

SYENITE, IJOLITE, CARBONATITE, ULTRAMAFIC ROCKS AND LAMPROPHYRE

LEUCOCRATIC (0-30% MAFIC)

PHANERITIC

| ROCK | FELSICS | | | MAFICS | | | | NOTES |
|------------------------------|---|--|---|--------------------------------|---|----------------|---|--|
| | Plagioclase | Quartz | K-Spar | Biotite | Hornblende | Ortho-Pyroxene | Clino-Pyroxene | |
| #13 Hornblende Syenite | 20-25% Anh-subh 2.5 – 6 mm laths | 3% Anh gray 2 – 3 mm Rounded | 53-58% Anh-subh White 2.5 – 6mm laths | 5% Anh Black 2 – 7 mm | 14% Anh-euh Black 4 – 8.5 mm equant, elongated, or polyhedral | | | Moderately granitoid. The K-spar is probably orthoclase, and is very difficult to distinguish from plagioclase. TRACE MINERALS: sphene - amber, elongated grains, 1.5 mm. |
| #14 Alkali Syenite | 10% Subh Gray 0.5 mm laths | 5% Anh Gray 1 mm | 80% Anh White/gray 1.5 mm | | 0-4% Anh-subh Black 1 – 4 mm Equant to elongated. Show some lineation/foliat ion. | | 0-4% Anh-subh Black 1 – 4 mm Equant to elongated. Show some lineation/folia tion. | Granitoid. SPHENE - 1%, amber, anh, <0.5 mm. TRACE MINERALS: Pyrite, as a thin surface coating. Amphibole/pyroxene difficult to distinguish. |
| #17 Nepheline Syenite | 2% Subh Gray 1 mm laths | | 63-83% Anh Pink 1 mm | | 5-20% Anh-subh Black 1 – 5 mm elongated | | | Granitoid. NEPHELINE - 10-15%, anh, hazy, 1.5 mm, rounded. |

GLY 4310 LAB 8

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PHANERITIC

| ROCK | FELSICS | | | MAFICS | | | | NOTES |
|--------------------------------------|---|--|----------------------------------|------------------------------|--|----------------|----------------|---|
| | Plagioclase | Quartz | K-Spar | Biotite | Hornblende | Ortho-Pyroxene | Clino-Pyroxene | |
| #18 Nepheline-Sodalite Syenite | 18-24% Anh White/gray 2 → 4 mm | | 36-47% Pink/white 2 → 8 mm | 2-8% Anh Black 2 mm | 7-20% Sbh 3 → 17 mm Elongated | | | Moderately granitoid. SODALITE - 5-10%, anh-subh, blue-gray, 2 → 8 mm, equant. LW-UV: bright orange. NEPHELINE - 5-8%, anh, hazy, → 2 mm, rounded. |
| #20 Siderite Carbonatite | | 10% Anh Gray 1.5 mm Thin bands | | | | | | Medium grained. Layered. CARBONATE - 60%, anh, white to weathered brown, 2 mm, thin bands. SIDERITE - 20%, anh, brown to reddish, < 0.5 mm. PYRITE - Cubic, 2%, 1 mm. LIMONITE - 5% surface coating, yellow, powdery. RARE EARTH CARBONATE or CHLORITE - 3% surface coating, lumpy, blue-green, scattered blotches. |
| #328 Syenite (Arkansas) | | | 75% Sbh → 8 mm | Few scattered crystals | 5% Anh-sbh 1 → 2 mm | | | Moderately granitoid. NEPHELINE - weathered, about 15% |

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|-------------------------------|--------------|--------|--|---------|--|----------------|----------------|---|
| | Plagioclase | Quartz | K-Spar | Biotite | Hornblende | Ortho-Pyroxene | Clino-Pyroxene | |
| #329 Syenite (Colorado) | (see K-spar) | | 50% (with plagioclase) Anh-sbh Pink (partly due to surface weathering - makes identification of K-spar/ Plagioclase impossible. 3 - 7 mm Equant to elongated. | | 20% Anh-sbh Black 1.5 mm equant to elongated | | | Moderately granitoid. NEPHELINE - 25%, anh, hazy, 1 mm, surrounds the amphibole. |

MELANOCRATIC (60-100% MAFIC)

PHANERITIC

| ROCK | FELSICS | | | MAFICS | | | NOTES |
|----------------|-------------|---|--------|----------------------------------|------------|--|-----------------|
| | Plagioclase | Nepheline | K-Spar | Biotite | Hornblende | Pyroxene | |
| #19 Ijolite | | 40% White to hazy 1.5 mm Rounded | | 15-20% Anh Black 1.5 mm | | 40-45% Anh Black 1 mm Variable shape Some show Schiller luster, indicating orthopyroxene. | Medium grained. |

GLY 4310 LAB 8

MELANOCRATIC (60-100% MAFIC)

APHANETIC TO PHANERITIC

| ROCK | FELSICS | MAFICS | | | | | | NOTES |
|-------------------------------|---|--|---------|---|--|----------------|----------|---|
| | Plagioclase | Olivine | Biotite | Hornblende | Ortho-Pyroxene | Clino-Pyroxene | Chromite | |
| #39 Lamprophyre | 5-7% Anh Whitish gray (may be partially Nepheline) | 85-90% Anh Dark green Dull, translucent in places, rounded. | | 5-8% Anh Black (May be pyroxene) | | | | Aphanitic to fine-grained. WEATHERING PRODUCTS: Orangish Hematite Yellow Limonite |
| #40 Bronzite Pyroxenite | 5-10% Anh-sbh clear gray 1 mm equant to lath-shaped | 15% Anh Very dark green 0.5 mm Massive Rounded | | | BRONZITE 68-73% Anh Brown Iridescent when fresh, 7 - 13 mm some have bent cleavage traces. | | | Medium grained. Possible MAGNESITE - 7%, anh, gray, 2 mm, angular, slow reaction to HCl. |
| #41 Dunite | | 95-97% Anh Green when fresh, orange if weathered 0.8 mm Spheroidal | | | | | | Fine to medium grained. WEATHERING PRODUCTS: Talc Fibrous Serpentine |

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APHANETIC TO PHANERITIC

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|---------------------|---------------------------------|--|--|------------|---|------------------------------------|--------------------|--|
| | Plagioclase | Olivine | Phlogopite | Hornblende | Ortho-Pyroxene | Clino-Pyroxene | Chromite | |
| #42 Kimberlite | 3% Anh White to gray 1 mm | 40% Anh-sbh Dark green to black 4 - 17 mm Rounded to elongated Altering to Hematite | 2% Anh-sbh Copper 1 mm equant to lath-shaped | | | | | Coarse grained. SERPENTINE - 50%, Anh, bluish to greenish-gray, 2 - 15 mm, asbestos form common. CALCITE - 5%, anh, white, 2.5 - 7 mm, angular. TRACE MINERALS: Talc - soapy white powder Muscovite |
| #337 Harzburgite | | 45% Anh Dark green to black 2 - 6 mm | | | BRONZITE 30% Sbh Bronze Iridescent 2 mm equant to lath-shaped | 5% Anh Black Dull to waxy | 8% Anh Black | Coarse grained. CALCITE - 12%, anh, white, 1.5 mm, angular. |
| #343 Chromitite | | 10-15% Anh Serpentinized in places | | | | | 85-90% Black | High density. |