

Fluorescence Index for Gemstones

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Gem	LW	Activator	SW	Activator
Afghanite	strong yellow	Sulfur (S ₂)	inert	none
Amber	moderate yellow	organic	moderate yellow	organic
Anglesite (yellow)	moderate yellow	Pb ²⁺	weak yellow	Pb ²⁺
Apatite (blue, purple, colorless)	inert-mod. orangey pink	Sm ³⁺ & Eu ³⁺	inert-weak pink	Sm ³⁺ & Eu ³⁺
Apatite (green)	inert-weak orangey pink	Sm ³⁺ &Eu ³⁺	inert	none
Apatite (yellow)	weak-strong yellow	Mn ²⁺	inert-strong yellow	Mn ²⁺
Apatite (colorless)	mod. orangey pink	Sm ³⁺ & Eu ³⁺	weak yellow	Mn ²⁺ , Dy ³⁺
Aragonite (colorless)	strong greenish yellow	Mn ²⁺ , UO ₂ , V	weak green/yellow	Mn ²⁺ , UO ₂
Axinite (Magnesio: colorless, blue)	strong orangey pink	Cr ³⁺ & Mn ²⁺	weak pink	Cr ³⁺
Axinite (Mangano: brown-yellow)	weak pink	Mn ²⁺	inert	none
Benitoite	inert	none	moderate bluish white	??
Bustamite	strong pink	Mn ²⁺	inert	none
Calcite (green)	mod. yellow green	Uranium (UO ₂)	weak yellow green	UO ₂
Calcite (colorless, Texas)	mod. pink	??	mod. blue	??
Calcite (colorless, orange)	inert-weak yellow	Mn ²⁺	inert-strong white	??
Cassiterite (brown, colorless)	strong orange	Sn ²⁺	inert	none
Celestite	weak-moderate blue	??	inert	none
Cerussite (colorless)	weak pink	Sm ³⁺ ?	Inert	none
Chalcedony (var. colors)	moderate white	??	inert	none
Chalcedony (green Aquaprase)	weak greenish white	Mn ²⁺	moderate green	Mn ²⁺
Chalcedony (dyed: purple, pink)	strong pink or orange	Mn ²⁺ plus C.	pink or orange	Mn ²⁺ plus C.
Charoite	spots of red	Mn ²⁺	spots of yellow	Ce ³⁺ ?
Chrysoberyl (green)	weak-strong pink/red	Cr ³⁺	inert	none
Chrysoberyl (Alexandrite)	strong red	Cr ³⁺	inert	none
Chrysoberyl (synth. Alexandrite)	strong red	Cr ³⁺	weak red	Cr ³⁺
CZ (pink)	weak-strong green/yellow	Er ³⁺ , Ho ³⁺	weak green/yellow	Er ³⁺ , Ho ³⁺
Danburite (colorless, yellow)	inert-mod. blue	Eu ³⁺	inert	none
Danburite (yellow cat's eye)	mod. greenish yellow	Uranium, Mn ²⁺ ? Inert		none

Diamond	inert-strong yellow	Boron vacancy	inert-weak yellow	Boron vac.
Diamond	inert-strong white	Nitrogen vac.	inert-weak white	Nitrogen vac.
Diaspore	weak-strong red	Cr ³⁺	inert	none
Diopside (rare light green)	strong red	Cr ³⁺	weak red	Cr ³⁺
Diopside (rare V ³⁺ green)	strong orangey yellow	Mn ²⁺ ?, V ³⁺ ?	weak green-yellow	Mn ²⁺ ?
Diopside (rare yellow)	weak pink	Mn ²⁺ plus Cr?	yellow	Mn ²⁺ ?
Dolomite (colorless)	weak pink	Mn ²⁺	inert	none
Ekanite	weak yellow green	Uranium (UO ₂)	inert	none
Emerald Beryl	inert-strong pink	Cr ³⁺	inert-weak red	Cr ³⁺
Emerald (synthetic)	inert-strong red	Cr ³⁺	inert	inert
Feldspar	inert-strong red/orange	Fe ³⁺	weak pink/red	Fe ³⁺
Fluorite (var. colors)	inert-strong bluish white	Eu ³⁺	inert	none
Fluorite (yellow)	weak-strong yellow	Mn ²⁺ ?	inert-weak yellow	Mn ²⁺ ?
Forsterite (blue synthetic)	weak pink	Cr ³⁺ ?	weak yellow	Mn ²⁺ ?
Garnet (Pyrope-Spessartine)	inert-strong red	Cr ³⁺	inert	none
Garnet (Grossular)	inert-mod. orangey pink	Cr ³⁺ & Mn ²⁺	mod. yellow	Mn ²⁺
GGG (yellow, purple)	weak-strong orange/pink	Cr ³⁺ ?	weak-mod. orange	??
Glass (neon green Mn ²⁺ Glass)	strong green	Mn ²⁺	strong green	Mn ²⁺
Glass (light green)	weak pink	Cr ³⁺ ?	weak yellow	Mn ²⁺ ?
Glass (pink)	weak greenish yellow	Er ³⁺	strong white	Er ³⁺
Glass (purple Nanosital)	strong greenish yellow	Er ³⁺	inert	none
Glass (light aqua blue)	strong yellow white	Er ³⁺ ?	Weak yellow white	Er ³⁺ ?
Glass (blue Nanosital)	strong white	Er ³⁺	strong white	Er ³⁺
Glass (red)	inert-strong orange red	??	inert-mod. Yell/orange	??
Hauyne	strong orange	Sulfur (S ₂)	inert	none
Herderite (green, yellow)	moderate bluish white	Eu ³⁺ ?	inert	none
Kornerupine (V ³⁺ green, blue)	strong yellow	V ³⁺ ?	strong yellow	Mn ²⁺ ?
Kornerupine (brownish green)	inert-pink or red	Cr ³⁺	inert	none
Kyanite (blue & green)	moderate pink	Cr ³⁺	inert	none
Maxixe Beryl (blue)	weak yellowish green	??	weak yellowish green	??
Lapis Lazuli	inert	none	strong yellow	Sulfur (S ₂)
Opal (Ethiopian)	inert-strong yellow/white	??	inert-strong yellowish white	??

Opal (white Australian)	moderate-strong yellow/white with weak green phosphorescence			
Opal (Hyalite)	strong green	Uranium (UO ₂)	weak green	Uranium (UO ₂)
Opal (pink)	weak pinkish white	??	inert	none
Opal (blue Peruvian)	weak bluish green	??	inert	none
Opal (Peruvian Prase Opal)	weak-strong green	??	weak green	??
Pearl (black Tahitian)	mod. brownish red	Organic?	inert	none
Pearl (white Tahitian)	strong yellow	Organic?	weak yellow	Organic?
Pezzotaite	weak pink	Mn ²⁺ plus C.	inert	none
Pollucite (colorless)	weak yellowish green	Mn ²⁺	inert	none
Ruby (synthetic)	strong red	Cr ³⁺	strong red	Cr ³⁺
Ruby (natural)	inert -strong red	Cr ³⁺	inert-strong	Cr ³⁺
Sapphire (pink, purple)	moderate-strong pink/red	Cr ³⁺	inert-weak red	Cr ³⁺
Sapphire (synthetic pink)	weak-strong orange/red	Cr ³⁺	inert-weak yellow/pink	??
Sapphire (red Be diffused)	strong orange or red	Cr ³⁺	inert	none
Sapphire (blue)	inert-moderate pink	Cr ³⁺	inert	none
Sapphire (blue, natural, heated)	inert-moderate pink	none or Cr ³⁺	inert-chalky white	Ti ⁴⁺
Sapphire (blue synthetic)	inert	none	chalky white	Ti ⁴⁺
Sapphire (synth. blue flux grown)	strong yellow	Mn ²⁺ ?	inert	none
Sapphire (Padparadscha)	strong red	Cr ³⁺	weak red	Cr ³⁺
Sapphire (synth. Padparadscha)	strong red	Cr ³⁺	mod. orange/red	Cr ³⁺
Sapphire (orange)	inert-weak orange	Cr ³⁺	inert	none
Sapphire (synthetic orange)	weak-strong red	Cr ³⁺	inert	none
Sapphire (yellow)	strong pinkish orange	Cr ³⁺ & V	inert	none
Sapphire (synthetic yellow)	weak pink	Cr ³⁺	inert	none
Sapphire (colorless)	inert-strong pink	Cr ³⁺	weak yellow	Mn ²⁺ ?
Sapphire (synthetic colorless)	moderate pink	Mn ²⁺	moderate blue	??
Sapphire (color change)	moderate-strong red	Cr ³⁺	inert	none
Sapphire (synth. color change)	moderate-strong red	Cr ³⁺	inert-weak yellow	Mn ²⁺ ?
Scapolite (yellow/brown)	moderate-strong pink	Fe ³⁺	inert	none
Scapolite (purple)	weak red	Cr ³⁺	weak red	Cr ³⁺
Scheelite	inert-strong yellow	Molybdenum	bluish white	Tungsten
Sinhalite (light yellow)	inert-mod. pink/red	Mn ²⁺ plus C.	inert	none

Smithsonite (yellow)	weak orange	Mn ²⁺	inert	none
Sodalite (opaque blue)	weak-moderate orange	Sulfur (S ₂)	inert	none
Sodalite (opaque green)	strong orange	Sulfur (S ₂)	weak	Sulfur (S ₂)
Sodalite (transp. Hackmanite)	strong yellow orange	Sulfur (S ₂)	weak yellow	Sulfur (S ₂)
Spessartine (rare Malayas)	strong red	Cr ³⁺	inert	none
Sphalerite (yellow)	inert-weak red	Fe ²⁺	inert	none
Spinel (natural pink & red)	weak-strong red	Cr ³⁺	weak red	Cr ³⁺
Spinel (natural cobalt Spinel)	weak-strong red	Co ²⁺	inert	none
Spinel (synthetic blue)	weak-strong red	Co ²⁺	weak red	Co ²⁺
Spinel (synthetic pink)	strong red	Cr ³⁺	weak red	Cr ³⁺
Spinel (synthetic green)	inert-strong red	Co ²⁺	inert-strong yellow green	Mn ²⁺
Spinel (synth. greenish yellow)	strong yellow-green	Mn ²⁺	moderate yellow-green	Mn ²⁺
Spodumene (Kunzite, colorless)	strong orangey pink	Mn ²⁺ & Cr ³⁺	inert-weak pink	Mn ²⁺ & Cr ³⁺
Topaz (Imperial)	mod.-strong pink/red	Cr ³⁺	inert	none
Topaz (Precious)	strong orange	??	strong yellow	??
Topaz (pink)	strong pink	Cr ³⁺	weak yellow	??
Topaz (pink)	strong pink	Cr ³⁺	strong white	??
Topaz (blue)	inert-weak white/yellow	Germanium (Ge)	inert	none
Tourmaline (Chrome Dravite)	inert-strong red	Cr ³⁺	inert-weak yellow	Mn ²⁺ ?
Tourmaline (Brown Dravite)	inert	none	weak yellow	Mn ²⁺ ?
Tourmaline (Vanadium Dravite)	inert	none	weak yellow	Mn ²⁺ ?
Tourmaline (Chrome Uvite)	inert	none	weak yellow	Mn ²⁺ ?
Tourmaline (blue Paraiba)	inert- mod. bluish white	??	inert	none
Tugtupite	strong orangey pink	Sulfur (S ₂)	strong pink orange	Sulfur (S ₂)
Willemite (transparent yellow)	strong yellowish green	Mn ²⁺	strong yellowish green	Mn ²⁺
YAG (bluish purple)	weak yellow	??	mod. pinkish orange	??
YAG (neon yellow)	strong yellow	Ce ³⁺ ?	strong yellow	Ce ³⁺ ?
YAG (pink)	weak orangey pink	Er ³⁺	moderate orange	Er ³⁺
Zandrite Glass	strong white	Er ³⁺	strong white	Er ³⁺
Zincite (yellow, orange)	inert-strong yellow	??	inert-weak yellow	??
Zircon (pink)	strong yellow orange	Dy ³⁺	strong orange	Dy ³⁺
Zircon (blue, colorless)	weak pink	Color Centers	Inert-weak pink	Color Centers

Zircon (green, rare reaction) mod. pink

Color Centers strong yellow Color Centers

Rare One-Off UV Reactions

Gem	LW	Activator	SW	Activator
Spinel (rare blue synth w/Mn2+)	strong yellow	Mn2+	weak yellow	Mn2+
Topaz (blue rare cobalt diffused)	strong red	Co2+	inert	none
Tanzanite	strong blue-green	??	weak blue-green	??