

Table 3.--Chemical and normative mineral composition of lamprophyre dikes, granite xenolith, and extrusive flow, western Seward Peninsula, Alaska

Analysts:	1/5/	2/	3/	4/	2/	4/	4/	4/	3/	4/	2/	4/	3/
Laboratory analyses	No number	D10025	D112972	160635	D100122	160633	160634	160632	D113009	163721	D100124	160631	D113003
Field sample	41-AC-66	62-ASN-RR24	63-ASN-EM27A	62-ASN-RR20	62-ASN-TC23	62-ASN-RR18	62-ASN-RR22	62-ASN-RR6	64-ASN-594	64-ASN-410	62-ASN-786	62-ASN-RR11	61-ASN-266 (Lava)
Location	Anikovik River	Rapid River	Black Mountain	Rapid River	Tin Creek	Rapid River	Rapid River	Rapid River	Brooks Mountain	Lost River Valley	Lost River Valley	Rapid River	Black Mountain
Sp. gravity	2.62	2.76	2.77	2.81	2.77	2.80	2.80	2.74	2.80	2.71	2.66	2.62	N.D. ^{8/}
SiO ₂	45.70	44.58	45.86	46.0	51.02	51.6	51.5	52.0	56.66	55.7	56.10	69.6	43.58
Al ₂ O ₃	18.50	16.10	14.71	13.2	15.61	16.2	16.1	15.8	15.30	15.4	14.78	14.5	15.27
Fe ₂ O ₃	1.77	1.73	1.29	1.3	.82	1.8	1.5	1.9	2.22	1.4	.96	2.3	4.32
FeO	7.87	6.32	6.54	5.4	7.63	6.5	6.7	5.8	5.00	4.9	5.51	.95	8.58
MgO	4.57	4.76	6.53	8.0	4.56	5.4	4.7	5.0	3.54	3.4	3.17	.57	7.72
CaO	8.98	10.15	8.58	10.5	7.19	6.6	7.0	6.4	5.07	4.9	5.93	.55	8.16
Na ₂ O	3.82	1.06	1.66	2.1	3.98	2.8	2.8	2.5	3.10	3.3	2.51	2.2	4.58
K ₂ O	1.00	2.26	1.57	2.3	2.67	2.4	2.2	2.7	3.33	3.3	3.62	6.7	2.34
H ₂ O-	.27	.85	.32	.51	.12	.79	.55	.72	.99	.42	.27	.52	.48
H ₂ O+	1.21	3.51	3.72	3.1	1.38	2.4	1.8	2.4	2.62	1.9	1.55	1.4	.73
TiO ₂	2.44	1.50	1.65	1.2	1.82	1.6	1.6	1.5	1.45	1.2	1.33	.43	2.94
P ₂ O ₅	.01	.39	.74	.37	.35	.45	.45	.44	.31	.41	.31	.13	.78
MnO	.70	.16	.30	.10	.15	.11	.14	.10	.14	.13	.12	.02	.18
CO ₂	2.90	3.08	3.89	5.5	2.07	1.4	2.5	2.6	.14	2.9	3.50	.05	.31
S	.00	N.D.	.68	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Cl	N.D. ^{8/}	.01	.16	N.D.	.08	N.D.	N.D.	N.D.	N.D.	N.D.	.01	N.D.	N.D.
F	.05	.75	.01	N.D.	.77	N.D.	N.D.	N.D.	N.D.	N.D.	.18	N.D.	N.D.
Subtotal	99.63	100.26	98.21	100	100.22	100	100	100	100	100	99.88	100	99.95
Less O = F ₂		.32	.41		.34						.08		
Total	99.63	99.84	97.80	100	99.88	100	100	100	100	100	99.77	100	99.93

Normative Minerals (in molecular percentages)													
Quartz	.000	14.633	11.897	3.434	.077	5.405	8.953	11.229	9.649	14.627	17.893	29.518	.000
Corundum	1.538	8.141	5.822	1.796	.977	1.321	3.258	4.209		5.194	5.265	2.943	.000
Orthoclase	5.908	13.352	9.276	13.589	15.775	14.179	12.998	15.952	19.674	19.497	21.387	39.584	13.825
Albite	32.391	8.891	13.965	17.760	33.068	23.680	23.680	21.143	26.069	27.909	21.154	18.606	13.016
Anorthite	26.145	10.326	12.207	14.901	14.770	20.947	15.979	12.437	18.082	3.297	4.050	1.879	14.402
Nepheline													13.733
Halite		.016	.016		.132				.033		.016		.082
Wollastonite									1.734				7.940
Enstatite	5.115	11.850	16.257	19.917	11.352	13.444	11.701	12.448	8.813	8.465	7.892	1.419	5.265
Ferrosilite	4.613	7.995	7.377	7.045	10.605	8.010	8.680	6.788	5.212	6.100	7.350		2.100
Forsterite	4.389												9.780
Fayalite	4.362												4.298
Magnetite	2.566	2.508	1.870	1.885	1.189	2.610	2.175	2.755	3.219	2.030	1.392	1.881	6.264
Hematite												1.003	
Ilmenite	4.634	2.849	3.134	2.279	3.457	3.039	3.039	2.849	2.754	2.279	2.526	.817	5.584
Apatite	.024	.924	1.753	.876	.829	1.066	1.066	1.042	.734	.971	.734	.308	1.847
Calcite	6.595	11.553	8.847	12.508	4.708	3.184	5.686	5.913	.318	6.595	7.960		.705
Fluorite		1.505	.261		1.550						.341		
Pyrite			1.272										
Total	98.280	94.544	93.954	95.990	98.389	96.885	97.215	96.764	96.293	96.963	97.962	97.957	98.841
Salic	65.982	55.359	53.183	51.480	64.699	65.533	64.868	64.969	73.508	70.523	69.766	92.530	55.058
Femic	32.298	39.185	40.770	44.510	33.690	31.352	32.347	31.795	22.785	26.440	28.196	5.427	43.783
Class	II	III	III	III	II	II	II	II	II	II	II	I	III
Subclass	I	II	I	I	I	I	I	I	I	I	I	I	I
Order	5	4	4	5	5	5	4	4	4	4	4	4	6
Section	-	-	-	-	-	-	-	-	-	-	-	-	-
Range	3	3	3	3	2	3	3	3	3	1	2	1	2
Subrange	4	3	3	3	4	4	4	3	3	3	3	2	4

Main Minerals (X denotes xenocrysts, G denotes groundmass, P denotes phenocrysts)													
Field sample	41-AC-66	62-ASN-RR24	63-ASN-EM27A	62-ASN-RR20	62-ASN-TC23	62-ASN-RR18	62-ASN-RR22	62-ASN-RR6	D113009 64-ASN-594	163721 64-ASN-410	62-ASN-786	62-ASN-RR11	61-ASN-266
		Brown biotite	Plagioclase(G)	Plagioclase(G)	Brown biotite	Plagioclase(G)	Plagioclase(G)	Plagioclase(G)	Plagioclase(G)	Plagioclase(G)	Plagioclase (G)	Quartz	Nephelite (P)
		Plagioclase(G)	Orthoclase(X)	Oligoclase(X)	Plagioclase(G)	Oligoclase(X)	Oligoclase(X)	Oligoclase(X)	Oligoclase(X)	Oligoclase(X)	Oligoclase (X)	Orthoclase	Olivine
	No thin section	Orthoclase(X)	Oligoclase(X)	Quartz (X)	Hornblende	Quartz (X)	Quartz (X)	Orthoclase(X)	Orthoclase(X,G)	Orthoclase(X,G)	Orthoclase(X,G)	Oligoclase	Plagioclase (G)
		Quartz (X)	Quartz (X)	Carbonate (X)	Amphibole (G)	Biotite (G)	Biotite (G)	Quartz (X)	Quartz (X)	Quartz (X)	Quartz (X)	Biotite	Pyroxene (P,G)
		Carbonate (X,G)	Carbonate (G)	Carbonate (G)	Carbonate	Carbonate (G,X)	Carbonate (G,X)	Carbonate (G)	Biotite (G)	Biotite (G)	Biotite (G)		Iron ores
		Calcic	Carbonate	Biotite (G)	Sphene	Pyroxene (P)	Pyroxene (P)	Pyroxene (G)	Diopsidic	pyroxene (G)	Pyroxene (P)		
		Pyroxene(P)	(replacing pyroxenes)								Iron ores		
		Sphene		Pyroxene (P)	Quartz (X)	Pyroxene (G)	Clinozoisite (?) (G)	Biotite (G)	Iron ores		Pyrite		
		Pyrite	Biotite(minor)	Pyrite	Iron ores	Sericite (G)	Sericite (G)	Sericite (G)					
		Fluorite	Pyrite			Iron ores	Pyrite	Pyrite					
			Chlorite				Iron ores	Iron ores					
K-feldspar by stain	Negligible	Xenocrysts	Minor	Negligible	1 Xenocryst	Xenocrysts	Xenocrysts	Xenocrysts	Xenocrysts and groundmass	Xenocrysts and groundmass	Xenocrysts and groundmass	Major	None
Optic angle of pyroxene (2V _p)	64°	Not determinable	32-34°	None	50-60°	62-72°	Not determinable	54-60°	55-60°	55-60°	No pyroxene	55°	
WB of pyroxene phenocrysts	1.68±.005	" / "	1.71±.005		1.69±.005	1.70-	Not determinable	1.71±.005	1.69±.005				1.70±.005
Type pyroxene ^{6/}	Diopsidic augite	Completely altered	Subcalcic ferriaugite	Hornblende	Augite	Diopsidic hedenbergite	Not determinable	Diopsidic hedenbergite	Augite	Augite	Augite		Augite
Rock classification ^{7/}	Kersantite	Camptonite(?)	Kersantite	Lamprophyre	Kersantite	Kersantite	Kersantite	Minette	Minette	Minette	Minette	Granite	Nepheline basalt

Analysts: 1/ Cyrus Feldman 2/ Christel L. Parker 3/ Elaine L. Humson 4/ Paul Elmore, Samuel Botts, Gillison Chloe, Lowell Artis, H. Smith
 5/ Collected by Robert R. Coates, 1941, no rock description available
 6/ According to classification of H. H. Hess, 1949
 7/ According to the main groups of Metais and Chayes, 1963, p. 157
 8/ N.D. means not determined