



THIN SECTION:	324-U1349A-7R-1-W 65_67-TS205			Piece No:		Unit:5	OBSERVER:THIN SECTION:TS205
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	lower part of flow						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	aphyric,hyalophytic						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
MICROPHENOCRYST							
VESICLES	20			8	2.4	moderately spherical	
GROUNDMASS	100						
opaque Minerals	10	0		0.1x0.1	0.05x0.05	subhedral	
glass	75	100					
plagioclase	15	40		0.15x0.01	0.1x0.01	acicular	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
hematite						plagioclase	hematite is present as patches in the groundmass
brown clays	100					glass	
brown clays	40					plagioclase	
orange clays						vesicle	around the rim
brown clays	40					vesicle	
calcite	60					vesicle	
STRUCTURE	Plagioclase microlites concentrated around amygdules or vesicles. Some irregular veins connected to amygdules.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Hyalophytic Basalt; Microcrystalline; Lower part of lava flow; Vesicularity 20%; Crystallinity: 27%; Alteration Degree: 81%; Vein Filling: None; Vesicle Filling: Calcite, brown clays and orange clays; Structure: Plagioclase microlites concentrated around amygdules or vesicles. Some irregular veins connected to amygdules.						



THIN SECTION:	324-U1349A-7R-1-W 112_115-TS206		Piece No:		Unit:4	OBSERVER:THIN SECTION:TS206
ROCK NAME:	aphyric basalt					
WHERE SAMPLED:	Lower part of inflated flow					
GRAINSIZE:	microcrystalline [324]					
TEXTURE:	intersertal,aphyric					
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)			
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS	0					COMMENTS
MICROPHENOCRYST						
olivine	1	100		0.8x0.8	0.5x0.4	subhedral
VESICLES	30			10	6	low sphericity
GROUNDMASS	99					filled by basaltic fragments
plagioclase	15	40		0.5x0.05	0.1x0.05	acicular
opaque Minerals	5	0		0.2x0.1	0.1x0.1	subhedral
glass	75	100				
pyroxene	5	30		0.2x0.1	0.1x0.1	subhedral
SECONDARY			SIZE(mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING
orange-brown clays	100					glass
iddingsite	100					olivine
brown clays	40					plagioclase
brown clays	30					pyroxene
sediment and altered glass shards						vesicle
						2 types of sediments + one layer of glass shards overlain by calcite
STRUCTURE	Some veins and amygdules filled with sedimentary materials or calcite. Calcite veins are polycrystalline and syntaxal.					
COMMENTS						
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Lower part of inflated lava flow; Vesicularity 30%; Crystallinity: 26%; Alteration Degree: 83%; Vein Filling: Fibrous calcite and 2 layers of sediments and glass shards within calcite; Vesicle Filling: Sediment and altered glass shards; Structure: Thick composite vein of rock fragments cemented by calcite/clay.					



THIN SECTION:	324-U1349A-7R-2-W 29_33-TS207			Piece No:		Unit:5	OBSERVER:THIN SECTION:TS207
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of vesicular basalt flow						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	aphyric,hyalophytic						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
MICROPHENOCRYST							
olivine	1	100		0.8x0.8	0.5x0.3	subhedral	
VESICLES	75			10	2	moderately spherical	filled by sediments
GROUNDMASS	99						
opaque Minerals	0.1	0		0.15x0.15	0.05x0.05	subhedral	
glass	90	100					
plagioclase	10	40		0.3x0.02	0.15x0.02	acicular	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
iddingsite	100					olivine	
brown clays	100					glass	Alteration of vitric and lithic clasts
brown clays	40					plagioclase	
calcite						vesicle	vesicles in lithic clasts
STRUCTURE	Amygdules and connected amygdules (vein or pipe) filled with calcite or sedimentary materials.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Hyalophytic Basalt; Microcrystalline; Middle part of vesicular lava flow; Vesicularity 75%; Crystallinity: 11%; Alteration Degree: 94%; Vein Filling: None; Vesicle Filling: Calcite; Structure: Frothy texture. Amygdules and connected amygdules (vein or pipe) filled with calcite or sedimentary materials.						



THIN SECTION:	324-U1349A-7R-2-W 78_81-TS208		Piece No:		Unit:6	OBSERVER:THIN SECTION:TS208	
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of vesicular basalt flow						
GRAINSIZE:	very fine grained						
TEXTURE:	intersertal,aphyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
MICROPHENOCRYST							
olivine	0.1	100		0.5x0.5	0.5x0.5	subhedral	
VESICLES	30			10	4	low sphericity	
GROUNDMASS	100						
pyroxene	10	70		0.2x0.1	0.1x0.05	subhedral	
opaque Minerals	10	0		0.05x0.05	0.02x0.02	subhedral	
glass	40	100					
plagioclase	40	90		0.4x0.02	0.3x0.02	acicular	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
orange-brown clays	90					plagioclase	
orange-brown clays	100					glass	
brown clays	70					pyroxene	pyroxenes are relatively well-preserved in places where reddish oxidized fluids
iddingsite	100					olivine	
Mn-oxides?						vesicle	
calcite	15						
zeolite	5					vesicle	at the interface between the sediment and calcite
carbonate sediment	80-100					vesicle	layering of the sediment in the vesicle
STRUCTURE	Some irregular calcite veins penetrated through groundmass and amygdules. No structure in groundmass.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Very fine grained; Middle part of vesicular lava flow; Vesicularity 30%; Crystallinity: 60%; Alteration Degree: 83%; Vein Filling: None; Vesicle Filling: Majority of carbonate sediment, with some zeolite and calcite; Structure: Some irregular calcite veins penetrated through groundmass and amygdules. No structure in groundmass.						



THIN SECTION:	324-U1349A-7R-3-W 39_43-TS209			Piece No:		Unit:8	OBSERVER:THIN SECTION:TS209
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of vesicular basalt flow						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	hyalophytic,aphyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
MICROPHENOCRYST							
olivine	0.1	100		0.8x0.5	0.6x0.5	subhedral	
VESICLES	60			15	2	moderately spherical	
GROUNDMASS	100						
glass	90	100					
plagioclase	10	80		0.2x0.02	0.1x0.02	acicular	
opaque Minerals	0.1	0		0.1x0.1	0.1x0.1	subhedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
orange clays	80					plagioclase	
iddingsite	100					olivine	secondary
iddingsite	100					olivine	groundmass
calcite	100					vesicle	
orange clays	10					vesicle	as rim around the vesicles
zeolites	90					vesicle	
STRUCTURE	Some shear vesicles (amygdules). No structure in groundmass.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Hyalophytic Basalt; Microcrystalline; Middle part of vesicular lava flow; Vesicularity 60%; Crystallinity: 10%; Alteration Degree: 98%; Vein Filling: None; Vesicle Filling: All calcite (A) or zeolites and orange clays (B); Structure: Some shear vesicles (amygdules). No structure in groundmass.						



THIN SECTION:	324-U1349A-7R-3-W 111_113-TS210			Piece No:		Unit:9	OBSERVER:THIN SECTION:TS210
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of vesicular basalt flow						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	aphyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
MICROPHENOCRYST							
olivine	3	100		0.8x0.6	0.6x0.3	subhedral	
VESICLES	20			6	2	low sphericity	
GROUNDMASS	97						
opaque Minerals	7	40		0.05x0.05	0.05x0.02	subhedral	
pyroxene	5	40		0.2x0.2	0.1x0.1	subhedral	
glass	78	100					
plagioclase	10	80		0.3x0.05	0.1x0.05	acicular	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
light yellow clay	90					glass	
iddingsite	100					olivine	
calcite	10					glass	
light green clay	80					plagioclase	
light green clay	40					pyroxene	
iddingsite	100						
calcite	80					vesicle	
yellowish-green clay	20					vesicle	as rim around the vesicle
STRUCTURE	Subophitic structure. Thin, irregular and syntaxic veins are heterogeneously distributed and connect amygdules.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Middle part of vesicular lava flow; Vesicularity 20%; Crystallinity: 24%; Alteration Degree: 91%; Vein Filling: None; Vesicle Filling: Calcite and yellowish-green clay; Structure: Subophitic structure. Thin, irregular and syntaxic veins are heterogeneously distributed and connect amygdules.						



THIN SECTION:	324-U1349A-7R-4-W 32_35-TS211			Piece No:		Unit:10	OBSERVER:THIN SECTION:TS211
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of sheet flow						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	aphyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
MICROPHENOCRYST							
olivine	1	100		0.6x0.4	0.4x0.2	subhedral	
VESICLES	70			7	2	moderately spherical	
GROUNDMASS	99						
plagioclase	10	40		0.2x0.02	0.1x0.02	acicular	
glass	90	100					
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
iddingsite	100					olivine	
white clay	40					plagioclase	
brown clay	100					glass	
Fe oxyhydroxide	20					magnetite	
brown clay	30					vesicle	some vesicles are calcite free and contain fibrous brown clay
calcite	30					vesicle	there are two generations of calcite fill separated by a layer contain Fe oxyhydroxide, zeolite and rare opaques
opaque	70					vesicle	
calcite	trace						
zeolite	trace					vesicle	
Fe oxyhydroxide	trace					vesicle	
brown clay	trace						
STRUCTURE	Most of vesicles (amygdules) elongated to approximately 30 to 60-degree west.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Middle part of flow; Vesicularity 70%; Crystallinity: 11%; Alteration Degree: 94%; Vein Filling: Calcite and brown clay; Vesicle Filling: Calcite, zeolite, Fe-oxyhydroxide, opaques (A) or calcite, brown clay (B); Structure: Most of vesicles (amygdules) elongated. Thin calcite irregular vein penetrats both amygdules and groundmass.						



THIN SECTION:	324-U1349A-9R-1-W 24_26-TS214			Piece No:		Unit:14	OBSERVER:THIN SECTION:TS214
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	highly vesicular flow						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	aphyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
MICROPHENOCRYST							
olivine	0.1	100			0.6	subhedral	
VESICLES	60			4	2	moderately spherical	some coalsced
GROUNDMASS	100						
glass	80	100					
plagioclase	20	95			0.02x0.2	acicular	uniform in size
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown orange clays	100					glass	
hematite							
brown orange clays	95					plagioclase	
calcite	98					vesicle	
zeolite	2					vesicle	tabular zeolite which could be phillipsite growing at the interface between calcite and rock
orange-yellow clay						vesicle	as rim around the vesicle
STRUCTURE	Vesicules (amygdules) are elongated to the oblique direction to the core.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Highly vesicular flow; Vesicularity 60%; Crystallinity: 20%; Alteration Degree: 99%; Vein Filling: None; Vesicle Filling: Calcite and minor zeolite and a trace of orange-yellow clays; Structure: Vesicules (amygdules) are elongated to the oblique direction to the core.						



THIN SECTION:	324-U1349A-9R-1-W 36_40-TS215		Piece No:		Unit:14	OBSERVER:THIN SECTION:TS215	
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	highly vesicular flow						
GRAINSIZE:	cryptocrystalline						
TEXTURE:	aphyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
MICROPHENOCRYST							
VESICLES	50			10	2.5	low sphericity	
GROUNDMASS	100						
plagioclase	10	95		0.05x0.2	0.02x0.1	acicular	
glass	90	100					
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown orange clays	100					glass	
hematite							
iddingsite	100					olivine	
orange clays	95					plagioclase	
calcite	95					vesicle	
zeolite	5					vesicle	tabular zeolite which could be phillipsite
STRUCTURE	No structure.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Cryptocrystalline; Highly vesicular flow; Vesicularity 50%; Crystallinity: 10%; Alteration Degree: 100%; Vein Filling: None; Vesicle Filling: Calcite and minor zeolite; Structure: No structure.						



THIN SECTION:	324-U1349A-9R-1-W 127_132-TS216			Piece No:		Unit:15	OBSERVER:THIN SECTION:TS216
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	lava intrusion to vesicular lava						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	aphyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
olivine	0.1	100		1.3	0.8	subhedral	
MICROPHENOCRYST							
pyroxene	2	50		0.8	0.4	subhedral	plagioclase intergrown
olivine	0.1	100		0.6	0.4	subhedral	
VESICLES	20			2	0.5	low sphericity, angular	
GROUNDMASS	98						
glass	85	100					
plagioclase	15	50			0.01x0.1	acicular	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
iddingsite	100					olivine	the rock is completely altered close to the veins. Away from the veins both pyroxene and plagioclase are relatively fresh
Fe oxyhydroxide	10					magnetite	
white clay	50					plagioclase	
white clay	50					plagioclase	
brown clay	100					glass	
brown clay	50						
brown clay	70					vesicle	
calcite	95					vesicle	
clay	5						
STRUCTURE	Amygdaloidal structure with en echelon veins, sometimes amygdules are deformed.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Lava mingling or intrusion into vesicular lava; Vesicularity 20%; Crystallinity: 17%; Alteration Degree: 92%; Vein Filling: Two generations with calcite, brown clay (A) and calcite, brown clay, Fe-oxyhydroxide and opaques; Vesicle Filling: Calcite and minor clay or partially filled with brown clay; Structure: En echelon veins. Deformed amygdules.						



THIN SECTION:	324-U1349A-9R-2-W 96_98-TS217			Piece No:		Unit:16	OBSERVER:THIN SECTION:TS217
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of massive flow						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	aphyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
MICROPHENOCRYST							
olivine	0.1	100		0.8x0.8	0.6x0.4	subhedral	
VESICLES	3			6	2	low sphericity	
GROUNDMASS	100						
plagioclase	20	35		0.3x0.1	0.2x0.05	subhedral	
pyroxene	10	10		0.2x0.1	0.1x0.1	subhedral	
glass	70	100					
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
yellowish clay	100					glass	saponite?
hematite							
orange clays	10					pyroxene	
white clays	35					plagioclase	
iddingsite	100					olivine	
calcite						vesicle	
yellow clay							
STRUCTURE	Subophitic structure. Irregular, curved and anastomosed veins are heterogeneously distributed.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Middle part of massive flow; Vesicularity 3%; Crystallinity: 30%; Alteration Degree: 78%; Vein Filling: Calcite and yellow clay; Vesicle Filling: Calcite and yellow clay; Structure: Subophitic structure. Irregular, curved and anastomosed veins are heterogeneously distributed.						



THIN SECTION:	324-U1349A-9R-3-W 6_9-TS218			Unit:16		OBSERVER:THIN SECTION:TS218	
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of massive flow						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	aphyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
olivine	0.1	100		1.6x0.7	1.6x0.7	subhedral	
MICROPHENOCRYST							
olivine	1	100		0.5x0.4	0.5x0.3	subhedral	
VESICLES	20			6	1.4	moderately spherical	
GROUNDMASS	99						
glass	65	100					
pyroxene	10	10		0.2x0.1	0.1x0.1	subhedral	
plagioclase	25	10		0.2x0.02	0.1x0.02	subhedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clay	100					glass	
white clay	10					plagioclase	
iddingsite	100					olivine	
brown clay	10					pyroxene	pyroxene looks to be almost completely unaffected by clay forming adjacent to it
brown clay	100					vesicle	
STRUCTURE	Some irregular calcite veins are heterogeneously distributed having gentle dips. Subophitic structure.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Middle part of massive flow; Vesicularity 20%; Crystallinity: 36%; Alteration Degree: 69%; Vein Filling: Calcite; Vesicle Filling: Brown clay; Structure: Some irregular calcite veins are heterogeneously distributed having gentle dips. Subophitic structure.						



THIN SECTION:	324-U1349A-10R-2-W 10_12-TS219		Piece No:		Unit: 17	OBSERVER: THIN SECTION: TS219
ROCK NAME:	sparsely pyroxene phyric basalt					
WHERE SAMPLED:	middle part of vesicular lava					
GRAIN SIZE:	microcrystalline					
TEXTURE:	sparsely phyric, intersertal					
PRIMARY	PERCENT	REL. VOL.	SIZE (mm)			
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS	3					
olivine	0.1	100		1.2	0.6	subhedral
pyroxene	3	5		1.6	1	subhedral
						plagioclase intergrown
MICROPHENOCRYST						
olivine	1	100		0.6	0.4	subhedral
VESICLES	20			5	2	low sphericity, subangular
	20			5	2	low sphericity, subangular
	20					
GROUNDMASS	96					
opaque Minerals	3	5		0.1	0.05	skeletal
plagioclase	20	5			0.05x0.5	tabular
pyroxene	10	10		0.2	0.1	anhedral
glass	67	100				plagioclase intergrown
SECONDARY			SIZE (mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING
brown clay	10					pyroxene
iddingzite	100					
brown clay	5					pyroxene
white clay	5					plagioclase
brown clay	100					
Fe oxyhydroxide	5					
calcite	100					vesicle
calcite	100					vesicle
STRUCTURE	One irregular and curved vein.					
COMMENTS						
SUMMARY DESCRIPTION	Sparsely Pyroxene Phyric Intersertal Basalt; Microcrystalline; Middle part of vesicular lava flow; Vesicularity 20%; Crystallinity: 36%; Alteration Degree: 68%; Vein Filling: Calcite and zeolite; Vesicle Filling: Calcite; Structure: One irregular and curved vein.					



THIN SECTION:	324-U1349A-10R-2-W 85_91-TS220		Piece No:		Unit:17	OBSERVER:THIN SECTION:TS220
ROCK NAME:	sparsely olivine phyric basalt					
WHERE SAMPLED:	middle part of massive flow					
GRAINSIZE:	microcrystalline					
TEXTURE:	sparsely phyric, intersertal					
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)			
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS						
olivine	1	100		3	1	subhedral
MICROPHENOCRYST						
olivine	1	100		0.8	0.4	subhedral
pyroxene	3	30		0.8	0.5	subhedral
VESICLES	0					
GROUNDMASS	95					
plagioclase	20	30			0.05x0.2	acicular
Opaque Minerals	3	5			0.03	skeletal
glass	72	100				
pyroxene	5	30			0.05	anhedral
SECONDARY			SIZE(mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING
brown clay	20					pyroxene
iddingzite	70					olivine
yellow clay	30					olivine
white clay	30					
Fe oxyhydroxide	5					magnetite
brown clay	100					glass
hematite	trace					
STRUCTURE	Composite and polycrystalline veins are network and highly curved.					
COMMENTS						
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Intersertal Basalt; Microcrystalline; Middle part of massive lava flow; Vesicularity 0%; Crystallinity: 32%; Alteration Degree: 79%; Vein Filling: Calcite in multiple generations; Vesicle Filling: None; Structure: Composite and polycrystalline veins are network and highly curved.					



THIN SECTION:	324-U1349A-10R-2-W 106_109-TS212			Piece No:		Unit: 17	OBSERVER: THIN SECTION: TS212
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of massive basalt flow						
GRAINSIZE:	very fine grained						
TEXTURE:	sparsely phyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		2.0x0.8	1.6x0.8	subhedral	
MICROPHENOCRYST							
olivine	2	100		0.8x0.3	0.6x0.3	subhedral	
pyroxene	2	40		0.6x0.4	0.4x0.4	subhedral	
VESICLES	1			1.4	1.2	elongate	
GROUNDMASS	95						
plagioclase	20	45		0.5x0.05	0.2x0.02	acicular	
glass	75	100					
pyroxene	5	40		0.6x0.3	0.2x0.2	subhedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite	100					glass	massive calcite replaces the glass in the groundmass and the pyroxenes
calcite	40					pyroxene	
calcite	45					plagioclase	
iddingsite	100					olivine	
iddingsite	100						
STRUCTURE	Subophitic structure. Curved and anastomosed veins are heterogeneously distributed.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Intersertal Basalt; Very fine grained; Middle part of massive flow; Vesicularity 1%; Crystallinity: 29%; Alteration Degree: 86%; Vein Filling: Calcite; Vesicle Filling: None; Structure: Subophitic structure. Curved and anastomosed veins are heterogeneously distributed.						



THIN SECTION:	324-U1349A-10R-3-W 43_48-TS221		Piece No:		Unit:17	OBSERVER:THIN SECTION:TS221	
ROCK NAME:	sparsely olivine phyric basalt						
WHERE SAMPLED:	middle of massive flow						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		2	1	subhedral	spinel inclusion
MICROPHENOCRYST							
olivine	2	100		0.8	0.5	subhedral	plagioclase intergrown
VESICLES	0						
GROUNDMASS	97						
glass	70	100					
plagioclase	30	25			0.02x0.2	acicular	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
Fe oxyhydroxide						magnetite	
iddingsite						olivine	
white clay							
brown clay						glass	
brown clay						pyroxene	
hematite						glass	hematite forms tiny veins through the altered glass
white clay							
brown clay	90					vesicle	
zeolite	trace					vesicle	
STRUCTURE	Composite and polycrystalline veins are networked and conjugated.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Intersertal Basalt; Microcrystalline; Middle part of massive lava flow; Vesicularity 0%; Crystallinity: 32%; Alteration Degree: 78%; Vein Filling: Two generations with calcite, brown clay and a trace of zeolite (A) and calcite and brown clay (B); Vesicle Filling: Brown clay with trace of zeolite; Structure: Composite and polycrystalline veins are networked and conjugated.						



THIN SECTION:	324-U1349A-10R-3-W 97_99-TS222		Piece No:		Unit: 17	OBSERVER: THIN SECTION: TS222
ROCK NAME:	aphyric basalt					
WHERE SAMPLED:	middle part of massive flow					
GRAIN SIZE:	cryptocrystalline					
TEXTURE:	aphyric, intersertal					
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)			
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS	0					
olivine	0.1	100		1.8	1	subhedral
MICROPHENOCRYST						spinel inclusion
olivine	1	100		0.4	0.2	subhedral
VESICLES	0					
GROUNDMASS	100					
pyroxene	5	30		0.3	0.1	
plagioclase	10	90			0.02x0.1	
Opaque Minerals	2	0		0.1	0.05	
glass	83	100				
SECONDARY			SIZE(mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING
iddingsite	100					olivine
brown clays	30					pyroxene
iddingsite	100					olivine
brown clays	100					glass
brown clays	90					
STRUCTURE	Thick and thin veins are network and en echelon.					
COMMENTS						
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Cryptocrystalline; Middle part of massive lava flow; Vesicularity 0%; Crystallinity: 18%; Alteration Degree: 94%; Vein Filling: None; Vesicle Filling: Calcite; Structure: Thick and thin veins are network and en echelon.					



THIN SECTION:	324-U1349A-10R-4-W 44_45-TS223		Piece No:		Unit: 18	OBSERVER: THIN SECTION: TS223
ROCK NAME:	sparsely phyrlic basalt					
WHERE SAMPLED:	unit with large coalesced vesicles					
GRAINSIZE:	microcrystalline [324]					
TEXTURE:	sparsely phyrlic, intersertal					
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)			
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS	1					
olivine	1	100		1.2	0.8	subhedral
MICROPHENOCRYST						
olivine	2	100		0.8	0.6	subhedral
GROUNDMASS	99					
pyroxene	30	20		0.4	0.2	anhedral
opaque Minerals	3	0		0.15	0.08	skeletal
glass	40	100				
plagioclase	27	70		0.3	0.15	acicular
SECONDARY			SIZE(mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING
clays	70					plagioclase
iddingsite	100					olivine
calcite	70					glass
clays	20					pyroxene
iddingsite	100					olivine
white clays	30					
STRUCTURE	Thin veins are network and connecting altered minerals in groundmass.					
COMMENTS						
SUMMARY DESCRIPTION	Amygdaloidal Intersertal Basalt; Microcrystalline; Lava flow with large coalesced vesicles; Vesicularity 0%; Crystallinity: 60%; Alteration Degree: 65%; Vein Filling: Fibrous Calcite; Vesicle Filling: None; Structure: Thin veins are network and connecting altered minerals in groundmass.					



THIN SECTION:	324-U1349A-10R-5-W 2_4-TS225		Piece No:		Unit:19	OBSERVER:THIN SECTION:TS225	
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of highly vesicular inflation unit						
GRAINSIZE:	very fine grained						
TEXTURE:	sparsely phyric,ophimottled						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		1.4	1.1	euohedral to subohedral	
MICROPHENOCRYST							
olivine	1	100		0.4	0.2	subohedral	
VESICLES	1		1	3.5	2.5	highly spherical	
GROUNDMASS	98						
pyroxene	30	1		0.8	0.3	anhedral	
glass	39	100					
opaque Minerals	1	0		0.1	0.03	subohedral	
plagioclase	30	25		0.4	0.2	acicular	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
iddingsite	100					olivine	
brown clays	25					plagioclase	
iddingsite	100					olivine	
brown clays	100					glass	
STRUCTURE	Thick syntaxic veins connecting amygdules. Subohpithic structure in groundmass.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Intergranular Basalt; Microcrystalline; Middle part of highly vesicular inflation unit; Vesicularity 30%; Crystallinity: 62%; Alteration Degree: 48%; Vein Filling: Calcite and orange clays; Vesicle Filling: None; Structure: Thick syntaxic veins connecting amygdules. Subohpithic structure in groundmass.						



THIN SECTION:	324-U1349A-11R-1-W 30_32-TS226		Piece No:		Unit:20	OBSERVER:THIN SECTION:TS226	
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	highly visicular spongy inflation unit						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric,intergranular						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1			1.4	0.9	subhedral	
MICROPHENOCRYST							
olivine	1			0.8	0.6	subhedral	
VESICLES	30		0.5	7	1.2	elongate	
GROUNDMASS	98						
plagioclase	40	90		0.25	0.15	acicular	
opaque Minerals	1			0.3	0.08	skeletal	
pyroxene	40	95		0.3	0.2	subhedral	
glass	19						
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
clays	90					glass	
calcite	10					glass	
iddingsite	100					olivine	
clays	80					plagioclase	
clays	55						
iddingsite	100					olivine	
brown clays						vesicle	as rim
calcite							
STRUCTURE	No structure.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely olivine phyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular spongy inflation unit; Vesicularity 30%; Crystallinity: 81%; Alteration Degree: 74%; Vein Filling: None; Vesicle Filling: Calcite and brown clay; Structure: No structure.						



THIN SECTION DESCRIPTIONS							
THIN SECTION:	324-U1349A-11R-1-W 124_128-TS227			Piece No:		Unit:20	OBSERVER:THIN SECTION:TS227
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of highly vesicular basalt						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	intersertal,aphyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
olivine	0.1			1.2	1	euohedral to subohedral	
MICROPHENOCRYST							
olivine	0.1			0.8	0.6	subohedral	
VESICLES	45		1	6	1.2	highly spherical	
GROUNDMASS	100						
glass	53	100					
pyroxene	15	100		0.5	0.15	subohedral	
plagioclase	30	100		0.25	0.15	acicular	
opaque Minerals	2			0.08	0.03	subohedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
iddingsite	100					olivine	no pyroxene is visible in the slide
brown clay	40					plagioclase	
brown clay	100					glass	
calcite	99					vesicle	
STRUCTURE	Amygdaloidal structure. Vesicles filled with calcite.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 45%; Crystallinity: 47%; Alteration Degree: 69%; Vein Filling: Calcite, Brown clay and Fe oxyhydroxide; Vesicle Filling: Calcite and Brown clay; Structure: Amygdaloidal structure.						



THIN SECTION:	324-U1349A-11R-4-W 3_6-TS228			Piece No:		Unit 22	OBSERVER:THIN SECTION:TS228
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of highly vesicular basalt						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	intersertal,aphyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	0.1			2	1.1	subhedral	
MICROPHENOCRYST							
olivine	1			0.8	0.6	subhedral	
VESICLES	60		1	4	2	highly elongate	
GROUNDMASS	99						
plagioclase	40			0.25	0.2	acicular	
glass	35						
opaque Minerals	5			0.05	0.02	subhedral	
pyroxene	20			0.2	0.15	anhedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
light brown clays	100					glass	
light brown clays						plagioclase	
iddingsite	100					olivine	
iddingsite	100					olivine	One part of the TS is more altered (100%) compared to the other adjacent part (90%)
yellow clay	100						
STRUCTURE	Massive structure and amygdaloidal structure. Vesicles filled with calcite.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 60%; Crystallinity: 65%; Alteration Degree: 55%; Vein Filling: None; Vesicle Filling: Calcite and Yellow clay; Structure: Massive structure and amygdaloidal structure.						



THIN SECTION:	324-U1349A-11R-4-W 88_93-TS229		Piece No:		Unit:22	OBSERVER:THIN SECTION:TS229
ROCK NAME:	sparsely phyric basalt					
WHERE SAMPLED:	middle part of highly vesicular basalt					
GRAINSIZE:	microcrystalline [324]					
TEXTURE:	intersertal,sparsely phyric					
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)			
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS	1					
olivine	1			1.2	0.6	euhedral
MICROPHENOCRYST						
olivine	1			0.5	0.4	subhedral
VESICLES	70		0.5	8	5	elongate
GROUNDMASS	98					
pyroxene	20	100		0.2	0.15	anhedral
glass	35	100				
plagioclase	40	90		0.3	0.15	acicular
Opaque Minerals	5			0.1	0.05	subhedral
SECONDARY			SIZE(mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING
iddingsite	100					olivine
brown clays	80					plagioclase
brown clays	100					glass
calcite						vesicle
Fe-oxides						
STRUCTURE	Thick veins including host-basaltic clasts.					
COMMENTS						
SUMMARY DESCRIPTION	Sparsely olivine phyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 70%; Crystallinity: 66%; Alteration Degree: 68%; Vein Filling: Calcite and Orange clay; Vesicle Filling: Calcite and Fe oxide; Structure: Thick veins including host-basaltic clasts.					



THIN SECTION:	324-U1349A-11R-5-W 11_14-TS230		Piece No:		Unit:22	OBSERVER:THIN SECTION:TS230
ROCK NAME:	sparsely phyric basalt					
WHERE SAMPLED:	middle part of high vesicular basalt; mixing with massive basalt					
GRAINSIZE:	microcrystalline [324]					
TEXTURE:	intersertal,sparsely phyric					
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)			
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS	1					
olivine	1			2	1.2	euhedral
MICROPHENOCRYST						
olivine	1			0.6	0.4	subhedral
VESICLES	75		0.5	4	3	highly elongate
GROUNDMASS	98					coalesced vesicles
pyroxene	15	100		0.35	0.15	anhedral
glass	65	100				
plagioclase	15	100		0.15	0.1	acicular
Opaque Minerals	5			0.05	0.02	subhedral
SECONDARY			SIZE(mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING
calcite	15					olivine
white clays	30					plagioclase
iddingsite	85					olivine
brown clays	60					plagioclase
gray clays	100					
calcite						vesicle
STRUCTURE	One calcite vein connecting amygdules.					
COMMENTS						
SUMMARY DESCRIPTION	Sparsely olivine phyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular basalt, mixing with massive basalt; Vesicularity 75%; Crystallinity: 36%; Alteration Degree: 79%; Vein Filling: Calcite; Vesicle Filling: Calcite; Structure: One calcite vein connecting amygdules.					



THIN SECTION:	324-U1349A-11R-5-W 75_77-TS231		Piece No:		Unit:22	OBSERVER:THIN SECTION:TS231	
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of highly vesicular spongy lava flow						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	intersertal,aphyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
olivine	0.1			2	1	euhedral to subhedral	
MICROPHENOCRYST							
olivine	1			0.7	0.4	subhedral	
VESICLES	25		2	8	4	elongate	
GROUNDMASS	100						
Opaque Minerals	3			0.1	0.08	anhedral	
glass	72	100					100% altered mesostasis, probably contained pyroxene, which is not identified now
plagioclase	25	100		0.15	0.1	acicular	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
iddingsite	100					olivine	
light brown clays	100					glass	
light brown clays	80					plagioclase	
yellow clay						vesicle	saponite, rim around the vesicles
STRUCTURE	Amygdaloidal structure with vein.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular spongy lava flow; Vesicularity 25%; Crystallinity: 29%; Alteration Degree: 92%; Vein Filling: Calcite, Brown clay and Fe-oxide; Vesicle Filling: Calcite, Yellow clay; Structure: amygdaloidal structure with vein.						



THIN SECTION:	324-U1349A-11R-6-W 17_23-TS232		Piece No:		Unit:22	OBSERVER:THIN SECTION:TS232
ROCK NAME:	sparsely phyric basalt					
WHERE SAMPLED:	Middle part of inflation flow unit					
GRAINSIZE:	microcrystalline [324]					
TEXTURE:	sparsely phyric,interstitial					
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)			
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS	1					
olivine	1			4	1.3	euohedral
MICROPHENOCRYST						spinel inclusions
olivine	2			0.8	0.6	subhedral
VESICLES	40		0.5	6	3	elongate
GROUNDMASS	97					
opaque Minerals	3			0.1	0.05	anhedral
glass	67	100				
plagioclase	30	90		0.3	0.2	acicular
SECONDARY			SIZE(mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING
light brown clays	95					plagioclase
iddingsite	95					olivine
brown clays	50					pyroxene
calcite	5					olivine
brown clays	100					glass
calcite	95					
light brown clays	5					vesicle
STRUCTURE	Sheared bubbles (amygdules) are oblique to the core.					
COMMENTS						
SUMMARY DESCRIPTION	Sparsely olivine phyric Intersertal Basalt; Microcrystalline; Middle part of inflation flow unit; Vesicularity 40%; Crystallinity: 35%; Alteration Degree: 96%; Vein Filling: None; Vesicle Filling: Calcite and Light brown clay; Structure: Sheared bubbles (amygdules).					



THIN SECTION:	324-U1349A-11R-6-W 64_66-TS233			Piece No:		Unit:22	OBSERVER:THIN SECTION:TS233
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of highly vesicular basalt						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	aphyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
olivine	0.1			1.2	0.6	euohedral	replaced by iddingsite
MICROPHENOCRYST							
olivine	1			0.5	0.4	subhedral	
VESICLES	70		0.5	10	4	elongate	
GROUNDMASS	99						
glass	37	100					
pyroxene	20	100		0.2	0.1	anhedral	
Opaque Minerals	3			0.06	0.03	skeletal	
plagioclase	40	90		0.15	0.12	acicular	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clays	100					glass	
iddingsite	100					olivine	Hematite is present in the sample
brown clays	80					plagioclase	
calcite						vesicle	
STRUCTURE	Spongy amygdaloidal structure.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 70%; Crystallinity: 63%; Alteration Degree: 79%; Vein Filling: None; Vesicle Filling: Calcite; Structure: Spongy amygdaloidal structure.						



THIN SECTION:	324-U1349A-12R-2-W 111_ 113-TS234			Piece No:		Unit:24	OBSERVER:THIN SECTION:TS234
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of highly vesicular ibasalt						
GRAIN SIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1			2	1.2	euhedral to subhedral	
MICROPHENOCRYST							
olivine	2			0.6	0.4	subhedral	
VESICLES	0						
GROUNDMASS	97						
plagioclase	25	50		0.2	0.1	acicular	
pyroxene	40	60		1.2	0.8	anhedral	
glass	34						
opaque Minerals	1			0.1	0.06	skeletal	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite	20					olivine	
light brown clays	40					plagioclase	
iddingsite	80					olivine	
iddingsite	100					olivine	
light brown clays	10						
light brown clays	100					glass	
STRUCTURE	Massive structure with one syntaxial calcite vein filled with zeolite at the side and calcite in the middle.						
COMMENTS							
SUMMARY DESCRIPTION	Alteration degree: 30-40%						



THIN SECTION:	324-U1349A-12R-3-W 32_34-TS235			Piece No:		Unit:24	OBSERVER:THIN SECTION:TS235
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of highly vesicular basalt						
GRAINSIZE:	0.2						
TEXTURE:	sparsely phyric,intergranular						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	3						
olivine	1			4	2	subhedral	altered to iddingsite and spinel inclusions
MICROPHENOCRYST							
olivine	2			0.7	0.6	subhedral	
VESICLES	1		2	3	2.5	high	
GROUNDMASS	97						
glass	19						
plagioclase	40	40		0.25	0.1	columnar	
pyroxene	40	50		0.4	0.15	anhedral	
opaque Minerals	1			0.09	0.05	skeletal	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
Chlorite group (Tri-Dioctahedral)						glass	groundmass (glassm, plagio) altered to clay, and olivine iddingsite replaced by green mineral
light brown clays	100					glass	patchy alteration of the groundmass to iddingsite and then later to chlorite
chlorite group (Tri-Dioctahedral)						olivine	
iddingsite	100					olivine	
chlorite group (Tri-Dioctahedral)							
iddingsite	100					olivine	
STRUCTURE	Massive structure with several veins filled with synaxial zeolite? or chlorite?, and calcite.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely olivine phyric Intergranular Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 1%; Crystallinity: 82%; Alteration Degree: 60%; Vein Filling: Calcite and Chlorite; Vesicle Filling: None; Structure: Massive structure with several veins.						



THIN SECTION:	324-U1349A-12R-4-W 112_116-TS237		Piece No:		Unit:24	OBSERVER:THIN SECTION:TS237
ROCK NAME:	sparsely phyric basalt					
WHERE SAMPLED:	middle part of highly vesicular basalt					
GRAINSIZE:	microcrystalline [324]					
TEXTURE:	intergranular, sparsely phyric					
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)			
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS	1					
olivine	1			1.2	0.9	euhedral to subhedral
MICROPHENOCRYST						
olivine	1			0.6	0.5	subhedral
VESICLES	7			15	2.5	low to high elongate
GROUNDMASS	98					coalesced vesicles
pyroxene	40			0.3	0.2	anhedral
plagioclase	30			0.25	0.15	columnar
Opaque Minerals	1			0.08	0.07	skeletal
glass	29					
SECONDARY			SIZE(mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING
calcite	30					olivine
brown clays	8					pyroxene
saponite						olivine
brown clays	100					glass
brown clays	40					
iddingsite	100					olivine
saponite	70					olivine
saponite						
STRUCTURE	Massive structure with several syntaxial calcite and zeolite veins.					
COMMENTS						
SUMMARY DESCRIPTION	Sparsely olivine phyric Intergranular Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 7%; Crystallinity: 72%; Alteration Degree: 45%; Vein Filling: Calcite; Vesicle Filling: Saponite; Structure: Massive structure with several syntaxial veins.					



THIN SECTION:	324-U1349A-13R-1-W 29_32-TS238			Piece No:		Unit:27	OBSERVER:THIN SECTION:TS238
ROCK NAME:	aphyric basalt						
WHERE SAMPLED:	middle part of highly vesicular basalt						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	aphyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	0						
olivine	0.1			1.2	1	euhedral	
MICROPHENOCRYST							
pyroxene	1			0.8	0.4	anhedral	
olivine	1			0.6	0.5	subhedral	
VESICLES	10		0.5	8	3	moderately spherical	
GROUNDMASS	98						
pyroxene	40			0.3	0.2		
glass	39						
plagioclase	20			0.2	0.1		
opaque Minerals	1			0.1	0.07		
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
saponite						olivine	secondary
brown clays	60					plagioclase	
iddingsite	100					olivine	
saponite	60						
brown clays	100					glass	
brown clays	35					pyroxene	
calcite	40						
zeolite						vesicle	likely stilbite
STRUCTURE	Massive structure with deformed phenocrysts and veins cut the phenocryts.						
COMMENTS							
SUMMARY DESCRIPTION	Aphyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 10%; Crystallinity: 62%; Alteration Degree: 65%; Vein Filling: Calcite, hematite and zeolite; Vesicle Filling: Zeolite; Structure: Massive structure with deformed phenocrysts. Veins cutting the phenocryts.						



THIN SECTION:	324-U1349A-13R-2-W 9_12-TS239		Piece No:		Unit:27	OBSERVER:THIN SECTION:TS239	
ROCK NAME:	sparsely phyrlic basalt						
WHERE SAMPLED:	middle part of highly vesicular basalt						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	intersertal,sparsely phyrlic						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1			2	1.1	euhedral to subhedral	spinel inclusions
MICROPHENOCRYST							
olivine	1			0.6	0.5	subhedral	
VESICLES	7		0.5	3	2.5	elongate	
GROUNDMASS	98						
glass	39	100					
pyroxene	30	60		0.3	0.2	anhedral	
opaque Minerals	1			0.15	0.08	subhedral, skeletal	
plagioclase	30	30		0.2	0.1	acicular	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clays	40					pyroxene	
brown clays	60					plagioclase	
calcite	40					olivine	
saponite	60					olivine	
brown clays	100						
chlorite group (Tri-Dioctahedral)	5					vesicle	
saponite	5					vesicle	
calcite	85						
Fe-oxides	5					vesicle	
saponite	100					vesicle	
STRUCTURE	Amygdaloidal structure with syntaxial growth of calcite veins						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely olivine phyrlic Intersertal Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 10%; Crystallinity: 62%; Alteration Degree: 70%; Vein Filling: Calcite; Vesicle Filling: Calcite, Saponite, Chlorite and Fe-oxides; Structure: amygdaloidal structure with syntaxial growth of veins						



THIN SECTION:	324-U1349A-13R-2-W 107_110-TS240			Piece No:		Unit:28	OBSERVER:THIN SECTION:TS240
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of vesicular inflation unit						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	intersertal,sparsely phyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1			2	1	euhedral to subhedral	spinel inclusions
MICROPHENOCRYST							
olivine	2			0.7	0.6	subhedral	
VESICLES	20		0.5	4	2	elongate	
GROUNDMASS	97						
plagioclase	50	90		0.2	0.1	acicular	
glass	19	100					
pyroxene	30	90		0.25	0.1	anhedral	
opaque Minerals	1			0.08	0.03	subhedral, skeletal	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clays	90					glass	
calcite	5					olivine	
green clays	10					glass	
brown clays	80					plagioclase	
brown clays	80						
iddingsite	95					olivine	
saponite						vesicle	
calcite							
green clay						vesicle	
STRUCTURE	Massive structure in the groundmass and amygdaloidal structure.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely olivine phyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 20%; Crystallinity: 82%; Alteration Degree: 84%; Vein Filling: None; Vesicle Filling: Calcite, Saponite and Green clay; Structure: massive structure in the groundmass and amygdaloidal structure.						



THIN SECTION:	324-U1349A-13R-3-W 69_72-TS241		Piece No:		Unit:29	OBSERVER:THIN SECTION:TS241	
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of highly vesicular basalt						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1			1.5	1.1	euhedral to subhedral	spinel inclusions
MICROPHENOCRYST							
olivine	2			0.6	0.4	subhedral	
VESICLES	10		0.5	7	2	highly elongate	
GROUNDMASS	97						
glass	24	100					
plagioclase	40	100		0.1	0.08	acicular	
opaque Minerals	1			0.08	0.03	subhedral, skeletal	
pyroxene	35	100		0.15	0.08	anhedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
iddingsite	80					olivine	phenocryst
brown clays	90					plagioclase	
iddingsite	100					olivine	groundmass
calcite	20					olivine	
calcite	10						
brown clays	90					glass	
calcite						vesicle	
STRUCTURE	Massive structure in the groundmass and amygdaloidal structure.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely olivine phyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 10%; Crystallinity: 77%; Alteration Degree: 95%; Vein Filling: None; Vesicle Filling: Calcite; Structure: Massive structure in the groundmass and amygdaloidal structure.						



THIN SECTION:	324-U1349A-13R-4-W 123_126-TS243		Piece No:		Unit:31	OBSERVER:THIN SECTION:TS243	
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of highly vesicular basalt						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	intersertal,sparsely phyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	2						
olivine	2			2	1.2	subhedral	spinel inclusions
MICROPHENOCRYST							
olivine	2			0.4	0.3	subhedral	
VESICLES	10		0.5	7	3	highly elongate	
GROUNDMASS	96						
plagioclase	25	60		0.12	0.08	acicular	
pyroxene	25	70		0.2	0.1	anhedral	
glass	49	100					
opaque Minerals	1			0.08	0.05	subhedral, skeletal	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clays	40					pyroxene	
brown clays	100					glass	Hematite is present in the groundmass
iddingsite	100					olivine	phenocryst
brown clays	50					plagioclase	
iddingsite	100						
saponite						vesicle	
STRUCTURE	Amygdaloidal structure						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely olivine phyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 10%; Crystallinity: 53%; Alteration Degree: 73%; Vein Filling: None; Vesicle Filling: Saponite; Structure: Amygdaloidal structure.						



THIN SECTION:	324-U1349A-13R-6-W 9_12-TS244			Piece No:		Unit:31	OBSERVER:THIN SECTION:TS244
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of highly vesicular basalt						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	intersertal,sparsely phyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	2						
olivine	2			1.1	1	subhedral	spinel inclusions
MICROPHENOCRYST							
olivine	2			0.5	0.2	subhedral	
VESICLES	40		0.5	13	2	elongate	
GROUNDMASS	96						
opaque Minerals	1			0.08	0.02	subhedral, skeletal	
plagioclase	45	90		0.1	0.08	acicular	
glass	24	100					
pyroxene	30	90		0.4	0.15	anhedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
iddingsite	50					olivine	
brown clays	100					glass	
calcite							
brown clays	95					plagioclase	
brown clays	70						
green clays						vesicle	
calcite						vesicle	
STRUCTURE	Amygdaloidal structure						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely olivine phyric Intersertal Basalt; Microcrystalline; Middle part of highly vesicular basalt; Vesicularity 40%; Crystallinity: 77%; Alteration Degree: 88%; Vein Filling: Calcite; Vesicle Filling: Calcite and Green clays; Structure: Amygdaloidal structure.						



THIN SECTION:	324-U1349A-14R-1-W 38_42-TS245		Piece No:		Unit:32	OBSERVER:THIN SECTION:TS245
ROCK NAME:	sparsely phyric basalt					
WHERE SAMPLED:	middle part of volcanic flow breccia					
GRAINSIZE:	microcrystalline [324]					
TEXTURE:	sparsely phyric,interstitial					
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)			
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS	2					
olivine	2			3	1.4	euhedral to subhedral
MICROPHENOCRYST						spinel inclusions
olivine	2			0.4	0.2	subhedral
VESICLES	15		0.5	8	3	highly elongate
GROUNDMASS	96					
Opaque Minerals	1			0.1	0.04	subhedral
plagioclase	30	90		0.2	0.15	acicular
glass	44	100				
pyroxene	25	100		0.3	0.1	anhedral
SECONDARY			SIZE(mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING
calcite	40					olivine
brown clays	100					glass
brown clays	80					titano-magnetite
iddingsite	60					olivine
iddingsite	100					secondary
brown clays	98					pyroxene
brown clays	95					plagioclase
orange clays						
calcite						vesicle
STRUCTURE	Thick composite vein is polycrystalline. Thin calcite veins are connecting amygdules.					
COMMENTS						
SUMMARY DESCRIPTION	Sparsely olivine phyric Intersertal Basalt; Microcrystalline; Middle part of volcanic flow breccia; Vesicularity 15%; Crystallinity: 58%; Alteration Degree: 98%; Vein Filling: Calcite, Brown clays and Fe-oxides; Vesicle Filling: Calcite and Orange clays; Structure: Thick composite vein is polycrystalline. Thin veins are connecting amygdules.					



THIN SECTION:	324-U1349A-14R-1-W 124_127-TS251			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS251
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanoclastic breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		1.6x0.8	1.0x0.6	subhedral	
MICROPHENOCRYST							
olivine	1	100		0.5x0.3	0.4x0.3	subhedral	
VESICLES	7			4	1.8	low sphericity	
GROUNDMASS	98						
pyroxene	20	100		0.1x0.1	0.1x0.05	subhedral	
opaque Minerals	2	0		0.02x0.02	0.02x0.02	subhedral	
plagioclase	30	95		0.2x0.02	0.1x0.02	acicular	
glass	48	100					
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
iddingsite	95					olivine	
calcite	2					olivine	
green clays	3					olivine	
brown clays	100					glass	
brown clays	95						
Fe-oxides						vesicle	
saponite						vesicle	
calcite							
brown clays						vesicle	
calcite						vesicle	
STRUCTURE	Polycrystalline calcite veins are heterogeneously distributed with thick alteration halo.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Intersertal Basalt; Microcrystalline; Volcanic flow breccia; Vesicularity 7%; Crystallinity: 53%; Alteration Degree: 97%; Vein Filling: Saponite and calcite; Vesicle Filling: Calcite, brown clays and Fe-oxides (A) and saponite and calcite (B); Cement: None; Structure: Polycrystalline calcite veins are heterogeneously distributed with thick alteration halo.						



THIN SECTION:	324-U1349A-14R-4-W 50_56-TS246			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS246
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1			2	1.2	euohedral to subhedral	spinel inclusions
MICROPHENOCRYST							
olivine	2			0.3	0.2	subhedral	
VESICLES	15		0.5	10	3	highly elongate	
GROUNDMASS	97						
plagioclase	7	80		0.2	0.1	acicular	
Opaque Minerals	0.5			0.1	0.06	subhedral	
glass	87	100					
pyroxene	5	100		0.25	0.18	subhedral	
SECONDARY				SIZE(mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
saponite	80					olivine	
green clay	10					olivine	celadonite?
green-brown clays	100					glass	
green-brown clays	95					plagioclase	
iddingsite	10						
zeolite						vesicle	
green clay						vesicle	as rim
Fe-oxides							
calcite						vesicle	
brown clay						vesicle	as rim
STRUCTURE	Matrix filled with polycrystalline calcite. Some thin calcite veins show cross-fiber.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely olivine phyric Intersertal Basalt; Microcrystalline; Middle part of volcanic flow breccia; Vesicularity 15%; Crystallinity: 15%; Alteration Degree: 94%; Vein Filling: None; Vesicle Filling: Calcite, Green clays, Brown clays, Fe-oxides and Zeolite; Structure: Matrix filled with polycrystalline calcite. Some thin calcite veins show cross-fiber.						



THIN SECTION:	324-U1349A-14R-4-W 97_98-TS247			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS247
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric,ophimottled						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	2						
olivine	2	100		2	1.4	euhedral to subhedral	abandant spinel inclusions
MICROPHENOCRYST							
olivine	2	100		0.3	0.2	subhedral	
VESICLES	25		0.5	4	0.9	highly elongate	
GROUNDMASS	96						
glass	35	100		0.1	0.05	subhedral	
Opaque Minerals	1						
plagioclase	35	55		0.5	0.15	acicular	
pyroxene	30	100		0.35	0.15	anhedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
saponite	80					olivine	
calcite	20					olivine	
brown clays	55					plagioclase	
serpentine						olivine	minor
brown clays	100						
brown clays	100					titano-magnetite	
saponite						vesicle	(minor)
calcite							
STRUCTURE	Amygdaloidal structure filled with saponites.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely phyric Intersertal Basalt; Microcrystalline; middle part of volcanic flow breccia; Vesicularity 25%; Crystallinity: 66%; Alteration Degree: 83%; Vein Filling: N/A; Vesicle Filling: Calcite and saponite; Structure: Amygdaloidal structure filled with saponites.						



THIN SECTION:	324-U1349A-14R-5-W 25_31-TS248			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS248
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		3	1.4	anhedral	spinel inclusions
MICROPHENOCRYST							
olivine	1	100		0.5	0.2	anhedral	basalt clasts in glass
VESICLES	20		0.5	9	0.5	highly elongate	
GROUNDMASS	98						
pyroxene	10	90		0.5	0.2	subhedral	
plagioclase	10	90		0.3	0.15	acicular	
Opaque Minerals	1	50		0.1	0.05	subhedral	
glass	79						
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
green clay	10					olivine	
serpentine	5					olivine	
green-brown clays	90					plagioclase	
calcite	5					olivine	
green-brown clays	100						
saponite	80					olivine	
saponite						vesicle	
calcite							
STRUCTURE	Thin calcite veins of network, partly composite or cross-fiber.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely phyric Intersertal Basalt; Microcrystalline; middle part of volcanic flow breccia; Vesicularity 20%; Crystallinity: 23%; Alteration Degree: 98%; Vein Filling: N/A; Vesicle Filling: Calcite and saponite; Structure: Thin calcite veins of network, partly composite or cross-fiber.						



THIN SECTION:	324-U1349A-14R-5-W 53_54-TS249		Piece No:		Unit:32	OBSERVER:THIN SECTION:TS249
ROCK NAME:	sparsely phyric basalt					
WHERE SAMPLED:	middle part of volcanic flow breccia					
GRAINSIZE:	microcrystalline [324]					
TEXTURE:	ophimottled,sparsely phyric					
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)			
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS	1					
olivine	1	100		3	1.2	subhedral to euhedral
MICROPHENOCRYST						spinel inclusions
olivine	1	100		0.5	0.3	subhedral
VESICLES	25		0.5	5	1	highly spherical
GROUNDMASS	98					
plagioclase	29	60		0.3	0.2	acicular
glass	30					
pyroxene	40	65		0.5	0.2	anhedral
Opaque Minerals	1	20		0.1	0.05	subhedral
SECONDARY			SIZE(mm)			
MINERALOGY			min.	max.	mode.	REPLACING/FILLING
calcite	15					olivine
green-brown clays	65					pyroxene
green-brown clays	60					plagioclase
saponite	80					olivine
green-brown clays	100					
green clay	5					olivine
saponite						vesicle
STRUCTURE	Polycrystalline and thick calcite vein makes Y-shaped morphology. Thin calcite veins are heterogeneously distributed and show partly composite or cross-fiber.					
COMMENTS						
SUMMARY DESCRIPTION	Sparsely phyric Ophimottled Basalt; Microcrystalline; middle part of volcanic flow breccia; Vesicularity 25%; Crystallinity: 71%; Alteration Degree: 74%; Vein Filling:calcite, blue-green minerals, Fe-oxides; Vesicle Filling: Saponite; Structure: Polycrystalline and thick calcite vein makes Y-shaped morphology. Thin calcite veins are heterogeneously distributed and show partly composite or cross fiber.					



THIN SECTION:	324-U1349A-14R-6-W 64_67-TS250			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS250
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	2						
olivine	2	100		1.4	1.1	subhedral	spinel inclusions
MICROPHENOCRYST							
olivine	1	100		0.3	0.2	subhedral	
VESICLES	7		4	4	1.1	moderately spherical	
GROUNDMASS	97						
glass	68	100					
plagioclase	12	30		0.6	0.2	acicular	
pyroxene	15	20		0.25	0.18	anhedral	
Opaque Minerals	5	10		0.1	0.05	euohedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
calcite	10					olivine	
serpentine	10					olivine	
brown clays	30					plagioclase	
brown clays	20					pyroxene	
saponite	80						
brown clays	100					glass	
saponite						vesicle	
STRUCTURE	Amygdaloidal structure with syntaxial zeolite and polycrystalline calcite veins						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely phyric intersertal Basalt; Microcrystalline; middle part of volcanic flow breccia; Vesicularity 7%; Crystallinity: 34%; Alteration Degree: 76%; Vein Filling: calcite, saponite; Vesicle Filling: Saponite; Structure: Amygdaloidal structure with systaxial zeolite and polycrystalline calcite veins.						



THIN SECTION:	324-U1349A-15R-3-W 79_85-TS252			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS252
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	intersertal,sparsely phyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		1.4	1.1	euhedral to subhedral	
MICROPHENOCRYST							
olivine	1	100		0.4	0.2	subhedral	
VESICLES	15		0.5	5	1	moderately spherical	
GROUNDMASS	98						
pyroxene	20	100		0.25	0.2	anhedral	
plagioclase	20	70		0.3	0.2	acicular	
opaque Minerals	1	0		0.06	0.02	subhedral	
glass	59	100					
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clay	70					plagioclase	degree of alteration in plagioclase was estimated based on the outline of relic crystals in reflected light
saponite	100					olivine	
non reflective opaque	100					mesostasis	
brown clay	100					sperulites	
brown clay	100						
saponite	95					vesicle	
calcite	5					vesicle	
STRUCTURE	Brecciated clast of basalts. Matrix-supported.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Intersertal Basalt; Microcrystalline; Volcanic flow breccia; Vesicularity 15%; Crystallinity: 42%; Alteration Degree: 93%; Vein Filling: None; Vesicle Filling: Saponite and calcite; Cement: Saponite and Calcite, saponite; Structure: Brecciated clast of basalts. Matrix-supported. Thick veins entrained host-basaltic clast.						



THIN SECTION:	324-U1349A-15R-4-W 104_110-TS254			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS254
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	ophimottled,sparsely phyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		1.3	1.0	euhedral to subhedral	
MICROPHENOCRYST							
olivine	2	100		0.3	0.2	subhedral	
VESICLES	10		0.3	3	0.9	highly elongate	
GROUNDMASS	97						
opaque Minerals	1	30		0.05	0.01	subhedral	
glass	44	100					
plagioclase	30	10		0.25	0.15	acicular	
pyroxene	25	100		0.22	0.12	anhedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clay	100					mesostasis	
saponite	100					olivine	
brown clay	100					pyroxene	
brown clay	10					plagioclase	
non reflective opaque	30						
saponite	100					vesicle	
STRUCTURE	Flow structure around relict phenocryst and in part of groundmass.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Ophimottled Basalt; Microcrystalline; Volcanic flow breccia; Vesicularity 10%; Crystallinity: 57%; Alteration Degree: 73%; Vein Filling: Calcite, brown clay and trace zeolite; Vesicle Filling: Saponite; Cement: Calcite, saponite; Structure: Thick polycrystalline calcite veins, thin cross-fiber calcite veins are heterogeneously distributed.						



THIN SECTION:	324-U1349A-15R-5-W 6_12-TS255		Piece No:		Unit:32	OBSERVER:THIN SECTION:TS255	
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		2	1.4	euhedral to subhedral	spinel inclusions
MICROPHENOCRYST							
olivine	2	100		0.3	0.2	subhedral	
VESICLES	5		0.5	4	1	low sphericity	coalesced vesicles
GROUNDMASS	97						
glass	54	100					
pyroxene	20	100		0.3	0.15	anhedral	
plagioclase	25	10		0.15	0.1	acicular	
Opaque Minerals	1	20		0.09	0.05	subhedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clay	100					pyroxene	
spinal	20					spinel	
saponite	100					olivine	
brown clay	10					plagioclase	
brown clay	100						
saponite	100					vesicle	
STRUCTURE	Clast supported breccias.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Intersertal Basalt; Microcrystalline; Volcanic flow breccia; Vesicularity 5%; Crystallinity: 48%; Alteration Degree: 77%; Vein Filling: Saponite; Vesicle Filling: Saponite; Cement Components: Calcite and saponite; Structure: Thin cross-fiber calcite veins are heterogeneously distributed. Clast supported breccias.						



THIN SECTION:	324-U1349A-15R-5-W 15_20-TS256		Piece No:		Unit:32	OBSERVER:THIN SECTION:TS256
ROCK NAME:	sparsely phyric basalt					
WHERE SAMPLED:	middle part of volcanic flow breccia					
GRAINSIZE:	microcrystalline [324]					
TEXTURE:	intersertal,sparsely phyric					
PRIMARY MINERALOGY	PERCENT ORIGINAL	REL. VOL. REPLACED	SIZE(mm) min.	max.	mode.	MORPHOLOGY
PHENOCRYSTS	1					
olivine	1	100		1.8	1.2	euhedral to subhedral
MICROPHENOCRYST						
olivine	1	100		0.5	0.3	subhedral
VESICLES	7		0.5	3.5	1	low sphericity
GROUNDMASS	98					
plagioclase	30	25		0.15	0.1	acicular
glass	49	100				
pyroxene	20	50		0.2	0.1	anhedral
opaque Minerals	1	20		0.06	0.03	subhedral
SECONDARY MINERALOGY			SIZE(mm) min.	max.	mode.	REPLACING/FILLING
brown clay	100					pyroxene
brown clay	40					plagioclase
brown clay	100					glass
chlorite						olivine
saponite						
serpentine						olivine
non reflective opaque	20					spinel
STRUCTURE	Irregular and curved veins in basaltic clast.					
COMMENTS						
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Intersertal Basalt; Microcrystalline; Volcanic flow breccia; Vesicularity 7%; Crystallinity: 52%; Alteration Degree: 67%; Vein Filling: Saponite; Vesicle Filling: Saponite; Cement Components: Calcite and saponite; Structure: Irregular and curved veins in basaltic clast.					



THIN SECTION:	324-U1349A-15R-6-W 42_44-TS257			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS257
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	interstitial,sparsely phyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		1.1	0.9	euhedral to subhedral	
MICROPHENOCRYST							
olivine	2	100		0.4	0.3	subhedral	
VESICLES	5		0.1	0.9	0.4	highly spherical	
GROUNDMASS	97						
pyroxene	15	40		0.4	0.15	anhedral	
plagioclase	20	15		0.3	0.15	acicular	
opaque Minerals	1	30		0.09	0.05	subhedral	
glass	64	100					
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clays	100					glass	
brown clays	40					pyroxene	
brown clays	30					titano-magnetite	
saponite	100					olivine	
brown clays	15						
saponite						vesicle	
STRUCTURE	No structure.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Interstitial Basalt; Microcrystalline; Volcanic flow breccia; Vesicularity 5%; Crystallinity: 38%; Alteration Degree: 74%; Vein Filling: None; Vesicle Filling: Saponite; Cement Components: None; Structure: No structure.						



THIN SECTION:	324-U1349A-16R-2-W 7_14-TS258			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS258
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	intersertal,sparsely phyric						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		1.5	0.9	euhedral to subhedral	
MICROPHENOCRYST							
olivine	2	100		0.5	0.4	subhedral	
VESICLES	5		0.5	3	1	low sphericity	
GROUNDMASS	97						
opaque Minerals	1	20		0.09	0.05	subhedral	
plagioclase	30	50		0.15	0.1	acicular	
glass	49	100					
pyroxene	20	50		0.15	0.1	anhedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clay						glass	
saponite						olivine	
serpentine						olivine	found on the edge of the breccia clast
brown clay						plagioclase	
brown clay						pyroxene	
chlorite						olivine	found on the edge of the breccia clast
non reflective opaque						spinel	
saponite	100						
STRUCTURE	Irregular and curved veins in basaltic clast.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Intersertal Basalt; Microcrystalline; Volcanic flow breccia; Vesicularity 5%; Crystallinity: 52%; Alteration Degree: 75%; Vein Filling: Saponite; Vesicle Filling: Saponite; Cement Components: Saponite and calcite; Structure: Irregular and curved veins in basaltic clast.						



THIN SECTION:	324-U1349A-16R-2-W 44_50-TS259		Piece No:		Unit:32	OBSERVER:THIN SECTION:TS259	
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		1.3	0.8	euohedral to subohedral	
MICROPHENOCRYST							
olivine	1	100		0.4	0.3	subohedral	
VESICLES	0						
GROUNDMASS	98						
glass	64	100					
plagioclase	20	40		0.15	0.08	acicular	
pyroxene	15	100		0.2	0.1	anhedral	
opaque Minerals	1	20		0.09	0.05	subohedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
saponite	100					olivine	
STRUCTURE	Irregular and curved veins in basaltic clast.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Intersertal Basalt; Microcrystalline; Volcanic flow breccia; Vesicularity 0%; Crystallinity: 37%; Alteration Degree: 87%; Vein Filling: Saponite; Vesicle Filling: None; Cement Components: Saponite; Structure: Irregular and curved veins in basaltic clast.						



THIN SECTION:	324-U1349A-16R-6-W 56_61-TS261			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS261
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	microcrystalline [324]						
TEXTURE:	sparsely phyric,hyalophytic						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		1.6x1	1x0.8	subhedral	
MICROPHENOCRYST							
olivine	1	100		0.8x0.6	0.6x0.4	subhedral	
VESICLES	2			0.2	0.1	highly spherical	
GROUNDMASS	98						
pyroxene	7	50		0.1x0.1	0.1x0.1	subhedral	
glass	82	100					
plagioclase	10	50		0.2x0.02	0.1x0.02	acicular	
opaque Minerals	1	40		0.05x0.05	0.02x0.02	subhedral	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
green clay	60					olivine	
iddingsite	20					olivine	
brown clays	10					olivine	
green-brown clays	100					glass	
calcite	10					olivine	
green-brown clays	50					plagioclase	
saponite	100					vesicle	
green clay							
STRUCTURE	Thick and thin veins are networked and curved.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Hyalophytic Basalt; Very fine grained; Middle part of volcanic flow breccia; Vesicularity 2%; Crystallinity: 20%; Alteration Degree: 91%; Vein Filling: Saponite, calcite and Fe-oxides; Vesicle Filling: Saponite or green clays; Cement Components: Saponite, calcite and Fe-Oxides; Structure: Thick and thin veins are networked and curved.						



THIN SECTION:	324-U1349A-16R-6-W 77_83-TS262			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS262
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	very fine grained						
TEXTURE:	sparsely phyric, intersertal						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		2.2x2	1.2x0.8	subhedral	
MICROPHENOCRYST							
olivine	1	100		0.8x0.6	0.6x0.6	subhedral	
VESICLES	2			0.2	0.1	highly spherical	
GROUNDMASS	98						
pyroxene	10	50		0.2x0.2	0.1x0.1	subhedral	
plagioclase	10	40		0.3x0.02	0.2x0.02	acicular	
opaque Minerals	1	0		0.05x0.05	0.02x0.02	subhedral	
glass	79	100					
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
brown clays	100					olivine	secondary minerals after olivine depend on the clasts
saponite	100					olivine	
green-brown clays	40					plagioclase	
green-brown clays	100					glass	
saponite						vesicle	
green clay						vesicle	as rim around the vesicle
STRUCTURE	Syntaxial, composite and polycrystalline veins are networked and highly curved.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Intersertal Basalt; Very fine grained; Middle part of volcanic flow breccia; Vesicularity 2%; Crystallinity: 23%; Alteration Degree: 88%; Vein Filling: None; Vesicle Filling: Saponite and green clays; Cement Components: None; Structure: Syntaxial, composite and polycrystalline veins are networked and highly curved.						



THIN SECTION:	324-U1349A-16R-7-W 64_71-TS263			Piece No:		Unit:32	OBSERVER:THIN SECTION:TS263
ROCK NAME:	sparsely phyric basalt						
WHERE SAMPLED:	middle part of volcanic flow breccia						
GRAINSIZE:	very fine grained						
TEXTURE:	sparsely phyric,hyalophytic						
PRIMARY	PERCENT	REL. VOL.	SIZE(mm)				
MINERALOGY	ORIGINAL	REPLACED	min.	max.	mode.	MORPHOLOGY	COMMENTS
PHENOCRYSTS	1						
olivine	1	100		1.6x0.6	1.2x0.6	subhedral	
MICROPHENOCRYST							
olivine	1	100		0.8x0.6	0.6x0.4	subhedral	
VESICLES	3			0.8	0.2	low sphericity	
GROUNDMASS	98						
glass	84	100					
pyroxene	5	50		0.2x0.1	0.1x0.1	subhedral	
opaque Minerals	1	0		0.05x0.05	0.02x0.02	subhedral	
plagioclase	10	60		0.3x0.02	0.2x0.02	acicular	
SECONDARY			SIZE(mm)				
MINERALOGY			min.	max.	mode.	REPLACING/FILLING	COMMENTS
serpentine?						olivine	
green-brown clays	100					glass	
green-brown clays	100					olivine	saponite?
green-brown clays	60					plagioclase	
saponite						vesicle	
STRUCTURE	Thin veins are heterogeneously distributed in basaltic clast.						
COMMENTS							
SUMMARY DESCRIPTION	Sparsely Olivine Phyric Hyalophytic Basalt; Very fine grained; Middle part of volcanic flow breccia; Vesicularity 3%; Crystallinity: 18%; Alteration Degree: 93%; Vein Filling: Saponite; Vesicle Filling: Saponite; Cement Components: Saponite and calcite; Structure: Thin veins are heterogeneously distributed in basaltic clasts.						