
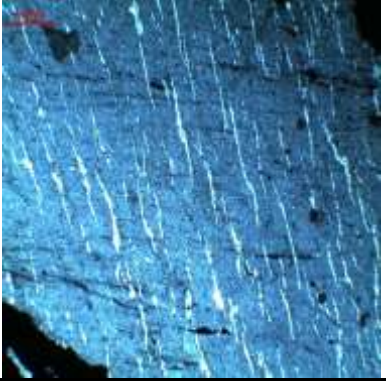
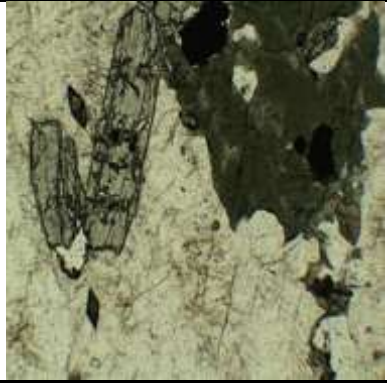


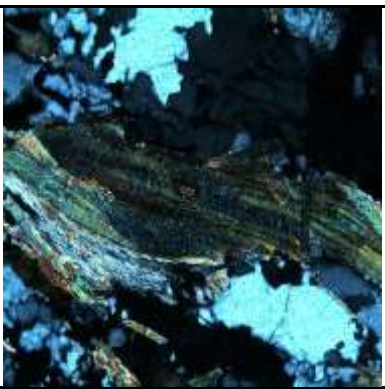


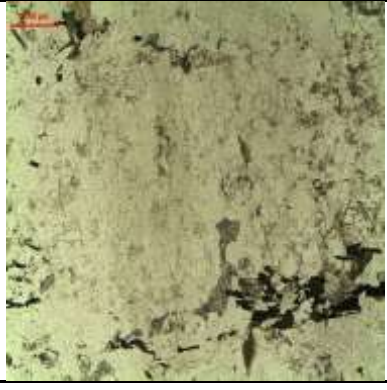
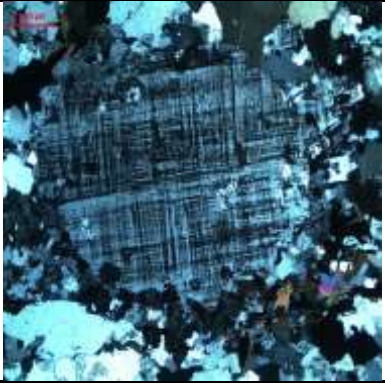
GEO 202 OPTICAL MINERALOGY – PROPERTIES OF MINERALS

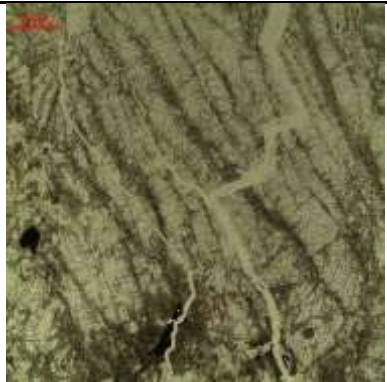
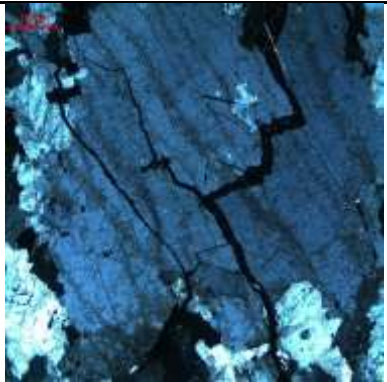
Prof. Dr. Yusuf Kagan KADIOĞLU

PlanePolarized	Mineral Name	Cross Polarized
	ORTHOCLASE (Perthitic)	
	Mineral Group: Silicate-Tectosilicate	
	Chemical Formula: KAlSi₃O₈	
Color: Colorless		Birefringence-Interference color: 1st order-low
Pleochroism: None		Extinction: Inclined, parallel
Cleavage: Good in one direction		Twinning: Baveno, Karlsbad
Fracture: Rarely		Alteration: Clay formation (kaolen,sericite)
Relief: 1.51-1.52 Very low		Optical Sign: -, Biaxial
Inclusion: Possibly		Elongation Sign: -
Occurance: Magmatic, Metamorphic and Sedimentary rocks		
Distinctive Properties: Clay formation in plane polarized light, interference color, low relief		
Ankara University		GEO202 Optical Mineralogy Prof. Dr. Yusuf Kağan KADIOĞLU

PlanePolarized	Mineral Name	Cross Polarized
	TITANITE (Sphene)	
	Mineral Group: Silicates-Nezosilicates	
	Chemical Formula: CaTiSiO₅	
Color: Brownish (Due to Fe content), colorless		Birefringence-Interference color: 2nd-3rd order moderate to high
Pleochroism: Possible in Fe-titanites		Extinction: Symmetric
Cleavage: Good (110)		Twinning:
Fracture: Possibly		Alteration: Rutile, anatase
Relief: 1.8-1.9- High		Optical Sign: +, Biaxial
Inclusion: Possibly		Elongation Sign: +
Occurance: Magmatic, metamorphic and sedimentary		
Distinctive Properties: High relief, euhedral, high birefringence		
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PlanePolarized	Mineral Name	Cross Polarized
	ZIRCON	
	Mineral Group: Zircon Group	
	Chemical Formula: ZrSiO₄	
Color: Colorless		Birefringence-Interferencecolor: 4th order very high
Pleochroism: None		Extinction: Parallel
Cleavage: Poor (110)		Twinning: None
Fracture: None		Alteration: Radioactive Decay
Relief: 1.84-1.92 High		Optical Sign: +
Inclusion: Possibly		ElongationSign: +
Occurance: Magmatic, Metamorphic and Sedimentary rocks		
Distinctive Properties: Pleochroic halo, high relief, high interference color		
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PlanePolarized	Mineral Name	Cross Polarized
	MICROCLINE	
	Mineral Group: Silicate-Tectosilicate	
	Chemical Formula: KAlSi₃O₈	
Color: Colorless		Birefringence-Interference color: 1st order-low
Pleochroism: None		Extinction: Inclined
Cleavage: Good		Twinning: Crosshatched twinning, polysynthetic
Fracture: Rarely		Alteration: Clay formation (kaolen,sericite)
Relief: 1.51-1.52 Very low		Optical Sign: -, Biaxial
Inclusion: Possibly		Elongation Sign: -
Occurance: Magmatic, Metamorphic and Sedimentary rocks		
Distinctive Properties: Crosshatched twinning, low relief, clay formation in plane polarized light, interference color		
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PlanePolarized	Mineral Name	Cross Polarized
	ORTHOCLASE	
	Mineral Group: Silicate-Tectosilicate	
	Chemical Formula: KAlSi₃O₈	
Color: Colorless	Birefringence-Interference color: 1st order-low	
Pleochroism: None	Extinction: Inclined, parallel	
Cleavage: Good in one direction	Twinning: Baveno, Karlsbad	
Fracture: Rarely	Alteration: Clay formation (kaolen,sericite)	
Relief: 1.51-1.52 Very low	Optical Sign: -, Biaxial	
Inclusion: Possibly	ElongationSign: -	
Occurance: Magmatic, Metamorphic and Sedimentary rocks		
Distinctive Properties: Clay formation in plane polarized light, interference color, low relief		
Ankara University	GEO202 Optical Mineralogy	Prof. Dr. Yusuf Kağan KADIOĞLU