composition $\text{NaAlSi}_3\text{O}_8$]
Alumina: Rock. See Bauxite	NIF. An Alumino silicate
Amazonite: Rock. [Orthoclase; K Feldspar]	NIF. Microcline: often aqua. Often Albite: whitish. [Composition KAlSi_3O_8]
Amethyst: Rock / Crystalline	NIF. Quartz – crystalline, purple. Iron impurity
Amphibole: Super group. Rocks	NIF. Many complex silicates, including Actinolite, Tremolite, Tschermakite, Riebeckite +
Anorthite: A plagioclase feldspar	Anorthite - [Composition $\text{CaAl}_2\text{Si}_2\text{O}_8$]
Anthracite: Coal Rock	NIF. [Composition $\text{C}_{240}\text{H}_{90}\text{O}_4\text{NS}$]
Apatite Group:	[Apatite deleted.] Fluorapatite [$\text{Ca}_5\text{PO}_4\text{F}$] +
Aquamarine: A blue/green crystalline rock	NIF. A Beryl . [Composition $\text{Be}_3\text{Al}_2\text{Si}_6\text{O}_{18}$] Iron impurity
Aragonite: a mineral	Aragonite. [Composition: CaCO_3]
Asbestos: not a Rock, but a group of fine fibrous minerals. Acicular. Some are carcinogenic! [See Amphibole S/group]	NIF. Actinolite, Riebeckite [Composition $\text{Na}_2\text{Fe}^{2+}_3\text{Fe}^{3+}_2\text{Si}_8\text{O}_{22}\text{OH}_2$], Tremolite. [See “Chrysotile”]
Aventurine: 2 types; Feldspar grp/Oligoclase;	NIF. & also a Quartz version
Basalt: extrusive, mafic, igneous Rock. Often has xenoliths, commonly Zeolites.	NIF. (Plagioclase) >50% Anorthite. Pyroxene, (Augite, often Titaniferous, Pigeonite. Usually dark to black. Numerous compositions.
Bauxite: rock. Aluminium ore. Pisolitic	NIF. Includes Böhmite, Diaspore, Gibbsite, Hematite
Beryl: varieties; Goshenite-colourless, Emerald-green; Morganite-blue, Aquamarine-blue	Beryl; red. [Composition $\text{Be}_3\text{Al}_2\text{Si}_6\text{O}_{18}$] Pure Beryl is Goshenite. Aquamarine impurity is Iron.
Boulder Opal + Rock with thin Opal	NIF. Mostly ironstone concretions, minor Opal +
Calcrete: A Rock type. A calcareous duricrust, caliche consisting of surficial sand and gravel cemented into a hard mass by calcium carbonate precipitated from solution and redeposited through the agency of infiltrating waters, or deposited by the escape of carbon dioxide from vadose water.	NIF: A Calcite conglomerate plus other material
Caliche: A Rock type. A reddish brown to white calcareous material of secondary accumulation, commonly found in layers on or near the surface of stony soils of arid and semiarid regions, but also occurring as a subsoil deposit in subhumid climates. It is composed largely of a calcareous cement, in	NIF: Roughly equivalent to (Calcrete)

addition to such materials as gravel, sand and mud.	
Carnelian: glassy rock	NIF. Variety of Quartz – pale to deep red
Celsian: colourless, white, yellow mineral	Celsian. [Composition: $BaAl_2Si_2O_8$] (Feldspar) group
Chalcedony: Rock	NIF. Variety of Quartz – microcrystalline
Chalk: soft white porous sedimentary carbonate rock. Mostly fossil fragments	NIF. Composed mostly of Calcite [Composition: $CaCO_3$]
Charoite: a beautiful, Schisty violet rock & mineral. Origin Chara River, Russia.	Charoite. [Composition: $(K, Sr, Ba, Mn)_{15-16} (Ca, Na)_{32} [Si_{70}(O,OH)_{180}] (OH,F)_4 \cdot nH_2O$]
Chert: Rock. Often red.	NIF. Variety of Quartz – microcrystalline
Chiastolite: Rock. Often whitish, symmetrical 4 lobed cluster in a black, mica like exterior	NIF. Andalusite [Composition: Al_2SiO_5]
Chrysoprase: A Chalcedony	NIF. Variety of Quartz. Green
Chrysotile: An Asbestos & former mineral. Found in rock; e.g. Karijini Nat. Park & nearby Wittenoom – W.A.	NIF. Fibrous, carcinogenic!
Cinnabar: both rock & mineral	Cinnabar. Usually with Mercury [Composition: HgS]
Citrine: crystalline Rock	NIF. Quartz – crystalline. Yellow. Aluminium impurity
Clays: soft, clastic, decomposition sediment.	NIF. Kaolinite rich & other composition clays
Coal: Rock. Hydrocarbon	NIF. [Compositon: $C_{137}H_{97}O_9NS$ for bituminous coal]
Coral: Rock / Fossil	NIF. [Composition $CaCO_3$]
Corundum Group: [v Ruby, Sapphire]	Corundum [Composition Al_2O_3 + minor impurities]
Crocidolite: a discontinued name. An asbestos. Fine, fibrous	NIF. Now, Riebeckite. [Composition $Na_2(Fe^{2+}_3Fe^{3+}_2)Si_8O_{22}(OH)_2$]
Diamond: found in Kimberlite or Lamproite volcanic pipes [aka Diatremes]	Diamond [Composition: C]
Dolomite: Rock & Mineral	Dolomite [Composition: $CaMg(CO_3)_2$]
Duricrust: Rock subtype - a hard crust on the surface of, or layer in the upper horizons of, a soil in a semiarid climate. Formed by the accumulation of soluble minerals deposited by mineral-bearing waters.	NIF: Includes (Silcrete, Ferricrete, Caliche, Calcrete & Gossan.)
Eclogite: Rock. Mafic, regional metamorphic	NIF. Omphacite, Quartz, (Pyroxene, Garnet)
Emerald: green variety of Beryl	Beryl. [Composition $Be_3Al_2Si_6O_{18}$] Chromium impurity
Enhydros: Aka Water stones. Geode of Chalcedony filled with water	NIF. Variety of Quartz – microcrystalline
Feldspar Group: [Alumino-silicates] -Orthoclase varieties [K species] -Plagioclase varieties [Na to Ca species] The most abundant group of minerals. Some may decompose to Clay/Kaolinite	No mineral called Feldspar. 20x mineral varieties of Alumino silicates. -K series: Adularia, Microcline, (Oligoclase,) Sanidine -Na/Ca series: Albite, Anorthite
Ferricrete: a rock. A laterite or conglomerate consisting of surficial sand and gravel cemented into a hard mass by iron oxide. Also see duricrust.	NIF. Pisoliths of Hematite cemented by Gibbsite
Flint: Chert. Commonly found in Chalk beds	NIF. Quartz – microcrystalline
Fluorite: mineral. Aka “Fluor spar”	Fluorite. Composition [CaF_2] Numerous colours
Fossils: Rocks with evidence of life. Soft bodies usually not preserved.	NIF. Common in sedimentary rock. Original composition may be replaced by Calcite or silica or iron sulphides
Garnet: Super group [Complex compositions]	No mineral called Garnet. Almandine, Grossular, Pyrope, Spessartine, Uvarovite + many others. Iron impurity
Geodes: a Rock, rounded. Chalcedony	NIF. Filled with Quartz. Sometimes calcite +
Glendonite: a Rock with angular points. Dull	NIF. A Calcite pseudomorph after Ikaite

Gossan: A rock type. An iron and manganese-bearing weathered product overlying a sulphide deposit.	NIF: (Limonite,) hematite etc. and manganese oxides, Quartz and relatively insoluble minerals.
Gneiss: metamorphosed Rock. Often, shiny plates/Schist. Usually light colour with dark bands. Coarse grained. May decompose to Saprolite, Kaolinite & Ferricrete	NIF: Light areas are Microcline, Albite, Perthite etc. Dark bands are commonly Biotite, Muscovite, (Hornblende & Pyroxenes)
Granite: Intrusive, plutonic, igneous Rock. Numerous compositions & colours. May decompose to Saprolite, Kaolinite & Ferricrete	NIF. Quartz, K feldspars; Orthoclase, Microcline, (Plagioclase;) Albite, Oligoclase. Biotite Mica, maybe Muscovite, (Hornblende, Pyroxene, Garnet)
Graphite: a gray to black sheen mineral	Graphite [Composition C]
Heliodor: yellow/greenish crystal/rock	NIF. A Beryl. [Composition $Be_3Al_2Si_6O_{18}$] Uranium impurity
Heliotrope: [aka Bloodstone]	NIF. Quartz – microcrystalline
Hornblende: Rock. May decompose into a clay	NIF. Variety of Ca Amphibole S/grp
Hornfels: contact metamorphic Rock	NIF. Andalusite, Biotite, Sillimanite, (Pyroxene)
Ice: naturally formed only!	Ice [At/below 0° C] [H ₂ O] Not found at room temp!
Iron: Both native & in rock ores of iron	Native Iron [Fe.] + Numerous iron minerals, e.g. Hematite, Marcasite, Magnetite
Ironstone is a rock. Aka Banded Ironstone Formation; “BIF.” See also “Tiger Iron.”	NIF. Composed of Magnetite, Hematite, Quartz v (Chert or Jasper.) E.g. Karijini Nat Park/Hamersley Range
Jade = Rock name	NIF. Jadeite. Chromium & Iron impurities
Jasper: Rock	NIF. Variety of Quartz – microcrystalline
Kaolinite: soft sediment. One of the 5 Clays	Kaolinite [Al ₂ Si ₂ O ₅ (OH) ₄] Decomposed Feldspar
Karst: a Limestone landscape	NIF. Mostly Limestone / Calcite [CaCO ₃]
Labradorite: Rock. (A Plagioclase Feldspar)	NIF.
Lamproite: igneous/volcanic rock in a “pipe”	NIF. Includes Phlogopite, Leucite, (Olivine, Pyroxene, Amphibole & K Feldspar.) Possibly Diamonds
Laterite: Rock type. A highly weathered, generally indurated, red subsoil. Leached of Silica	NIF: rich in hydrous iron oxides, +/- Kaolinite +/- Quartz +/- Gibbsite. It may be an ore of iron, aluminum, manganese, or nickel.
Lava: extrusive, molten magma. Solidifies to a Rock. Viscosity affects formation	NIF. Commonly silicates. Various types & compositions
Lead: both native & compounds	Lead. [Composition: Pb] In Galena, Cerussite, Crocoite +
Lignite: Rock / brown coal	NIF. Partially petrified wood/plant matter
Lime: a rock & mineral	Lime [Composition CaO]
Limestones: Calcareous Rocks. Aka “Carbonates.” Many Paris & London buildings of limestone, including Notre Dame	NIF. Usually Calcite. [Composition CaCO ₃] Sometimes Dolomite. + Often includes fossils. Numerous types.
Limonite: Rock name. Hydrated iron oxides. Also, dark olive botryoidal rock. Ochre. Often coats existing minerals; i.e. a pseudomorph.	NIF. An amorphous aggregate. Some Goethite (brown or yellow) & Lepidocrocite. [Composition FeOOH.nH ₂ O]
Marble: Calcareous Rock. Metamorphosed limestone. Other colours due to impurities	NIF. Calcite. May include many tiny amounts of other minerals. [Composition CaCO ₃] Commonly whitish
Marl: a clastic sedimentary Rock	NIF: Mixture of (Clay,) Calcite, maybe Dolomite, fossils
Mercury: a Mineral/element. In Cinnabar	Mercury - Hg [The only liquid mineral!]
Metals in Native/Pure form are minerals	Ag, Au, Cu, Hg, Sb, St, Ti & others
Mica Group: [Complex compositions] Can decompose to a clay	No Mica in Fleischer. Biotite, Muscovite, Phlogopite, Lepidolite +
Microbialite: Rock of organo-sedimentary deposits. Usually fossiliferous	NIF. (e.g. Stromatolites, Oncolites, Thrombolites)

Migmatite: ultrametamorphic Rock. Usually foliated/schists.	NIF. Containing either Quartz, Microcline, Perthite, Biotite, (Oligoclase) +
Mookaite: Rock subtype. From Pilbara, W.A.	NIF. Silicified Radiolarite / Quartz. (A Chert)
Morganite: crystal; usually blue. Or yellow, or pink or red	NIF. A Beryl. [Composition $\text{Be}_3\text{Al}_2\text{Si}_6\text{O}_{18}$] Lithium impurity
Morion: Rock	NIF. Quartz: crystalline, dark to black, nearly opaque
Nundoorite: Rock. Nundoora stn, Broken Hill	NIF. Aegirine [$\text{NaFe}^{3+}\text{Si}_2\text{O}_6$] pale green & Orthoclase [$\text{K}(\text{AlSi}_3\text{O}_8)$] (Syenite) brown.
Obsidian: Rock. Volcanic glass. Sometimes has inclusions e.g. "Snowflake;" "Rainbow."	NIF. Cryptocrystalline silica minerals in a glassy mass. Black, brown "Mahogany" & other colours
Ochre: a Limonite Rock. Usually soft	NIF. Yellow iron oxide. World oldest mined mineral at Wilgie Mia, Weld Ranges, W.A. >30k years
Oligoclase: Feldspar / Rock. Colourless, white, pale yellow	NIF. A variety of Albite [Composition Na,Ca [AlSi_3O_8]
Olivenite: Not to be confused with Olivine	Olivenite. [$\text{Cu}_2\text{AsO}_4\text{OH}$] Similar green to (Olivine)
Olivine: Volcanic rock. A mineral group of simple orthosilicates. Usually olive green	NIF. [Composition Mg, Fe_2SiO_4] Granular aggregates
Oncolite: organosedimentary Rock with spherical accretions $\leq 50\text{mm}$ diam.	NIF. Orange & rusty red
Onyx: Rock. Like Agate	NIF. Quartz – microcrystalline. Parallel bands
Opal: Inclusions in grainy rock. Multi coloured. Some are fossils	Opal. Quartz, hydrated. [Composition $\text{SiO}_2 \cdot n\text{H}_2\text{O}$]
Opalite: Rock. Not Opal	NIF. Quartz – microcrystalline. Many colours
Orpiment: a toxic hazard mineral!	Orpiment. [Composition As_2S_3] Orange yellow to lemon
Orthoclase: (K Feldspar)	Orthoclase [Composition KAlSi_3O_8]
Pegmatite: larger crystals in Rock. [Commonly in dykes or veins in granite] Size: mostly > 3cm	NIF. Usually coarse, larger crystals. Quartz, (Alkaline Feldspars:) Orthoclase, Microcline, Albite, (Micas)
Peridot: rock name. Green, pale yellow or white	NIF. A variety of Forsterite [Composition Mg_2SiO_4]. Impurity is Iron
Perlite: rock subtype. Amorphous volcanic glass with high water content	NIF.
Petrified wood: Rock. [A Chalcedony] See also Fossils	NIF. Quartz – microcrystalline.
Plagioclase: Feldspar rock	NIF. See Feldspar group. Alumino silicates
Plasma: A Chalcedony	NIF. Quartz - green
Prase: Rock	NIF. Quartz - dull green
Pumice: volcanic rock. Very vesicular. Floats in water. Very low density. Pale, bone colour	NIF. Mostly silica with small crystals of various materials. The most common are (Feldspar,) Augite, (Hornblende,) and Zircon
Pyroxene: Rock group. Often in igneous & metamorphic rock. Usually dark green	NIF. Chain silicates. [Composition XYSi_2O_6] Augite, Diopside, Jadeite, Spodumene +
Quartz. Also a rock. Very abundant silicate. Transparent, milky & many colours.	Quartz: crystalline & microcrystalline.. [Composition SiO_2]. Inclusions possible
Quartzite: Rock. Metamorphosed chert &/or sandstone.	NIF. Quartz + Hard & dense. Maybe laminar
Radiolarites: organogenetic sedimentary Rock. Coal?	NIF. Siliceous – Quartz, maybe Opal
Rhyolite: Acid, volcanic rock. Often laminar or spherulitic	NIF. Felsic minerals comprising >20% quartz and alkali feldspar/plagioclase 40-90%
Ruby: red crystal variety of....	NIF. ...Corundum. [Al_2O_3] Chromium impurity.
Rutile: crystalline. Brownish/red, yellowish, iron-black	Rutile: [Composition TiO_2] Prismatic, acicular
Sapphire: blue+ crystal variety of ...	Corundum

Sard / Sardonyx: A Chalcedony	NIF. Variety of Quartz – light to dark brown or red/brown/white bands. [Composition SiO ₂].
Septarian Nodule: Carbonate rich sedimentary Rock. Aka “Dragonstone”	NIF. Concretion of Clay Ironstone, usually Calcite, Aragonite, Barite, Gypsum, (Limestone) matrix. Radiating, mineral filled spheres.
Serpentine/ite: a Rock. [See Chrysotile also]	NIF. Antigorite, Lizardite.
Silcrete: A Rock class. A conglomerate or sandstone consisting of surficial sand and gravel cemented into a hard mass by silica.	NIF: A siliceous duricrust.
Skarn: a contact metamorphic rock	NIF. A likely site of minerals; e.g. Ca, Mg or Fe silicates. Calcite, (Garnet, Pyroxene)
Slate: a contact metamorphic Rock. Platy	NIF. Andalusite, Biotite, Muscovite +
“Soapstone:” a metamorphic rock of talc-schist. Aka “Steatite.”	NIF. Mostly Talc. Very soft, easy to carve.
Spinel: a mineral	Spinel. [Composition MgAl ₂ O ₄] Fe, Ni & Cr impurities
Staurolite: a dark red/brown mineral	[Composition Fe ²⁺ ₂ Al ₉ Si ₄ O ₂₃ (OH)] Twinning common
Talc: aka “Soapstone” Soft, silky, soapy	Talc [Composition Mg ₃ Si ₄ O ₁₀ (OH) ₂] Various colours
Thulite: Rock. Red/pink	NIF. Actually, red Zoisite. [Ca ₂ Al ₃ Si ₂ O ₇ SiO ₄ OOH]
Thunder eggs: a Rock.	NIF. Filled with Quartz (v Agate.) Also, sometimes Opal or (Chalcedony.)
“Tiger Eye:” microcrystalline, metamorphosed rock. Includes rounded (“eye”) structures. E.g. Pilbara, W.A.	NIF. Banded sequences of (Chert, Jasper,) i.e. Quartz, Hematite, Magnetite, Goethite & Riebeckite - after (Crocidolite.) A great specimen in U.O.W. Bldg 43.
“Tiger Iron:” Same as Tiger Eye, without the “eye” forms. Aka “Banded Iron Formation”	NIF. Same as above. A great specimen in U.O.W. Bldg 43. “Tiger” name due to Tiger fur appearance.
Tin / Native: [Also Sphalerite - Tin ore]	Tin – [St]
Titanium: a native mineral & in compounds	Titanium - [Ti] Also in Rutile
Topaz - mineral name. Clear, multi coloured	Topaz. [Al ₂ SiO ₄ F ₂] Blue from lattice flaws
Tourmaline: S/group. Prismatic. Maybe multi coloured; e.g. Elbaite	No mineral called Tourmaline. Elbaite, Dravite, Schorl, + [Complex compositions] Manganese impurity
Travertine: Calcareous, sedimentary Rock. Limestone. Light colour. Vacuolar. Often has fossils	NIF. Calcite or Aragonite; with (Limonite) impurities. Small, thin bands; not laminar. [Composition CaCO ₃]
Tuff: Volcanoclastic rock	NIF. Contains fragments of varied rock &/or minerals
Turquoise: both rock & mineral names	Turquoise. [CuAl ₆ (PO ₄) ₄ (OH) ₈ ·4H ₂ O] Copper impurity
Vermiculite: a mineral. Many colours. Sometimes like Micas, hexagonal, prismatic	Vermiculite; [Composition: Mg _{0.7} (Mg,Fe,Al) ₆ (Si,Al) ₈ O ₂₀ (OH) ₄ ·8H ₂ O] Commonly brown, bronze - yellow
Yowah “Nut:” A siliceous ironstone Rock	NIF. Spheroid concretion, sometimes contain Opal
Zeolite Group [Hydrated, Metals with Alumino-Silicates] Some are thin, acicular	NIF. Chabazite, Heulandite, Natrolite. + many others. Commonly white
Zircon: a mineral. Many colors. Heating creates colours. Sometimes radioactive	Zircon. [Composition ZrSiO ₄]
Zoisite: a mineral group. (Thulite) is red. (Tanzanite) is blue. Mostly clear or white, gray, brownish, green. Often prismatic.	Zoisite. [Composition Ca ₂ Al ₃ Si ₂ O ₇ SiO ₄ OOH] Analcime, Chabazite, Heulandite, Mesolite, Natrolite, Stellerite, Stilbite + Found in metamorphic rock & some basalts

N. B. - Most of the many other groups in Fleischer have the title name as a mineral, amongst other minerals.

*With Oxygen, Silicon & Aluminium being the most abundant elements in Earth’s crust: [O = 46%, Si = 28% & Al = 8% ;] it’s no wonder that silicates & Alumino silicates dominate both rock & mineral abundance.

*All minerals have some impurities & these often result in colour variability.

Roly Smith – Updated Aug. 2024