

Appendix C

THIN SECTION PETROGRAPHY

Table C.01: Thin section petrography.

(all sizes in mm)	EY-1	EY-2	EY-3	EY-4A	EY-4B	EY-5	EY-6
VESICLES							
% vesicles	0	15-20	3	10	25-30	0	0
size vesicles	-	5	.05-2.5	<5	≤1	-	-
PHENOCRYSTS							
% phenocrysts	20-25	≤1	10	5	<1	≤1	<1
size plagioclase	<6	≤2.5	≤2.5	≤5	<2.5	<1	≤2.5
commentst	ol,c,op,R	op,R	ol,c,op,E,S,R	c,R,E	c,op,E,F	ø,E,R	op,R,
size clinopyroxene	<6	0.5	<1.5	≤2.5	≤1	-	1
commentst	p,op,ol,R	op	p,op,R	op,R	op,p,	ø	R
size olivine	≤3	0.5	≤5	0.5	≤0.7	<5	1
commentst	ø	ø	op,E	F,R	op,E	ø,E	-
size oxides	<.75	-	≤2.5	-	≤0.8	-	-
order of abundance *	c>ol=p	p=c>>ol	p>ol>c	p>c>ol	p>c>ol>ox	p>>ol	p>>c
estimated rel. mag			200/15/1		100/20/2/1		
GROUNDMASS							
size of ferromag. min.	≤.25	0.05	0.075	0.075	≤0.2	≤0.1	≤0.05
size of oxides	0.25	≤0.05	0.05	≤0.05	≤0.2	≤0.025	0.0125
% ol - cpx	30-35	30	30	15	14.5,14.5	30	10
% plag	65	65	60	60	57	60	60
% oxides	3 to 5	5 to 7	10	2 to 3	14.5	7	5
% apatite	<1	1	<1	<1	1 to 2	1	<1
% misc	blo <1	-	-	gl 25	-	-	-
% alteration	5 to 7	5 to 7	3	30	?	3 to 5	20 to 25
plag flow aligned? #	2	1	1	0	?	2	2

† (comments: c,p,ol,op,ø = cpx/plag/olivine/opaque/none inclusions.)

(R = resorbed; E = embayed; S = skeletal; F = frittered;)

* (c=clinopyroxene; p=plagioclase; ol=olivine; ox=oxides)

(0=none; 1=mild; 2=significant)

Table C.01 cont.: Thin section petrography.
(all sizes in mm)

	EY-7	EY-8	EY-9	EY-10	EY-11	EY-12	EY-13
VESICLES							
% vesicles	0	0	0	5	10 to 15	2 to 3	≤1
size vesicles	-	-	-	0.1-0.25	2.5	0.2	0.125
PHENOCRYSTS							
% phenocrysts	<<1	10 to 15	20 to 25	25 to 30	20	<1	1
size plagioclase	0.6	≤2.5	≤6	≤5	≤4.5	≤1.5	≤2.5
commentst	R	c,op,R,E,F	op,c,ol,E,R,F	c,op,F,E,R	op,c,R	ø,R,E,F	c,op,R,E,F
size clinopyroxene	0.5	≤3.5	-	≤13	≤3.5	≤1.5	≤1
commentst	ø	p,ol,R	-	ø,R	ø,R,E	ø,R	ø,R
size olivine	-	≤2.5	-	≤2	-	-	≤2
commentst	-	c?,p	-	ø,E	-	-	op,p,R,E
size oxides	-	-	-	-	≤2.5	-	-
order of abundance *	c=p	p>ol=c	p=100%	p>c>ol	p>c>ox	p>>c	p>ol≥c
estimated rel. mag		5/1/1					
GROUNDMASS							
size of ferromag. min.	≤0.1	≤0.1	<0.04	0.05	≤0.1	≤0.1	≤0.025
size of oxides	0.0125	≤0.05	<0.04	0.05	?	≤0.05	≤0.025
% ol - cpx	30	40	25 to 30	15, 25	30	30	35
% plag	50	45	55 to 60	45	50	50	50
% oxides	20	10	10	15	15 to 20	15 to 20	15
% apatite	1 to 2	<1	<1		<1	1	1
% misc				gl: 0 to 15	gl: 5	gl: 5	
% alteration	7 to 30	3 to 7	15 to 20	15 to 30	?	?	20
plag flow aligned? #	?	2	1	0	0	2	?

† (comments: c,p,ol,op,ø = cpx/plag/olivine/opaque/none inclusions.)

(R = resorbed; E = embayed; S = skeletal; F = frittered;)

* (c=clinopyroxene; p=plagioclase; ol=olivine; ox=oxides)

(0=none; 1=mild; 2=significant)

Table C.01 cont.: Thin section petrography.
(all sizes in mm)

	EY-14	EY-15	EY-16	EY-17	EY-18	EY-19	EY-20
VESICLES							
% vesicles	10	20 to 25	0	10 to 15	7 to 10	7 to 10	5 to 7
size vesicles	5-0.2	3.5-0.25	-	10-0.05	≤0.5	≤6	≤1
PHENOCRYSTS							
% phenocrysts	1	10	0	20	4 to 5	3 to 4	0
size plagioclase	≤1.5	≤5.5	-	-	≤2	1.25	-
comments†	p,R,E,F	c,op,R,E	-	-	op,E,R	c,op,R,E	-
size clinopyroxene	-	≤4	-	<5	≤2	≤2.5	-
comments†	-	ø,R,E	-	p,R,E	op,p,E,R	op,p,E,R	-
size olivine	-	≤2.5	-	≤10	≤1.5	≤2.5	-
comments†	-	p,E,R	-	ø,E	ø	op,E	-
size oxides	-	-	-	-	-	-	-
order of abundance * estimated rel. mag	p=100%	p>c>ol	-	ol>c	?	c>p>ol	-
GROUNDMASS							
size of ferromag. min.	≤0.0125	≤0.025	≤0.025	≤0.05	<0.0125	0.25/0.04	≤0.25
size of oxides	≤0.0125	≤0.025	≤0.025	≤0.025	<0.0125	0.04	≤0.25
% ol - cpx	25 to 30	40	35	45	33	30	10,30
% plag	50	50	50	45 to 50	33	50	50
% oxides	20 to 25	10	15	≤5	33	20	10
% apatite	-	<1	<1	-	-	<1	-
% misc	-	-	-	-	-	-	-
% alteration	20 to 25	5 to 10	30 to 40	≤2	7 to 10	7 to 10	?
plag flow aligned? #	2	0	2	?	?	?	?

† (comments: c,p,ol,op,ø = cpx/plag/olivine/opaque/none inclusions.)

(R = resorbed; E = embayed; S = skeletal; F = frittered;)

* (c=clinopyroxene; p=plagioclase; ol=olivine; ox=oxides)

(0=none; 1=mild; 2=significant)

Table C.01 cont.: Thin section petrography.

(all sizes in mm)	EY-21	EY-22	EY-23	EY-24	EY-26	EY-27	EY-28
VESICLES							
% vesicles	2	0	0	7 to 10	2 to 3	≤1	≤1
size vesicles	≤4	-	-	≤1	0.25	<0.25	0.25
PHENOCRYSTS							
% phenocrysts	0	5	3	10 to 15	5	<<1	2 to 3
size plagioclase	-	≤3	≤4.25	≤5	≤2.25	<2	≤2.5
comments†	-	ol,c,E,R	ol?,op,E,R	ol,p,c,R,E	ol,c?,R,E,F	F,R	R,E,S
size clinopyroxene	-	≤2.5	≤3.5	≤1.5	≤0.5	-	0.5
comments‡	-	op,E,R	op,p,R,E	ø,E,R	ø,R	-	R
size olivine	-	≤2	<1.5	1	≤0.5	-	1.5
comments‡	-	p,op,E,R	op,E	ø,E	ø,R	-	R
size oxides	-	≤0.5	<0.5	-	-	-	-
order of abundance *	-	p>ol=c>ox	p>c>ol>ox	p>c>ol	p>ol>c	p=100%	p>ol>c
estimated rel. mag					10/1/1		
GROUNDMASS							
size of ferromag. min.	≤0.025	0.01	0.025	0.1	≤0.1	≤0.025	0.1/0.03
size of oxides	0.025	≤0.01	0.025	0.1	0.05	≤0.025	0.1/0.03
% ol - cpx	25 to 30	20	25	5/10,30/35	30	25 to 30	20
% plag	60	70	65	45 to 50	55	65 to 70	70
% oxides	7	10	10	10	15	5 to 7	7
% apatite	1	<1	<1	-	-	-	-
% misc							
% alteration	5	7	10 to 15	<1	<1	5 to 7	10
plag flow aligned? #	?	2	2	?	1	2	2

† (comments: c,p,ol,op,ø = cpx/plag/olivine/opaque/none inclusions.)
(R = resorbed; E = embayed; S = skeletal; F = frittered)
* (c=clinopyroxene; p=plagioclase; ol=olivine; ox=oxides)
(0=none; 1=mild; 2=significant)

Table C.01 cont.: Thin section petrography.
(all sizes in mm)

	EY-29	EY-30	EY-31	EY-34	EY-36	EY-37	EY-38
VESICLES							
% vesicles	5	0	0	35 to 40	0	3 to 5	<1
size vesicles	0.25	-	-	0.5	-	4-0.5	≤2
PHENOCRYSTS							
% phenocrysts	10 to 12	7	12	<1	3 to 5	5 to 7	2 to 3
size plagioclase	≤3	≤2	≤1	1	≤6	≤2	2
commentst	c,op,E,R,F	F,E,R,S	ø,E,R,S	-	op,R,E,F	op,ol,R,E,F	op,R,E
size clinopyroxene	1	≤0.25	≤1.5	-	≤3	≤3	≤2.5
commentst	ø	ø	p,F,R	-	op,p,E,R	p,R,E	ø,R,E
size olivine	<3	-	0.25	-	2	0.5	0.5
commentst	op	-	ø,S	-	op	op,E	ø
size oxides	-	≤0.25	0.25	-	-	0.5	-
order of abundance *	p>>ol>>c	p>c>ox	p>c>ol>ox	-	p>c=ol	p≥c>ol>ox	p≥c>ol
estimated rel. mag	100+/2/1						
GROUNDMASS							
size of ferromag. min.	0.05	≤0.01	0.01	0.05	0.01	≤0.1	0.025
size of oxides	0.05	≤0.01	0.01	0.01	0.01	≤0.1	0.025
% ol - cpx	40 to 45	25 to 30	35	?	40	40	20
% plag	40 to 45	55 to 60	55	?	50	55	75
% oxides	10 to 15	10	10	3	8 to 9	3	5
% apatite							
% misc							
% alteration	20 to 25	25 to 30	10 to 30	90	20 to 25	15	10
plag flow aligned? #	?	1	1	?	?	0	?

† (comments: c,p,ol,op,ø = cpx/plag/olivine/opaque/none inclusions.)

(R = resorbed; E = embayed; S = skeletal; F = frittered;)

* (c=clinopyroxene; p=plagioclase; ol=olivine; ox=oxides)

(0=none; 1=mild; 2=significant)

Table C.01 cont.: Thin section petrography.

(all sizes in mm)	EY-39	EY-40	EY-41	EY-42	EY-43	EY-44	EY-45
VESICLES							
% vesicles	2 to 3	0	5	10 to 15	10	5	15 to 20
size vesicles	0.2	-	0.2	0.25	0.25	0.05	≤0.5
PHENOCRYSTS							
% phenocrysts	15	<1	20 to 25	<<1	5	<1	0
size plagioclase	≤3	≤1.5	3	2	2	1.5	-
comments†	c,op,R,E,F	op,E,R	op,S,R,E	c,op,R,E	op,c,R,E,F,S	op,ol,R,E,F	-
size clinopyroxene	≤5	-	≤6	0.75	2	1	-
comments†	p,ol,op,R,E	-	p,R,E	op,p	op,R,E	op,R,E,F	-
size olivine	<2	-	2.5	-	0.75	3	-
comments†	op,p,E	-	op,R	-	op	op,E	-
size oxides	-	-	-	-	-	-	-
order of abundance *	c>p>ol	p=100%	p>ol>c	p>>c	p>ol>c	p>>ol	-
estimated rel. mag							
GROUNDMASS							
size of ferromag. min.	0.05	0.025	0.01	0.25	0.01	0.01-0.025	0.05
size of oxides	0.05	0.01	0.01	0.25	0.01	0.01-0.025	0.05
% ol - cpx	40	45	35	5	15	30	35
% plag	50	45	61	15	60	60	45 to 48
% oxides	7 to 8	8 to 10	4	3 to 5	7 to 10	7 to 10	7
% apatite							
% misc				gl: 75	gl: 15		
% alteration	7 to 10	7 to 10	7 to 10	?	10	10 to 15	5 to 7
plag flow aligned? #	0	2	0	1	2	?	2

† (comments: c,p,ol,op,ø = cpx/plag/olivine/opaque/none inclusions.)

(R = resorbed; E = embayed; S = skeletal; F = frittered;)

* (c=clinopyroxene; p=plagioclase; ol=olivine; ox=oxides)

(0=none; 1=mild; 2=significant)

Table C.01 cont.: Thin section petrography.
(all sizes in mm)

	EY-46	EY-47	EY-48	EY-49	EY-50	EY-51	EY-52
VESICLES							
% vesicles	0	1	1 to 2	10 to 15	<1	0	0 to 2
size vesicles	-	0.5	<0.5	≤2.5	≤0.25	-	≤0.25
PHENOCRYSTS							
% phenocrysts	<<1	7 to 10	10 to 12	25 to 30	7	<1	2
size plagioclase	1	3	≤3	<1.5	≤3	2	2.5
commentst	R,E	op,c,E,R,F	op, R,E,F,S	op,R,E	op,R	op,R,E,F	op,R,E
size clinopyroxene	1	1	2	≤5	≤3	-	1.5
commentst	-	p,op	-	op,E,R	R	-	p,R,E
size olivine	-	1	-	≤3	≤3	-	1.25
commentst	-	ø	-	op,R,E	ø,E	-	ø
size oxides	-	-	-	-	-	-	1
order of abundance *	p=c	p>ol>c	p>>c	ol>c>p	p>c>ol	p=100%	p>c>ol>ox
estimated rel. mag		99/1	99/1	6/3/1	3/1/1		9/2/2/1
GROUNDMASS							
size of ferromag. min.	0.1/0.01	0.025	0.01	0.1-0.05	≤0.05	0.025-0.005	0.1-0.05
size of oxides	0.01	0.025	0.01	0.1-0.05	≤0.05	0.025-0.005	0.1-0.05
% ol - cpx	45	30	37 to 43	40	25	30	30
% plag	45	60	50 to 55	55	68	60	60
% oxides	7	10	7 to 8	5	7	5 to 7	7 to 10
% apatite							
% misc							
% alteration	5 to 7	20	7 to 8	0 to 3	3	35	7 to 10
plag flow aligned? #	2	?	0	0	2	2	0

† (comments: c,p,ol,op,ø = cpx/plag/olivine/opaque/none inclusions.)

(R = resorbed; E = embayed; S = skeletal; F = frittered;)

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Table C.01 cont.: Thin section petrography.

(all sizes in mm)	EY-53	EY-54	EY-55	STF-1	STF-3	STF-5
VESICLES						
% vesicles	15 to 20	0	10 to 15	0	0	0 to 3
size vesicles	≤0.5	-	≤1	-	-	≤5
PHENOCRYSTS						
% phenocrysts	7 to 10	1	7	0	30	<1
size plagioclase	≤6	1.25	≤2.5	-	≤5	1.25
comments†	op,R,E	op,R,E	op,c,E,R,F	-	op,c,ol,R,E,F	F,R
size clinopyroxene	1.5	1.25	≤1.5	-	≤5	0.75
comments†	p,R,E	p,R	p,op,E,R	-	p,ol,op,E,R	ol,p,E
size olivine	1	-	1	-	≤3	1.25
comments†	ø,E	-	ø,E,R	-	E,R,S	E
size oxides	1	-	-	-	-	-
order of abundance *	p>>c=ox>ol	p>c	c≥p>ol	-	c=ol=p	p>c>ol
estimated rel. mag	300/4/4/1					
GROUNDMASS						
size of ferromag. min.	0.01-0.025	0.1-0.02	0.01	0.025	0.01	≤0.05
size of oxides	0.01-0.025	0.1-0.05	0.01	0.025	≤0.01	0.05
% ol - cpx	35 to 30	40	40	25 to 30	45 to 50	35
% plag	55	53 to 55	45 to 50	65	45 to 50	60
% oxides	10 to 15	5 to 7	10	5 to 7	5	3 to 5
% apatite						<1
% misc						
% alteration	7	10	15 to 20	15	<1	<1
plag flow aligned? #	0	2	2	?	?	?

† (comments: c,p,ol,op,ø = cpx/plag/olivine/opaque/none inclusions.)

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(0=none; 1=mild; 2=significant)