

### Appendix 4: Modes of Samples in the North Verde Volcanic Field, Minerals in Volume Percent

Sample	S204-1	S204-2	S204-3	S204-8	S204-9	S205-1	S205-2	S205-3
Name	nemzsy	sy-ur	nemzsy	nemzsy	nemzsy	feld-ij	nemzsy	feld-ij
Field	dike mgn	dike int	dike mgn	ocellus	sm dike	sheet bot	sheet mid	sheet top
oliv	0.0	0.0	0.0	0.4	0.5	1.0	6.8	2.0
gr-ta cpx	10.5	15.8	12.5	7.0	12.6	28.1	10.3	33.5
y-g cpx	6.4	7.1	4.4	0.0	0.0	2.8	0.9	0.0
opa	6.1	5.7	7.9	5.3	4.1	4.8	1.4	7.3
biot	0.0	0.0	0.0	0.4	0.7	0.0	0.0	0.0
amph	0.0	0.0	0.0	1.0	0.4	0.0	0.0	0.7
zeol	10.1	8.7	12.4	6.0	5.9	12.4	18.3	7.0
carb	3.5	1.9	1.3	0.0	0.3	0.0	3.8	0.8
apat	2.1	2.7	1.8	2.2	1.5	3.5	1.3	3.8
neph	33.0	37.3	25.4	9.3	35.4	27.8	15.8	32.2
anal	0.0	0.0	0.0	27.7	5.9	1.0	0.5	1.5
plag	12.7	6.9	14.7	15.6	6.0	4.2	15.5	4.2
anor	5.1	4.9	5.1	7.7	3.2	1.6	6.3	1.6
san	10.4	8.8	14.4	17.4	23.4	12.8	19.0	5.5
CI	23.0	28.6	24.8	14.1	18.3	36.7	19.4	43.5
N	791	772	1255	1368	725	1262	852	880
F	53.9	64.4	42.6	47.6	55.9	60.8	28.5	74.9
A	25.3	23.7	32.7	32.3	36.0	30.4	44.3	15.8
P	20.8	11.9	24.7	20.1	8.1	8.9	27.1	9.3

Sample	S207-1	S207-2	S209-1	S210-2	S210-5	S210-6	S210-7	S210-9
Name	bas-neph	nemzsy	bas-neph	nemzsy	nemzsy	feld-ij	feld-ij	feld-ij
Field	dike	sm dike	dike	sheet	sheet	sheet	sheet	sheet
oliv	20.1	0.4	19.3	0.0	0.1	0.0	1.1	3.6
gr-ta cpx	55.5	4.8	48.6	15.5	10.7	28.2	29.4	28.6
y-g cpx	0.0	0.0	0.0	0.5	1.2	3.6	2.5	3.3
opa	3.5	5.1	6.3	3.4	4.4	6.1	3.0	4.8
biot	1.8	1.3	2.1	1.3	0.1	0.0	0.0	0.0
amph	0.0	0.4	0.0	1.5	1.5	0.0	0.0	0.0
zeol	0.0	11.8	0.0	10.3	10.9	7.2	4.6	4.2
carb	0.3	0.3	0.3	0.0	0.0	1.6	0.0	0.1
apat	1.2	1.1	1.7	3.1	1.7	3.7	3.0	3.0
neph	9.5	19.0	8.7	33.5	41.3	32.3	40.6	31.6
anal	2.8	16.5	4.7	2.6	0.0	1.8	0.0	0.1
plag	5.3	11.9	8.1	11.7	7.8	7.0	5.0	8.7
anor	0.0	9.0	0.0	2.4	4.3	1.4	3.1	4.3
san	0.0	18.5	0.0	14.2	16.0	7.2	7.7	7.6
CI	80.9	12.0	76.3	22.2	18.0	37.9	36.0	40.3
N	1200	710	956	1309	1061	1463	948	1347
F	69.9	47.4	62.3	56.1	59.5	68.6	72.0	60.6
A	-	36.7	-	25.8	29.3	17.3	19.1	22.8
P	30.1	15.9	37.7	18.1	11.2	14.1	8.9	16.6

\*Classifies chemically as nepheline mugearite.

\*\*No chemical analysis.

\*\*\*Classifies chemically as basanitic alkali basalt.

CI: Color Index, volume percent of dark minerals.

N: Number of points counted in thin section.

FAP: IUGS parameters: F=feldspathoid (foid); A=alkali feldspar; P=plagioclase

#### Abbreviations of Names:

a-basalt: alkali basalt  
 bas-neph: basanitic nephelinite  
 feld-ij: feldspar ijolite  
 f-mzdiior: foid-bearing monzodiorite  
 monch: monchiquite  
 nemzdior: nepheline monzodiorite  
 nemzsy: nepheline monzosyenite  
 s-basalt: subalkali basalt  
 sy-ur: syenitic urtite

#### Abbreviations of Field Occurrence:

dike int: dike interior  
 dike mgn: dike margin  
 segreg: segregation  
 sheet bot: sheet bottom  
 sheet mid: sheet middle  
 sm dike: small dike (mm to cm)

#### Abbreviations of Minerals:

amph: amphibole  
 anal: analcime  
 anor: anorthoclase  
 apat: apatite  
 biot: biotite  
 carb: carbonate  
 gr-ta cpx: green-tan clinopyroxene  
 hauy: hauyne  
 kaol: kaolinite  
 leuc: leucite  
 neph: nepheline  
 oliv: olivine  
 opa: opaque oxide  
 plag: plagioclase  
 san: sanidine  
 soda: sodalite  
 sphe: sphene  
 y-g cpx: yellow-green clinopyroxene  
 zeol: zeolite

Sample Name	MUMT264 nemzdior	MUMT265-2 basanite	MUMT265-3 nemzdior	LM331-1 nemzdior	LM331-2 basanite	MUMT341 basanite	MUMT342 monch	PS356 bas-neph
Field	segreg	plug	segreg	segreg	flow	flow	flow	flow
oliv	2.5	14.0	0.3	0.6	7.2	12.8	10.0	15.6
gr-ta cpx	12.4	41.1	12.3	17.2	61.4	52.1	49.8	63.9
y-g cpx	1.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0
opa	3.9	8.4	5.6	4.8	13.5	13.1	14.0	8.8
biot	0.8	3.2	2.5	3.0	1.7	1.7	1.8	0.0
amph	1.5	0.0	7.2	0.0	0.0	0.0	0.0	0.0
zeol	1.2	0.0	8.5	0.0	0.0	0.0	0.3	0.2
carb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
apat	4.1	0.8	3.0	0.5	1.4	0.9	2.4	0.0
sphe	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neph	17.8	2.5	21.5	22.6	5.2	0.2	0.0	3.0
anal	0.0	3.2	0.0	8.2	1.7	2.4	17.1	5.3
hauy	0.0	4.8	0.0	0.0	0.0	2.9	2.0	0.0
plag	40.0	22.0	30.0	33.8	7.9	13.9	2.6	2.9
anor	12.1	0.0	2.1	9.3	0.0	0.0	0.0	0.0
san	2.1	0.0	6.9	0.0	0.0	0.0	0.0	0.0
CI	22.6	66.7	28.0	25.6	83.8	79.7	75.6	88.3
N	1500	1000	1100	832	1500	1500	1500	1500
F	24.8	32.3	35.5	41.7	46.6	28.4	88.0	74.1
A	19.7	-	14.9	12.6	-	-	-	-
P	55.5	67.7	49.6	45.7	53.4	71.6	12.0	25.9

Sample Name	PS358-1 nemzdior	PS358-2 nemzdior	S362-1 a-basalt	S362-6 f-mzdior	S363 basanite	CB364 a-basalt	PS378 basalt*	PS385Fh basalt**
Field	segreg	segreg	dike	segreg	flow	flow	flow	flow
oliv	0.0	0.0	8.2	0.0	16.8	15.1	8.0	13.3
gr-ta cpx	15.5	9.8	34.2	1.2	46.8	45.5	40.0	45.2
y-g cpx	2.7	5.2	0.0	0.0	0.0	0.0	0.0	0.0
opa	9.6	6.8	6.9	3.3	12.6	10.6	9.9	8.8
biot	0.2	0.3	6.2	7.8	0.0	1.6	0.8	0.1
amph	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0
zeol	6.1	7.2	0.0	10.0	0.0	0.0	0.0	0.0
carb	0.6	1.7	0.1	1.0	0.5	0.3	0.0	0.0
apat	1.2	2.7	0.8	1.5	0.0	1.0	0.1	0.0
neph	27.7	34.7	0.0	0.0	0.0	0.0	0.0	0.0
anal	0.0	0.1	0.3	1.6	3.0	1.5	0.0	0.0
plag	23.2	17.2	41.7	60.7	20.3	22.9	34.4	31.2
anor	10.0	7.3	1.6	11.9	0.0	1.5	1.6	1.4
san	3.2	7.0	0.0	0.0	0.0	0.0	0.0	0.0
kaol	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
CI	28.0	22.1	55.5	12.3	76.2	72.8	63.9	67.4
N	1500	1500	1500	2200	1500	1500	1500	2100
F	43.2	52.5	0.7	2.2	12.9	5.8	-	-
A	20.6	21.6	3.7	16.0	-	5.8	4.5	4.3
P	36.2	25.9	95.6	81.8	87.1	88.4	95.5	95.7

Sample Name	PS385Fs f-mzdior	PS387-1 s-basalt	PS389 basalt***	CB252-2 bas-neph	CB253-1 basanite	CB254-1B bas-neph	CB255-1 nemzdior	CB255-2 nemzdior
Field	segreg	flow	dike	dike	dike	dike	segreg	segreg
oliv	2.6	10.3	9.7	18.9	19.8	15.8	7.1	0.0
gr-ta cpx	17.0	40.3	42.8	57.8	58.2	73.1	7.7	19.3
y-g cpx	0.6	0.0	0.0	0.0	0.0	0.0	3.2	0.4
opa	7.4	12.8	13.4	3.4	5.4	8.2	7.9	6.0
biot	1.5	0.0	0.0	0.9	1.6	0.0	0.0	0.1
amph	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
zeol	4.5	0.0	0.0	0.0	0.0	0.0	3.4	2.4
carb	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
apat	2.9	0.4	0.0	1.0	0.4	0.2	3.8	2.6
neph	2.6	0.0	0.0	8.8	5.4	0.3	22.4	29.1
anal	0.0	0.0	0.0	2.1	3.1	1.0	0.0	0.0
soda	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0
leuc	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
plag	50.3	34.2	33.5	7.1	6.7	0.8	27.5	29.6
anor	2.3	0.7	0.6	0.0	0.0	0.0	12.6	5.2
san	6.5	0.0	0.0	0.0	0.0	0.0	3.0	5.3
CI	30.9	63.4	65.9	81.0	85.0	97.1	25.9	25.8
N	2000	1500	1499	1000	1500	1000	1500	1000
F	4.2	-	-	60.6	55.6	70.4	35.6	42.0
A	14.3	2.0	1.8	-	-	-	23.3	15.2
P	81.5	98.0	98.2	39.4	44.4	29.6	41.1	42.8