

168-1023A-22X-CC (Piece 4, 034-040 cm)

ROCK NAME: Sparsely to moderately plagioclase-olivine phyric basalt

GRAIN SIZE: Aphanitic: microcrystalline to cryptocrystalline

TEXTURE: Variolitic to subvariolitic; hypocrystalline

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
<b>PHENOCRYSTS</b>						
Olivine	0.6	0.6	0.1-0.4		Euhedral-subhedral	Individual crystals or intergrown with plagioclase. Skeletal, hollow crystals. Clear glass inclusions with shrinkage bubbles are common.
Plagioclase	3.8	3.8	0.3-1.7		Euhedral to subhedral laths	Present as individual crystals and in monomineralic glomeroporphyritic clusters. Some exhibit simple to oscillatory zoning. Pale green or brown glass inclusions in the core of some, whilst others contain very fine opaque grains.
<b>GROUNDMASS</b>						
Plagioclase	3.8	3.8	≤0.2		Microlitic laths	Skeletal crystals (swallowtail and hollow forms).
Olivine	1.8	1.8	≤0.3		Euhedral to subhedral	See comments above.
Clinopyroxene	Tr	Tr	≤0.3		Granular, anhedral	May be present as granular grains intergrown with plagioclase microlites; grains too small to determine optically.
Mesostasis	87.8	87.8				Changes from dark brown subvariolitic, to a brown plumose to sheaf-spherulitic, to dark gray-brown intersertal texture with increasing distance from the chilled margin. Abundance of microlites and microphenocrysts increases with these zones.
Glass	1.6	1.6				Clear ≤1.5mm thick glass margin containing discrete varioles centered around plagioclase microlites and pyroxene microphenocrysts.
Pyrite	Tr	Tr	≤0.01		Granular	Very minor pyrite blebs (5 microns) in groundmass and in plagioclase microlites. Very minor submicron magnetite grains distributed throughout the groundmass.
Chalcopyrite	Tr	Tr	≤0.02		Granular	In mesostasis.
<b>SECONDARY MINERALOGY</b>						
	PERCENT	REPLACING/ FILLING				COMMENTS:
Saponite	Tr	Vesicles				Forms an inner lining of some vesicles.
<b>VESICLES/CAVITIES</b>						
	PERCENT	DISTRIBUTION	SIZE (mm)	FILLING	SHAPE	COMMENTS:
Vesicles	0.6	Even	0.05-0.16	Partial		Partially lined by saponite.
COMMENTS:	Very fresh basalt.					

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TEXTURE: Variolitic, hypocrySTALLINE

PRIMARY MINERALOGY	PERCENT PRESENT	PERCENT ORIGINAL	SIZE (mm)	COMPOSITION	MORPHOLOGY	COMMENTS
<b>PHENOCRYSTS</b>						
Olivine	1.2	1.2	0.1-0.5	~Fo85	Sub- to euhedral, equant	Fresh; individual crystals or attached to plagioclase, microphenocrysts of 0.1-0.2 mm diameter most common.
Plagioclase	3.6	3.6	0.3-2		Sub- to euhedral laths	Oscillatory zoning, sector zoning and glass inclusions (in cores) are common. Present as single crystals or monomineralic glomeroporphyritic clusters. Spinel inclusions (0.1 mm).
Spinel	Tr	Tr	0.04		Euhedral	
<b>GROUNDMASS</b>						
Plagioclase	17.0	17.0	≤0.5		Microlitic laths	Skeletal crystals (swallowtail and hollow forms).
Olivine	4.0	4.0	≤0.1	~Fo85	Sub- to euhedral, equant	See comments above.
Mesostasis	69.4	69.4				Subvariolic groundmass. Contains traces of pyrite in rounded blebs (≤30 micron diameter) and traces of 2 micron magnetite grains.
Glass	3.2	3.2				Fresh quenched margin (1-2mm thick) with varioles. Light to dark brown.
Pyrite	Tr	Tr	≤0.01		Granular	In mesostasis.
<b>SECONDARY MINERALOGY</b>						
	PERCENT	REPLACING/ FILLING				COMMENTS:
Saponite?	Tr	Fracture				Discontinuous 2 micron wide fracture fill. May correspond to the blue-gray to blue-green clay minerals observed on the surface of the handspecimen.
<b>VESICLES/ CAVITIES</b>						
	PERCENT	DISTRIBUTION	SIZE (mm)	FILLING	SHAPE	COMMENTS:
Vesicles	1.6	Even	0.1-0.2	None	Spherical to oval.	The bluish mineral observed lining vesicles in the handspecimen is apparently not present in the thin section.
<b>COMMENTS:</b> Very fresh basalt. Trace plagioclase glomerocrysts (2mm).						