Actinolite-Tremolite

Actinolite - Tremolite resemble hornblende in all respects, except:

1. Tremolite is lighter coloured and has lower R.I.
2. Actinolite lower R.I. and smaller extinction angle

Actinolite-Tremolite

Colour and Pleochroism

- colourless to pale green to dark green, darker colours and stronger pleochroism associated with high Fe contents
  X = colourless, pale yellow green
  Y = pale yellow-green, pale blue-green
  Z = pale green, green, blue-green

Actinolite-Tremolite

- **Refractive Index**
  n_α = 1.599-1.688
  n_β = 1.612-1.697
  n_γ = 1.622-1.705

- **Relief**
  moderate to high positive

Actinolite-Tremolite

Birefringence and Retardation

- $\delta = 0.017\text{-}0.027$
- Maximum interference colours are upper 1st to mid 2nd order

Actinolite-Tremolite

Interference Figure

- biaxial negative
- $2V_X$ = 75-88°

Actinolite-Tremolite

Form

- occurs as columnar, bladed or acicular grains, elongated parallel to c axis, may be fibrous, basal sections are diamond shaped, with typical amphibole cleavage

Cleavage

- two amphibole cleavages on {110}, intersect at 56 and 124°

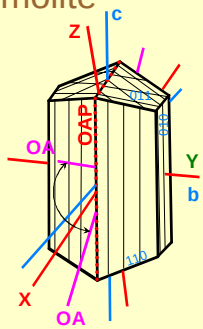
Twinning

- simple and lamellar twins

Actinolite-Tremolite

Optic Orientation

- **X** ^ **a** = +5° to -6°
- **Y** = **b**,
- **Z** ^ **c** = +10° to +21°
- optic plane = (010) elongate sections are length slow



Actinolite-Tremolite

Alteration

- alters to talc, chlorite and carbonates

Actinolite-Tremolite

Occurrence

- common occurrence in contact and regional metamorphosed limestone and dolomite
- Also found in metamoprhosed mafic and ultramafic rocks
- It is the common fine-grained alteration product of pyroxenes

Actinolite-Tremolite

Distinguishing Features

- Can and will be confused with hornblende
- actinolite differs from hornblende by:
  - Higher 2V
  - Lower extinction angle
  - Less pleochroic