

Sample	Locality	Lat(N) ^o	Long(W) ^o	Texture	Phenocrysts					Ground mass Texture	Rock Type	Disequilibrium evidence				
					Ol	Opx	Cpx	Plg	Qtz			Amp	Ol + Qtz	Qtz-R	Plg-N+S	E
A. Northern sector (SCN)																
SC45	Los Potrerillos	19°35'30"	99°30'50"	P		6		62		32	V	F				
SC54	Monte Alto	19°18'19"	99°16'26"	P		4	2	64		30	V	F				
SC55	Las Navajas	19°18'50"	99°18'13"	P				67	6	27	V	F				
SC56	Las Navajas	19°18'46"	99°18'16"	P				66		34	V	F				
SC39	Cerro Prieto	19°31'11"	99°28'03"	FP		6	2	60	20	12	M	FDE				
SC40	Cerro Prieto	19°31'12"	99°28'19"	FP		8	2	60	14	16	M	FDE	⊙			
SC41	Las Navajas	19°31'40"	99°29'27"	P		8		70		22	V	FDE				
SC42	Las Palomas	19°32'56"	99°30'31"	VP				66	10	24	M	FDE				
SC43	Cerro Nepen	19°34'02"	99°33'36"	FP		6		66	10	18	M	FDE				⊙
SC47	Las Peñas	19°31'48"	99°27'57"	FP		10		57	20	13	M	FDE		⊙		
SC48	Cervantes	19°31'47"	99°27'28"	FP			2	60	18	20	M	FDE				
SC49	Peña de Lobos	19°31'32"	99°25'31"	P	5	18		64	9	4	M	FDE	⊙	⊙		⊙
JQ2	Las Palomas	19°33'48"	99°34'50"	P				68	14	18	M	FDE				
JQ4	Cerro Nepen	19°33'32"	99°33'38"	P				60	20	20	M	FDE				
AJ2	Cerro Prieto	19°31'20"	99°28'05"	FP		6	6	58	10	20	M	FDE				
CH1	La Magnolia	19°26'15"	99°19'20"	P			4	78	6	12	M	FDE				
SC43a	Cerro Nepen	19°34'02"	99°33'36"	VP		18		58	2	22	M	ME		⊙		
SC49a	Peña de Lobos	19°31'32"	99°25'31"	VP	4	15	2	66	3	10	M	ME	⊙	⊙		⊙
SC49b	Peña de Lobos	19°31'32"	99°25'31"	VP	5	12	3	70	5	5	M	ME	⊙	⊙		⊙
B. Central sector (SCC)																
SC30	Huixquilucan	19°23'16"	99°19'06"	FP		10		66	16	8	M	FDE		⊙		⊙
SC31	San Bartolito	19°24'31"	99°17'49"	P		20	14	60		6	M	FDE				⊙
SC32	Dos Ríos	19°22'41"	99°21'16"	VP		2		60	12	26	V	FDE				⊙
SC34	Huitzililapan	19°25'05"	99°24'05"	VP				66	8	26	M	FDE				⊙
SC35	Peñas Cuatas	19°25'35"	99°25'41"	P		22		70		8	M	FDE				⊙
SC36	Lomas de Aire	19°23'58"	99°26'58"	FP		6		62	20	12	M	FDE	⊙			
SC37	Xilotzingo	19°28'07"	99°28'59"	P		2	2	62	12	22	M	FDE				
SC38	Cerro Diablo	19°28'28"	99°28'56"	P		28	4	68			M	FDE				
ST1	Xilotzingo	19°28'08"	99°28'49"	P			4	60	12	24	M	FDE				
PC2	Peñas Cuatas	19°25'20"	99°25'53"	P		12		70	4	14	M	FDE		⊙		
SC35a	PeñasCuatas	19°25'35"	99°25'41"	P		30		65	2	3	M	ME		⊙		⊙
SC37a	Xilotzingo	19°28'07"	99°28'59"	P		16		71	2	11	M	ME		⊙		⊙
C. Southern sector (SCS)																
SC9	S Jerónimo	19°16'05"	99°24'37"	VP				75		25	V	F				
SC10	Quellamelucan	19°16'20"	99°24'04"	P		20	7	73			V	F				
SC11	Tianguilillo	19°19'01"	99°19'31"	VP		13		65	2	20	V	F				
SC20	Quellamelucan	19°16'30"	99°23'49"	P		20	4	76			V	F				
SC21	Conejo	19°16'28"	99°22'33"	VP				75	15	10	V	F				
SC28	Salazar	19°18'53"	99°23'31"	VP				64	12	24	V	F				
SC59	San Lorenzo	19°14'45"	99°15'16"									F				
TO1	Salazar	19°17'45"	99°23'57"	P				64	16	20	V	F				
SC8	Silencio	19°16'50"	99°22'58"	VP		9		74	1	16	V	FDE				⊙
SC12	Conejo	19°16'28"	99°22'33"	FP				80	5	15	M	FDE				⊙
SC25	Chupamirto	19°20'01"	99°26'17"	FP		26	24	50			M	FDE				⊙
SC26	Chupamirto	19°20'01"	99°26'17"	VP		16		82	2		M	FDE				⊙
SC27	Los Perros	19°19'43"	99°23'59"	P				58	6	36	M	FDE				⊙
SC29	Carretero	19°19'00"	99°22'18"	P		18	3	57	20	2	M	FDE				⊙
TO2	Las Cruces	19°17'40"	99°20'27"	P		12	14	60	2	12	M	FDE				⊙
SC29a	Carretero	19°19'00"	99°22'18"	P		15		65	15	5	M	ME		⊙		⊙
SC57a	Garambullos	19°15'07"	99°15'49"									ME				
D. Transition sector Cruces – Chichinutzin (SCT)																
SC1	Ajusco34	19°12'15"	99°14'10"	P	5	15		60		20	V	FDE				
SC2	Ajusco31	19°11'33"	99°14'38"	P				59	6	35	M	FDE				⊙
SC4	Cantimplora	19°11'35"	99°14'59"	VP	90	6		4			M	FDE	⊙	⊙		
SC5	Cantimplora	19°11'52"	99°15'51"	P	80	10		6	4		M	FDE				⊙
SC6	Tezontle	19°12'17"	99°17'09"	P				87	3	10	M	FDE				⊙
SC7	Pájaros	19°11'04"	99°18'47"	VP		70		30			V	FDE				⊙
SC13	San Agustín	19°14'21"	99°25'08"	P		50		20	20	10	T	FDE		⊙		⊙
SC14	R. Agustín	19°14'18"	99°24'54"	P	71		8	2	12	7	M	FDE	⊙	⊙		⊙
SC15	R. Agustín	19°14'18"	99°25'10"	P	70	2	2		20	6	M	FDE	⊙	⊙		⊙
SC23	Pájaros	19°10'45"	99°21'15"	VP		30	4	66			V	FDE				⊙
SC24	Tezontle	19°12'27"	99°16'34"	FP		14		70		16	M	FDE		⊙		⊙
SC24a	Tezontle	19°12'27"	99°16'34"	P		20		70		10	M	ME		⊙		⊙

Modal data are percentages of phenocrysts + microphenocrysts calculated on a vesicle and groundmass free basis. Texture: P = porphyritic, FP = fluidal-porphyritic, VP = vesicular-porphyritic, VT = vesicular trachytic. Groundmass represents 60-85% of the rocks. Groundmass texture: M = microlitic, T = trachytic, V = vitreous. Phenocrysts: Ol = olivine, Opx = orthopyroxene, Cpx = clinopyroxene, Qtz = quartz, Amp = amphibole. Rock types: F = felsic magmas without disequilibrium evidence, FDE = felsic magmas with disequilibrium evidence, and ME = magmatic enclave. Disequilibrium evidences: Ol + Qtz = olivine + quartz, Qtz-R = quartz with a reaction rim, Plg N + T = plagioclases with normal and sieved texture, Enclave = presence of spherical to ellipsoidal chilled andesitic enclaves.

Table 1.- Petrographic information of the Sierra de las Cruces volcanic rocks
 Tabla 1.- Información petrográfica de las rocas volcánicas de la Sierra de las Cruces

Sample	F rock type				FDE rock type								
	SC45	SC45	SC45	SC45	SC40	SC31	SC32	SC32	SC32	SC32	SC35	SC35	SC35
Sector	SCN	SCN	SCN	SCN	SCN	SCC	SCC	SCC	SCC	SCC	SCC	SCC	SCC
Site	core	rim	core	core	rim	core	core	core	core	core	core	rim	core
Texture	normal	normal	normal	normal	normal	normal	normal	normal	normal	normal	normal	sieved	normal
%SiO ₂	59.64	60.90	58.18	57.65	59.64	57.11	54.15	61.44	58.55	59.21	51.48	55.21	55.21
%TiO ₂	0.03	b.d.l.	0.04	b.d.l.	b.d.l.	b.d.l.	0.01	0.01	b.d.l.	b.d.l.	0.03	b.d.l.	b.d.l.
%Al ₂ O ₃	24.92	24.27	25.97	26.48	25.47	27.03	28.96	25.12	27.06	25.61	30.50	28.27	28.27
%FeO ⁺	0.18	0.10	0.14	0.09	0.19	0.42	0.35	0.21	0.11	0.27	0.41	0.18	0.18
%MnO	0.06	0.03	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.01	b.d.l.	0.03	b.d.l.	b.d.l.	b.d.l.	b.d.l.
%MgO	0.01	0.02	b.d.l.	0.02	b.d.l.	0.02	0.05	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.03	0.03
%CaO	6.56	5.83	7.82	8.23	6.57	8.45	10.72	5.82	7.93	6.94	12.86	10.04	10.04
%Na ₂ O	7.65	8.07	6.86	6.65	6.96	6.69	5.53	7.12	6.86	7.32	4.37	5.66	5.66
%K ₂ O	0.40	0.40	0.31	0.22	0.84	0.48	0.15	0.44	0.27	0.88	0.25	0.44	0.44
Sum	99.45	99.62	99.32	99.34	99.67	100.20	99.93	100.16	100.81	100.23	99.93	99.83	99.83
Si	2.676	2.719	2.619	2.596	2.688	2.563	2.449	2.717	2.596	2.646	2.347	2.493	2.493
Ti	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
Al	1.318	1.277	1.378	1.406	1.343	1.430	1.544	1.309	1.415	1.349	1.639	1.505	1.505
Fe ⁺³	0.006	0.003	0.005	0.003	0.006	0.014	0.012	0.007	0.004	0.009	0.014	0.006	0.006
Sum	4.001	4.000	4.004	4.005	4.018	4.007	4.006	4.034	4.015	4.004	4.001	4.005	4.005
Mg	0.001	0.001	0.000	0.001	0.000	0.001	0.003	0.000	0.000	0.000	0.002	0.002	0.002
Mn	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Ca	0.315	0.279	0.377	0.397	0.315	0.406	0.520	0.276	0.377	0.332	0.628	0.486	0.486
Na	0.665	0.699	0.599	0.581	0.604	0.582	0.485	0.610	0.590	0.634	0.386	0.496	0.496
K	0.023	0.023	0.018	0.013	0.048	0.027	0.009	0.025	0.015	0.050	0.015	0.025	0.025
Sum	1.007	1.003	0.994	0.992	0.967	1.017	1.017	0.911	0.983	1.017	1.031	1.009	1.009
%An	31.4	27.9	37.9	40.1	32.6	40.0	51.3	30.3	38.4	32.7	61.1	48.3	48.3
%Ab	66.3	69.9	60.2	58.6	62.5	57.3	47.9	67.0	60.1	62.4	37.5	49.2	49.2
%Or	2.3	2.3	1.8	1.3	4.9	2.7	0.8	2.7	1.6	4.9	1.4	2.5	2.5

Sample	FDE rock type (mpc = microphenocrysts)											
	SC37	SC37	SC25	SC25	SC25	SC29	SC29	SC14	SC14	SC14	SC2	SC2
Sector	SCC	SCC	SCS	SCS	SCS	SCS	SCS	SCT	SCT	SCT	mpc	mpc
Site	core	rim	core	rim	core	core	rim	core	rim	rim	mpc	mpc
Texture	sieved	sieved	normal	sieved	normal	normal	normal	sieved	sieved	sieved		
%SiO ₂	53.23	54.03	55.64	53.65	57.18	57.62	56.63	54.14	54.89	53.33	65.67	62.64
%TiO ₂	0.03	b.d.l.	0.02	0.04	0.01	0.02	0.02	0.03	0.08	0.09	0.05	b.d.l.
%Al ₂ O ₃	29.31	29.55	28.09	29.28	26.93	26.97	27.35	28.38	27.78	29.12	20.29	22.85
%FeO ⁺	0.70	0.25	0.35	0.75	0.23	0.25	0.21	0.33	0.66	0.79	0.38	0.11
%MnO	b.d.l.	b.d.l.	b.d.l.	0.08	0.02	0.02	b.d.l.	0.02	0.07	b.d.l.	0.01	b.d.l.
%MgO	0.02	b.d.l.	0.02	0.18	0.02	b.d.l.	b.d.l.	0.02	b.d.l.	0.04	0.02	b.d.l.
%CaO	11.39	11.26	10.10	11.58	8.44	8.63	8.91	10.72	10.46	11.74	4.08	4.69
%Na ₂ O	5.10	5.21	5.82	4.98	6.57	6.42	6.02	5.37	5.19	4.60	5.82	8.64
%K ₂ O	0.25	0.25	0.25	0.20	0.28	0.51	0.59	0.45	0.62	0.44	2.82	0.55
Sum	100.03	100.54	100.29	100.74	99.68	100.44	99.73	99.46	99.75	100.15	99.14	99.48
Si	2.416	2.431	2.502	2.418	2.572	2.575	2.551	2.463	2.491	2.419	2.927	2.791
Ti	0.001	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.003	0.003	0.002	0.000
Al	1.568	1.567	1.489	1.556	1.428	1.421	1.452	1.522	1.486	1.557	1.066	1.200
Fe ⁺³	0.024	0.008	0.012	0.025	0.008	0.008	0.007	0.011	0.023	0.027	0.013	0.004
Sum	4.009	4.007	4.003	4.001	4.009	4.005	4.011	3.998	4.003	4.007	4.008	3.995
Mg	0.001	0.000	0.001	0.012	0.001	0.000	0.000	0.001	0.000	0.003	0.001	0.000
Mn	0.000	0.000	0.000	0.003	0.001	0.001	0.000	0.001	0.003	0.000	0.000	0.000
Ca	0.554	0.543	0.487	0.559	0.407	0.413	0.430	0.523	0.509	0.571	0.195	0.224
Na	0.449	0.455	0.507	0.435	0.573	0.556	0.526	0.474	0.457	0.405	0.503	0.746
K	0.014	0.014	0.014	0.012	0.016	0.029	0.034	0.026	0.036	0.025	0.160	0.031
Sum	1.019	1.012	1.010	1.021	0.998	0.999	0.990	1.025	1.004	1.004	0.860	1.002
%An	54.5	53.7	48.2	55.6	40.8	41.4	43.4	51.1	50.8	57.0	22.7	22.4
%Ab	44.1	44.9	50.3	43.2	57.6	55.7	53.2	46.3	45.6	40.5	58.6	74.5
%Or	1.4	1.4	1.5	1.2	1.6	2.9	3.4	2.5	3.6	2.5	18.7	3.1

Rock types: F = felsic magmas without disequilibrium evidence, FDE = felsic magmas with disequilibrium evidence, and ME = magmatic enclaves. b.d.l. = below detection limits. Cations based on 8 oxygens in mineral formulas.

Table 2.- Electron microprobe analysis of selected feldspars from Sierra de las Cruces volcanic rocks
 Tabla 2.- Análisis de microsonda electrónica en cristales de feldespatos seleccionados de las rocas volcánicas de la Sierra de las Cruces

Sample Sector Site Texture	ME rock type											
	SC43a	SC43a	SC49a	SC49a	SC49a	SC49a	SC49a	SC35a	SC35a	SC29a	SC29a	SC29a
	SCN core sieved	SCN core normal	SCN core normal	SCN core sieved	SCN core normal	SCN core sieved	SCN core sieved	SCC core normal	SCC core normal	SCS core normal	SCS core normal	SCS core mpc
%SiO ₂	54.19	55.11	58.19	57.93	58.09	54.98	53.46	59.21	58.35	56.93	57.96	61.73
%TiO ₂	0.05	0.05	b.d.l.	b.d.l.	0.01	0.03	0.10	b.d.l.	0.01	b.d.l.	b.d.l.	0.17
%Al ₂ O ₃	28.77	27.68	25.91	26.33	26.02	27.92	29.04	25.61	26.52	26.69	26.58	23.14
%FeO ^I	0.52	0.89	0.30	0.29	0.30	0.57	0.60	0.27	0.24	0.15	0.11	0.42
%MnO	b.d.l.	0.01	b.d.l.	b.d.l.	0.00	b.d.l.	b.d.l.	b.d.l.	0.01	0.02	0.01	0.00
%MgO	0.02	0.05	0.01	0.01	0.00	0.07	0.03	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.02
%CaO	10.49	9.88	8.00	8.28	8.15	10.55	12.16	6.94	7.89	8.30	7.91	4.47
%Na ₂ O	5.51	5.09	6.86	6.61	6.83	5.39	4.52	7.32	6.68	6.59	6.75	7.24
%K ₂ O	0.44	1.26	0.42	0.41	0.42	0.32	0.21	0.88	0.72	0.61	0.63	2.38
Sum	99.99	99.99	99.69	99.86	99.81	99.83	99.52	100.23	100.42	99.29	99.95	99.57
Si	2.454	2.499	2.616	2.600	2.609	2.489	2.423	2.646	2.605	2.575	2.598	2.796
Ti	0.000	0.002	0.000	0.000	0.000	0.001	0.003	0.000	0.000	0.000	0.000	0.006
Al	1.536	1.480	1.373	1.393	1.378	1.490	1.552	1.349	1.396	1.423	1.405	1.224
Fe ³⁺	0.018	0.030	0.010	0.010	0.010	0.019	0.020	0.009	0.008	0.005	0.004	0.014
Sum	4.009	4.011	3.999	4.003	3.998	4.000	3.998	4.004	4.009	4.003	4.007	4.012
Mg	0.001	0.003	0.001	0.001	0.000	0.005	0.002	0.000	0.000	0.000	0.000	0.001
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
Ca	0.509	0.480	0.385	0.398	0.392	0.512	0.590	0.332	0.377	0.402	0.380	0.215
Na	0.484	0.448	0.598	0.575	0.595	0.473	0.397	0.634	0.578	0.578	0.587	0.630
K	0.025	0.073	0.024	0.023	0.024	0.018	0.012	0.050	0.041	0.035	0.036	0.136
Sum	1.020	1.004	1.008	0.998	1.011	1.008	1.002	1.017	0.997	1.016	1.003	0.982
%An	50.0	48.0	38.2	40.0	38.8	51.1	59.1	32.7	37.9	39.6	37.9	21.9
%Ab	47.5	44.7	59.4	57.7	58.8	47.2	39.7	62.4	58.0	57.0	58.5	64.2
%Or	2.5	7.3	2.4	2.3	2.4	1.7	1.2	4.9	4.1	3.4	3.6	13.9

Table 2.-(Cont.)
Tabla 2.- (Cont.)

Sample Sector Site	FDE rock type					ME rock type			
	SC29	SC29	SC29	SC29	SC29	SC49a	SC49a	SC49a	SC49a
	SCS core	SCS →	SCS →	SCS →	SCS rim	SCN core	SCN →	SCN →	SCN rim
%SiO ₂	56.78	56.50	61.09	58.97	53.36	53.46	59.60	59.94	58.00
%TiO ₂	b.d.l.	0.01	b.d.l.	b.d.l.	0.05	0.10	0.01	b.d.l.	0.01
%Al ₂ O ₃	27.26	28.06	23.84	25.44	29.39	29.04	24.93	25.02	26.22
%FeO ²	0.17	0.17	0.21	0.13	0.67	0.61	0.20	0.24	0.16
%MnO	0.06	0.03	0.01	0.04	0.02	b.d.l.	0.023	b.d.l.	0.06
%MgO	0.01	b.d.l.	b.d.l.	b.d.l.	0.01	0.03	0.01	b.d.l.	0.03
%CaO	8.87	9.48	5.60	7.00	11.91	12.16	6.94	6.88	8.37
%Na ₂ O	6.12	6.15	7.70	7.10	4.93	4.52	7.20	7.38	6.70
%K ₂ O	0.45	0.36	1.06	0.73	0.25	0.22	0.42	0.44	0.35
Sum	99.72	100.77	99.51	99.41	100.58	100.15	99.33	99.89	99.90
Si	2.556	2.523	2.735	2.651	2.411	2.423	2.676	2.677	2.602
Ti	0.000	0.000	0.000	0.000	0.002	0.003	0.000	0.000	0.000
Al	1.447	1.477	1.258	1.348	1.565	1.551	1.319	1.317	1.387
Fe ³⁺	0.006	0.006	0.007	0.004	0.023	0.021	0.007	0.008	0.005
Sum	4.009	4.006	4.001	4.004	4.001	3.998	4.002	4.002	3.995
Mg	0.001	0.000	0.000	0.000	0.001	0.002	0.001	0.000	0.002
Mn	0.002	0.001	0.000	0.002	0.001	0.000	0.001	0.000	0.002
Ca	0.428	0.454	0.269	0.337	0.577	0.590	0.334	0.329	0.402
Na	0.534	0.532	0.668	0.619	0.432	0.397	0.627	0.639	0.583
K	0.026	0.021	0.061	0.042	0.014	0.013	0.024	0.025	0.020
Sum	0.991	1.008	0.998	1.000	1.024	1.002	0.986	0.993	1.010
%An	43.3	45.1	26.9	33.7	56.4	59.1	34.0	33.2	40.0
%Ab	54.1	52.9	67.0	62.1	42.2	39.7	63.6	64.3	58.0
%Or	2.6	2.0	6.1	4.2	1.4	1.2	2.4	2.5	2.0

b.d.l. = below detection limits. Cations based on 8 oxygens in mineral formula.

Table 3.-Electron microprobe analysis of selected feldspars as core to rim profiles from Sierra de las Cruces volcanic rocks

Tabla 3.- Análisis de microsonda electrónica para cristales de feldespato, como perfiles de centro a borde, seleccionados de rocas volcánicas de la Sierra de las Cruces

Sample Sector Site	F rock type					FDE rock type						ME rock type
	SC45 SCN	SC45 SCN	SC45 SCN	SC45 SCN	SC45 SCN	SC43 SCN	SC37 SCC	SC2 SCT	SC2 SCT	SC2 SCT	SC2 SCT	SC49a SCN
	core	core	core	core	core	core	core	core	rim	core	core	core
%SiO ₂	45.82	44.77	46.49	46.69	46.51	46.94	42.11	43.24	43.17	44.84	41.92	41.20
%Al ₂ O ₃	7.87	8.55	7.01	7.62	7.64	13.94	11.64	11.38	11.44	10.44	12.79	12.78
%TiO ₂	1.22	1.61	1.12	1.29	1.33	1.90	2.60	2.21	1.85	1.83	2.13	2.13
%Cr ₂ O ₃	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.02	0.03	0.05	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.01
%FeO ^a	13.44	15.08	15.10	12.94	13.52	5.90	9.22	11.75	13.51	12.24	12.39	12.36
%MnO	b.d.l.	0.04	b.d.l.	b.d.l.	b.d.l.	0.01	b.d.l.	0.01	0.01	0.06	b.d.l.	b.d.l.
%MgO	14.68	12.83	13.03	14.89	13.99	12.27	16.27	14.46	12.94	14.47	13.44	14.40
%CaO	11.02	10.53	11.42	10.76	10.93	12.63	11.82	11.94	11.27	10.94	11.67	11.65
%Na ₂ O	1.52	1.72	1.34	1.44	1.51	1.96	2.25	2.19	2.08	2.11	2.37	2.38
%K ₂ O	0.35	0.36	0.40	0.22	0.32	2.18	0.87	0.31	0.40	0.32	0.31	0.28
%NiO	0.05	b.d.l.	0.02	0.03	0.01	0.03	b.d.l.	b.d.l.	0.03	0.10	b.d.l.	b.d.l.
%Cl	0.05	0.06	0.17	0.03	0.04	0.01	0.04	0.03	0.03	0.04	0.02	0.02
-	0.01	0.01	0.04	0.01	0.01	b.d.l.	0.13	0.01	0.01	0.01	b.d.l.	b.d.l.
O=Cl,F												
Sum	96.03	95.56	96.14	95.92	95.83	97.80	98.00	97.53	96.74	98.30	97.04	97.21
Si	6.68	6.63	6.89	6.77	6.82	6.93	5.94	6.27	6.33	6.45	6.12	5.97
Aliv	1.32	1.37	1.11	1.23	1.18	1.07	2.06	1.73	1.67	1.55	1.88	2.03
Sum	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Alvi	0.03	0.12	0.12	0.07	0.14	1.35	0.01	0.21	0.31	0.21	0.33	0.16
Ti	0.13	0.18	0.12	0.14	0.15	0.21	0.31	0.24	0.20	0.20	0.23	0.23
Cr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fe ⁺³	11.11	11.06	11.02	10.91	10.87	11.08	11.24	9.04	9.53	9.96	10.73	10.31
Mg	3.19	2.83	2.88	3.22	3.06	2.70	3.41	3.12	2.83	3.10	2.93	3.11
Fe ⁺²	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mn	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Ni	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Sum	14.48	14.19	14.15	14.35	14.21	15.35	14.98	12.62	12.87	13.49	14.22	13.81
Ca	1.72	1.67	1.81	1.67	1.72	2.00	1.78	1.85	1.77	1.69	1.83	1.81
Na	0.43	0.49	0.39	0.40	0.43	0.56	0.71	0.61	0.59	0.59	0.67	0.67
K	0.07	0.07	0.08	0.04	0.06	0.41	0.07	0.06	0.07	0.06	0.06	0.05
Sum	2.21	2.23	2.28	2.12	2.20	2.97	2.55	2.53	2.44	2.33	2.56	2.53
Cat	24.69	24.42	24.42	24.46	24.41	26.32	25.53	23.14	23.31	23.82	24.78	24.34
Sum												
Group ^a	Ca	Ca	Ca	Ca	Ca	Ca	Ca	Ca	Ca	Ca	Ca	Ca
Name ^b	MH	MH	MH	MH	MH	EDE	MH	TS	TS	TS	MH	TS
Prefix ^c	Fe	Fe	Fe	Fe	Fe	K	Fe-Ti	Fe	Fe	Fe	Fe	Fe

Classification scheme of Leake *et al.* (1997) using the NEWAMPHCAL program (Yavuz *et al.*, 1999). ^aGroup: Ca = calcic amphibole; Fe-Mg = ferri-magnesian amphibole. ^bName: EDE = edenite; MH = magnesiohastingsite; TS = tschemarkite. ^cPrefix: Fe = ferri; K = potassic; Fe-Ti = ferri-titano; F-K-Na-Ti-Fe = fluorian-potassic-sodic-titano-ferric. b.d.l. = below detection limit. Cations based on 23 oxygens in mineral formula.

Table 4.-Electron microprobe analysis of selected amphiboles from Sierra de las Cruces volcanic rocks
 Tabla 4.- Análisis de microsonda electrónica de cristales de anfíbol en rocas volcánicas de la Sierra de las Cruces

Sample Sector Site	FDE rock types												
	SC31	SC31	SC31	SC32	SC35	SC35	SC35	SC35	SC37	SC37	SC29	SC29	SC29
	SSC	SSC	SSC	SCC	SCC	SCC	SCC	SCC	SCC	SCC	SCS	SCS	SCS
core	rim	core	core	core	rim	core	rim	core	core	core	core	core	core
%SiO ₂	52.71	53.81	54.31	51.92	53.62	52.24	53.50	52.24	52.63	53.06	55.44	52.68	55.26
%TiO ₂	0.32	0.20	0.26	0.12	0.12	0.09	0.20	0.09	0.10	0.13	0.19	0.09	0.14
%Al ₂ O ₃	2.60	2.38	2.19	1.93	2.75	0.80	3.17	0.80	0.79	0.72	1.60	0.81	1.54
%FeO ⁺	13.73	11.52	12.43	22.68	8.77	22.20	9.11	22.20	22.57	21.59	7.95	22.23	8.39
%MnO	0.01	0.02	b.d.l.	0.02	0.00	0.00	0.02	b.d.l.	0.02	b.d.l.	0.07	b.d.l.	0.02
%MgO	28.82	30.21	30.00	22.93	31.63	23.14	31.08	23.14	23.94	24.30	33.17	23.27	33.23
%CaO	1.78	1.38	1.45	0.61	1.50	0.59	2.08	0.59	0.53	0.55	1.53	0.67	1.20
%Na ₂ O	0.01	0.04	b.d.l.	0.05	0.03	0.06	0.06	0.056	b.d.l.	0.05	0.06	0.04	0.06
%NiO	0.07	0.08	0.15	0.04	0.13	0.03	0.11	0.03	b.d.l.	0.07	0.10	b.d.l.	0.16
%Cr ₂ O ₃	0.09	0.24	0.13	0.01	0.55	0.03	0.62	0.03	b.d.l.	0.02	0.52	b.d.l.	0.58
Sum	100.14	99.88	100.92	100.31	99.10	99.18	99.95	99.12	100.58	100.49	100.63	99.79	100.58
Si	1.89	1.91	1.92	1.93	1.90	1.96	1.89	1.96	1.95	1.96	1.93	1.96	1.93
Al iv	0.11	0.09	0.08	0.07	0.10	0.04	0.11	0.04	0.05	0.04	0.07	0.04	0.07
Sum	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Al vi	0.00	0.01	0.01	0.02	0.02	0.00	0.02	0.00	0.02	0.01	0.01	0.00	0.01
Ti	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Cr	0.00	0.01	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.02
Fe ⁺³	0.12	0.09	0.08	0.08	0.09	0.06	0.10	0.06	0.09	0.07	0.09	0.05	0.10
Mg	1.54	1.60	1.58	1.27	1.67	1.29	1.64	1.29	1.32	1.34	1.72	1.29	1.73
Fe ⁺²	0.29	0.26	0.29	0.63	0.17	0.64	0.17	0.64	0.61	0.59	0.14	0.64	0.15
Mn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ni	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ca	0.07	0.05	0.05	0.02	0.06	0.02	0.08	0.02	0.02	0.02	0.06	0.03	0.04
Na	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	2.04	2.03	2.03	2.03	2.03	2.02	2.03	2.02	2.03	2.02	2.03	2.02	2.03
%En	76	80	79	64	84	64	82	64	65	66	86	64	86
%Fs	20	17	18	35	13	35	14	35	34	33	12	34	12
%Wo	3	3	3	1	3	1	4	1	1	1	3	1	2

Table 5.-Electron microprobe analysis of selected orthopyroxenes from Sierra de las Cruces volcanic rocks

Tabla 5.- Análisis de microsonda electrónica de cristales de ortopiroxeno seleccionados en rocas volcánicas de la Sierra de las Cruces

Sample Sector Site	F rock type			FDE rock type							
	SC45	SC45	SC45	SC40	SC40	SC40	SC43	SC43	SC43	SC31	SC31
	SCN core	SCN core	SCN rim	SCN core	SCN core	SCN rim	SCN core	SCN core	SCN core	SCC core	SCC core
%SiO ₂	52.04	52.86	54.91	55.34	52.72	54.22	54.40	52.11	54.09	54.37	54.77
%TiO ₂	0.11	0.20	0.20	0.14	0.15	0.14	0.18	0.17	0.24	0.24	0.15
%Al ₂ O ₃	1.25	2.62	1.09	1.33	1.61	1.41	0.85	2.27	2.04	2.25	2.02
%FeO ¹	23.44	17.58	21.04	8.93	16.04	13.16	17.22	20.70	12.24	13.12	9.71
%MnO	0.05	0.43	0.03	0.05	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.01	b.d.l.	b.d.l.
%MgO	22.05	24.52	21.73	32.92	27.11	29.41	26.30	24.06	29.26	29.16	30.48
%CaO	0.53	1.16	0.54	1.01	1.07	1.48	1.70	0.85	1.56	1.30	1.57
%Na ₂ O	0.02	0.04	0.04	0.05	0.07	b.d.l.	0.01	0.04	0.05	0.05	0.04
%NiO	0.01	b.d.l.	0.01	0.12	b.d.l.	0.09	b.d.l.	0.07	0.04	0.08	0.14
%Cr ₂ O ₃	b.d.l.	0.16	b.d.l.	0.51	0.08	0.14	b.d.l.	0.05	0.34	0.10	0.41
Sum	99.50	99.57	99.59	100.40	98.85	100.05	100.66	100.32	99.87	100.67	99.29
Si	1.96	1.94	2.03	1.93	1.93	1.94	1.97	1.92	1.93	1.93	1.94
Al iv	0.04	0.06	0.00	0.07	0.07	0.06	0.03	0.08	0.07	0.07	0.06
Sum	2.00	2.00	2.03	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Al vi	0.01	0.05	0.05	0.01	0.00	0.00	0.00	0.02	0.02	0.02	0.03
Ti	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Cr	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Fe ⁺³	0.04	0.00	0.00	0.09	0.09	0.08	0.03	0.08	0.05	0.05	0.02
Mg	1.24	1.34	1.19	1.72	1.48	1.57	1.42	1.32	1.56	1.54	1.61
Fe ⁺²	0.70	0.54	0.65	0.17	0.40	0.32	0.49	0.56	0.31	0.33	0.27
Mn	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ni	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ca	0.02	0.05	0.02	0.04	0.04	0.06	0.07	0.03	0.06	0.05	0.06
Na	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	2.01	2.00	1.92	2.03	2.03	2.03	2.01	2.03	2.02	2.02	2.01
%En	62	69	64	85	74	78	71	66	79	78	82
%Fs	37	28	35	13	24	20	26	32	18	20	15
%Wo	1	2	1	2	2	3	3	2	3	2	3

b.d.l. = below detection limit. Cations based on 6 oxygens in mineral formula.

Table 5.- (Cont.)

Tabla 5.- (Cont.)

Sample Sector Site	ME rock type												
	SC43a SCN core	SC49a SCN core	SC49a SCN rim	SC49a SCN core	SC49a SCN core	SC35a SCC core	SC35a SCC core	SC29a SCS core	SC29a SCS core	SC29a SCS core	SC29a SCS core	SC29a SCS core	SC29a SCS core
%SiO ₂	54.60	54.59	55.42	54.52	53.88	54.23	54.78	55.49	54.42	56.32	55.29	55.33	54.25
%TiO ₂	0.21	0.18	0.14	0.17	0.20	0.17	0.14	0.07	0.17	0.13	0.11	0.10	0.27
%Al ₂ O ₃	2.31	1.91	4.05	2.14	2.44	2.26	2.01	1.35	1.79	1.13	1.34	1.55	2.43
%FeO ^f	10.49	9.13	13.81	9.30	9.80	8.85	10.09	7.50	8.06	7.29	8.18	8.22	8.07
%MnO	b.d.l.	b.d.l.	0.01	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.07	0.06	b.d.l.	b.d.l.	b.d.l.	b.d.l.
%MgO	31.45	30.91	23.24	30.92	31.20	31.94	30.56	33.24	32.34	33.02	33.30	32.94	31.02
%CaO	1.23	1.97	1.34	1.92	1.56	1.57	1.84	1.22	1.65	1.32	1.26	1.59	2.97
%Na ₂ O	0.06	0.17	1.00	0.04	0.07	0.04	0.03	0.03	0.06	0.04	0.02	0.03	0.12
%NiO	0.03	0.04	0.03	0.09	0.06	0.13	0.14	0.08	0.10	0.19	0.09	0.09	0.12
%Cr ₂ O ₃	0.50	0.29	b.d.l.	0.27	0.28	0.37	0.20	0.46	0.35	0.31	0.59	0.44	0.26
Sum	100.88	99.19	99.04	99.37	99.49	99.56	99.79	99.51	99.00	99.75	100.18	100.29	99.51
Si	1.91	1.94	1.99	1.93	1.91	1.91	1.94	1.94	1.93	1.96	1.93	1.93	1.92
Al iv	0.09	0.06	0.01	0.07	0.09	0.09	0.06	0.06	0.07	0.04	0.07	0.07	0.08
Sum	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Al vi	0.01	0.02	0.16	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.01	0.00	0.02
Ti	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Cr	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01
Fe ³⁺	0.09	0.06	0.00	0.09	0.09	0.09	0.05	0.06	0.09	0.02	0.09	0.09	0.08
Mg	1.64	1.63	1.25	1.65	1.65	1.68	1.61	1.74	1.71	1.72	1.73	1.71	1.63
Fe ²⁺	0.22	0.21	0.42	0.20	0.20	0.17	0.25	0.16	0.15	0.19	0.15	0.15	0.16
Mn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ni	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Ca	0.05	0.07	0.05	0.06	0.06	0.06	0.07	0.05	0.06	0.05	0.05	0.06	0.11
Na	0.00	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Sum	2.03	2.02	1.95	2.03	2.03	2.03	2.02	2.02	2.03	2.01	2.03	2.03	2.03
%En	82	83	73	82	83	84	81	87	85	87	86	85	82
%Fs	15	14	24	14	15	13	15	11	12	11	12	12	12
%Wo	2	4	3	4	3	3	4	2	3	2	2	3	6

Table 5.- (Cont.)

Tabla 5.- (Cont.)

Sample Sector Site	FDE rock type											
	SC40 SCN	SC40 SCN	SC40 SCN	SC29 SCC	SC29 SCC	SC31 SCC	SC31 SCC	SC31 SCC	SC31 SCC	SC31 SCC	SC31 SCC	SC37 SCC
	rimQz	rimQz	core	core	core	core	rimOpx	core	core	rim	core	rimOpx
%SiO ₂	52.65	52.40	51.50	49.72	51.41	50.97	51.27	50.84	51.59	51.14	52.05	52.80
%TiO ₂	0.18	0.16	0.29	0.67	0.54	0.69	0.59	0.68	0.44	0.50	0.41	0.39
%Al ₂ O ₃	0.51	0.31	1.81	3.89	2.81	3.59	2.94	3.33	2.90	2.95	2.21	2.05
%FeO ¹	8.01	8.14	6.37	7.66	6.33	7.09	7.50	7.59	7.04	6.22	5.85	6.66
%MnO	0.03	0.01	b.d.l.	b.d.l.	0.05	0.01	b.d.l.	0.01	0.08	b.d.l.	b.d.l.	b.d.l.
%MgO	16.21	16.41	17.02	15.81	17.34	16.07	17.90	15.91	16.66	16.79	17.53	20.81
%CaO	21.33	22.23	21.49	21.28	21.32	21.67	19.04	21.50	21.52	22.12	21.50	16.59
%Na ₂ O	0.50	0.32	0.41	0.41	0.36	0.42	0.39	0.35	0.41	0.39	0.34	0.30
%NiO	0.01	b.d.l.	0.05	0.04	0.07	0.02	0.04	0.06	b.d.l.	0.06	0.07	0.02
%Cr ₂ O ₃	0.01	b.d.l.	0.11	b.d.l.	0.20	0.12	0.26	0.29	0.08	0.21	0.20	0.35
Sum	99.44	99.98	99.05	99.48	100.43	100.65	99.93	100.56	100.72	100.38	100.16	99.97
Si	1.97	1.95	1.92	1.86	1.89	1.88	1.89	1.88	1.90	1.88	1.91	1.92
Al iv	0.03	0.05	0.08	0.14	0.11	0.12	0.11	0.12	0.10	0.12	0.09	0.08
Sum	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Al vi	0.01	0.03	0.00	0.03	0.01	0.03	0.02	0.02	0.02	0.01	0.01	0.01
Ti	0.01	0.00	0.01	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01
Cr	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.01
Fe ³⁺	0.11	0.14	0.13	0.15	0.13	0.12	0.12	0.12	0.13	0.14	0.11	0.09
Mg	0.90	0.91	0.95	0.88	0.95	0.88	0.98	0.88	0.91	0.92	0.96	1.13
Fe ²⁺	0.14	0.11	0.06	0.09	0.06	0.10	0.11	0.12	0.09	0.05	0.007	0.11
Mn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ni	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ca	0.85	0.89	0.86	0.85	0.84	0.85	0.75	0.85	0.85	0.87	0.85	0.65
Na	0.04	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02
Sum	2.04	2.05	2.05	2.05	2.04	2.04	2.04	2.04	2.04	2.05	2.04	2.03
%En	45	44	47	45	48	45	50	45	46	46	48	57
%Fs	13	12	10	12	10	11	12	12	11	10	9	10
%Wo	43	43	43	43	42	44	38	43	43	44	43	33

Cations based on 6 oxygens in mineral formula.

Table 6.-Electron microprobe analysis of selected clinopyroxenes from Sierra de las Cruces volcanic rocks

Tabla 6.- Análisis de microsonda electrónica de cristales de clinopiroxeno seleccionados en rocas volcánicas de la Sierra de las Cruces

Sample Sector Site	FDE rock type								ME rock type			
	SC37 SCC core	SC37 SCC rim	SC25 SCS core	SC25 SCS rim	SC29 SCS core	SC29 SCS core	SC14 SCT rimQz	SC14 SCT rimQz	SC49a SCN core	SC49a SCN core	SC29a SCS rimQz	SC29a SCS rimQz
%SiO ₂	50.35	51.08	51.49	52.00	49.72	51.41	53.49	53.72	51.72	53.26	51.42	51.54
%TiO ₂	0.77	0.51	0.55	0.50	0.67	0.54	0.11	0.18	0.52	0.35	0.64	0.61
%Al ₂ O ₃	4.05	2.95	2.97	2.41	3.89	2.81	0.20	0.63	2.48	1.31	1.67	1.84
%Fe ^l	7.06	6.96	7.14	5.77	7.66	6.33	7.04	5.51	5.67	4.74	7.39	8.05
%MnO	b.d.l.	0.03	0.02	b.d.l.	b.d.l.	0.05	0.03	b.d.l.	0.04	0.10	0.01	0.02
%MgO	17.01	15.97	16.29	16.83	15.81	17.34	16.12	16.81	17.11	18.50	15.67	16.33
%CaO	19.99	21.54	21.20	22.22	21.28	21.32	21.86	22.33	21.16	21.09	21.68	20.91
%Na ₂ O	0.50	0.45	0.39	0.38	0.41	0.36	0.36	0.47	0.35	0.21	0.46	0.46
%NiO	0.09	0.01	b.d.l.	0.04	0.04	0.07	b.d.l.	b.d.l.	0.01	0.11	0.02	b.d.l.
%Cr ₂ O ₃	0.12	0.05	0.10	0.18	b.d.l.	0.20	b.d.l.	b.d.l.	0.07	0.22	b.d.l.	0.04
Sum	99.94	99.55	100.15	100.33	99.48	100.43	99.21	99.65	99.13	99.89	98.96	99.80
Si	1.86	1.90	1.90	1.91	1.86	1.89	1.99	1.98	1.92	1.95	1.93	1.92
Al iv	0.14	0.10	0.10	0.09	0.14	0.11	0.01	0.02	0.08	0.05	0.07	0.08
Sum	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Al vi	0.04	0.03	0.03	0.01	0.03	0.01	0.00	0.01	0.02	0.00	0.00	0.00
Ti	0.02	0.01	0.02	0.01	0.02	0.01	0.00	0.00	0.01	0.01	0.02	0.02
Cr	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
Fe ³	0.14	0.11	0.09	0.10	0.15	0.13	0.04	0.06	0.08	0.06	0.10	0.12
Mg	0.94	0.89	0.90	0.92	0.88	0.95	0.89	0.92	0.94	1.01	0.88	0.91
Fe ²	0.08	0.11	0.13	0.007	0.09	0.06	0.18	0.11	0.09	0.09	0.13	0.13
Mn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ni	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ca	0.79	0.86	0.84	0.87	0.85	0.84	0.87	0.88	0.84	0.83	0.87	0.83
Na	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.03	0.03
Sum	2.05	2.04	2.03	2.03	2.05	2.04	2.01	2.02	2.03	2.02	2.03	2.04
%En	48	45	46	47	45	48	45	47	48	51	44	46
%Fs	11	11	11	9	12	10	11	9	9	8	12	13
%Wo	41	44	43	44	43	42	44	45	43	41	44	42

Table 6.- (Cont.)

Tabla 6.- (Cont.)

Sample Sector Site Mineral	FDE rock type						ME rock type	
	SC49 SCN	SC49 SCN	SC14 SCT	SC14 SCT	SC14 SCT	SC14 SCT	SC49a SCT	SC49a SCT
	core ol	rim ol	core ol	rim ol	core ol	rim ol	core ol	core Ol
%SiO ₂	40.11	39.61	39.73	39.52	40.24	40.27	40.23	40.33
%TiO ₂	0.02	b.d.l.	b.d.l.	0.02	b.d.l.	b.d.l.	0.03	0.01
%Al ₂ O ₃	0.05	0.03	0.06	b.d.l.	0.02	0.28	0.06	0.06
%FeO ¹	11.61	12.30	12.83	14.79	12.69	11.18	10.10	11.22
%MnO	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	0.01	b.d.l.
%MgO	48.60	48.10	47.20	45.55	45.87	48.23	49.68	48.41
%CaO	0.15	0.16	0.18	0.16	0.13	0.17	0.18	0.13
%NiO	0.25	0.18	0.28	0.18	0.27	0.32	0.62	0.25
%Cr ₂ O ₃	b.d.l.	0.04	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.	b.d.l.
Sum	100.77	100.41	100.27	100.22	99.22	100.44	100.90	100.39
Si	0.985	0.980	0.987	0.990	1.007	0.990	0.982	0.992
Al	0.002	0.001	0.002	0.000	0.001	0.008	0.002	0.002
Sum	0.987	0.981	0.989	0.990	1.007	0.998	0.984	0.994
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000
Cr	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Fe+3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe+2	0.238	0.255	0.266	0.310	0.266	0.230	0.206	0.231
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	1.780	1.775	1.747	1.701	1.711	1.767	1.808	1.775
Ca	0.004	0.004	0.005	0.004	0.003	0.004	0.005	0.003
Ni	0.005	0.004	0.006	0.004	0.005	0.006	0.012	0.005
Sum	2.027	2.038	2.024	2.019	1.985	2.008	2.032	2.014
%Fo	88	87	87	85	87	88	90	88

Sample Sector Site Mineral	FDE rock type				ME rock type			
	SC40 SCN	SC40 SCN	SC43 SCN	SC43 SCN	SC35a SCN	SC35a SCN	SC43a SCN	SC43a SCN
	core mag	core ilm	core mag	core ilm	core mag	core ilm	core mag	core ilm
%SiO ₂	0.28	0.08	0.10	0.34	0.06	0.05	1.85	0.09
%TiO ₂	4.60	37.90	6.53	47.74	6.36	42.95	9.11	47.41
%Al ₂ O ₃	1.29	0.35	0.96	0.07	1.05	0.12	1.27	0.06
%FeO ¹	83.48	55.07	88.34	50.93	86.89	53.59	77.99	51.71
%MnO	b.d.l.	0.03	b.d.l.	0.02	0.06	0.06	b.d.l.	b.d.l.
%MgO	1.35	4.20	0.56	1.46	1.06	2.69	0.62	1.13
%CaO	0.19	0.24	0.05	0.15	0.07	0.23	0.28	0.05
%K ₂ O	0.03	0.07	0.01	0.04	b.d.l.	b.d.l.	0.06	0.07
%Cr ₂ O ₃	0.07	0.04	0.09	b.d.l.	0.53	0.07	0.05	0.01
%NiO	0.18	0.01	0.06	0.01	0.13	0.07	0.17	0.10
Sum	91.47	97.99	96.70	100.76	96.21	99.83	91.40	100.63
Si	0.011	0.002	0.004	0.008	0.002	0.001	0.072	0.002
Ti	0.134	0.698	0.182	0.883	0.177	0.791	0.268	0.882
Al	0.059	0.010	0.042	0.002	0.046	0.004	0.059	0.002
Fe+3	1.646	0.588	1.583	0.214	1.578	0.410	1.257	0.228
Fe+2	1.058	0.540	1.152	0.834	1.115	0.687	1.290	0.841
Mn	0.000	0.001	0.000	0.001	0.002	0.001	0.000	0.000
Mg	0.078	0.153	0.031	0.054	0.059	0.098	0.036	0.042
Ca	0.008	0.006	0.002	0.004	0.003	0.006	0.012	0.001
K	0.002	0.002	0.001	0.001	0.000	0.000	0.003	0.002
Cr	0.002	0.001	0.003	0.000	0.016	0.001	0.002	0.000
Ni	0.006	0.000	0.002	0.000	0.004	0.001	0.005	0.002
Cat Sum	3.004	2.001	3.002	2.001	3.002	2.000	3.004	2.002
%mol	usp	ilm	usp	ilm	usp	ilm	usp	ilm
	13.5	67.6	18.7	88.9	18.0	78.2	30.0	88.3

Minerals: ol = olivine, mag = magnetite, ilm = ilmenite. Molecular fractions of ulvöspinel (% molusp) and ilmenite (% molilm) calculated by Stormer (1983). b.d.l. = below detection limit. Cations based in 4 oxygens in olivine formula.

Table 7.-Electron microprobe analysis of olivine and opaque minerals from Sierra de las Cruces volcanic rocks
 Tabla 7.- Análisis de microsonda electrónica para cristales de olivino y minerales opacos en rocas volcánicas de la Sierra de las Cruces

Sample Sector	F rock type					FDE rock type									
	SC45 SCN	SC20 SCS	SC10 SCS	SC21 SCS	SC28 SCS	SC49 SCN	SC43 SCN	JQ4 SCN	CHI SCN	SC47 SCN	SC39 SCN	AJ2 SCN	JQ2 SCN		
Lat (N) ^o	19°35'30"	19°16'30"	19°16'20"	19°16'28"	19°18'53"	19°31'32"	19°34'02"	19°33'32"	19°26'15"	19°31'48"	19°31'11"	19°31'20"	19°33'48"		
Long (W) ^o	99°30'50"	99°23'49"	99°24'04"	99°22'33"	99°23'31"	99°25'31"	99°33'36"	99°33'38"	99°19'20"	99°27'57"	99°28'03"	99°28'05"	99°34'50"		
Locality	Potrerillos	Quellamel	Quellamel	Conejo	Salazar	Peta Ledos	C. Nepen	C. Nepen	Magnolia	Petititas	Cerro Prieto	Cerro Prieto	Pilomas		
TAS	D	D	D	D	D	D	D	D	D	D	D	D	D		
Original composition (% m/m)															
SiO ₂	66.36	63.76	64.65	66.27	67.78	62.84	62.22	63.23	62.88	65.07	64.80	65.17	67.83		
TiO ₂	0.537	0.625	0.617	0.626	0.525	0.643	0.766	0.747	0.725	0.633	0.660	0.617	0.537		
Al ₂ O ₃	15.66	16.77	15.95	16.41	15.75	15.96	16.17	16.36	15.42	15.51	15.88	15.99	16.00		
Fe ₂ O ₃	3.39	4.41	4.12	3.12	3.49	4.80	5.05	4.94	5.05	4.29	4.39	4.12	3.32		
MnO	0.059	0.056	0.063	0.021	0.056	0.077	0.080	0.076	0.080	0.074	0.066	0.064	0.057		
MgO	1.54	2.23	2.37	0.65	0.48	4.14	2.60	2.66	3.31	2.83	1.74	2.44	1.31		
CaO	3.59	4.15	4.11	3.11	3.18	4.85	4.85	4.92	5.09	4.49	4.05	4.07	3.77		
Na ₂ O	4.38	4.47	4.47	3.92	4.36	4.42	4.43	4.39	4.16	4.34	4.15	4.20	4.46		
K ₂ O	2.28	1.87	1.84	2.26	2.15	1.83	1.85	1.91	1.85	2.32	2.34	2.37	2.28		
P ₂ O ₅	0.13	0.13	0.11	0.13	0.14	0.15	0.19	0.29	0.16	0.18	0.19	0.17	0.14		
LOI	1.77	1.77	1.24	3.41	2.064	0.34	0.91	0.65	0.53	0.18	2.07	1.02	0.55		
Total	99.696	100.241	99.540	99.927	99.975	100.050	99.116	100.173	99.255	99.917	100.340	100.231	100.254		
Adjusted composition (% m/m)															
SiO ₂	67.94	64.96	65.97	68.83	69.41	63.25	63.60	63.77	63.93	65.45	66.16	65.89	68.199		
Na ₂ O	4.48	4.55	4.56	4.07	4.47	4.45	4.53	4.43	4.23	4.37	4.23	4.25	4.48		
K ₂ O	2.33	1.91	1.88	2.35	2.20	1.84	1.89	1.93	1.88	2.33	2.39	2.40	2.29		
MgO	1.58	2.27	2.42	0.68	0.49	4.17	2.66	2.68	3.36	2.85	1.78	2.47	1.32		
CIPW norm															
Q	22.00	17.50	18.86	27.62	26.44	13.34	15.06	15.78	16.02	17.29	20.06	18.82	22.69		
Or	13.79	11.26	11.10	13.87	13.01	10.89	11.18	11.38	11.12	13.79	14.12	14.16	13.55		
Ab	37.94	38.53	38.59	34.45	37.78	37.65	38.31	37.46	35.79	36.94	35.85	35.93	37.94		
An	16.72	20.11	18.39	15.14	15.22	18.42	19.19	19.46	18.24	16.08	18.17	17.98	17.00		
C	-	0.16	-	2.26	0.82	-	-	-	-	-	-	-	-		
Di	0.52	-	1.37	-	-	3.87	3.37	2.64	5.16	4.16	0.89	1.07	0.73		
Hy	6.33	9.19	8.63	3.88	4.00	12.41	8.98	9.26	9.94	8.46	7.47	8.87	5.47		
Mt	1.33	1.72	1.61	1.24	1.37	1.85	1.98	1.91	1.97	1.66	1.72	1.60	1.28		
Il	1.04	1.21	1.20	1.24	1.02	1.23	1.49	1.43	1.40	1.21	1.28	1.19	1.03		
Ap	0.31	0.31	0.26	0.31	0.33	0.35	0.45	0.68	0.38	0.42	0.45	0.40	0.33		
Mg - v	55.04	57.67	60.77	35.95	27.05	69.92	58.11	59.19	63.84	63.99	51.63	61.47	51.52		
FeO/MgO	1.98	1.78	1.57	4.32	6.54	1.04	1.75	1.67	1.37	1.36	2.27	1.52	2.28		

TAS = Rock classification following the Le Bas *et al.* (1986) scheme. A = andesite, D = dacite. Adjusted composition (% m/m) and CIPW norm calculated applying SINCLAS program (Verma *et al.*, 2002, 2003). Mg-v = $100 \cdot \text{Mg}^{2+} / (\text{Mg}^{2+} + 0.9 [\text{Fe}^{2+} + \text{Fe}^{3+}])$, atomic; Fe²⁺ and Fe³⁺ calculated from adjusted FeO and Fe₂O₃ following Middlemost (1989).

Table 8.-Major element analysis and CIPW norm of representative rocks from Sierra de las Cruces
 Tabla 8.- Análisis de elementos mayores y norma CIPW para rocas representativas de la Sierra de las Cruces

Sample Sector	FDE rock type													
	SC38 SCC	PC2 SCC	SC37 SCC	SC35 SCC	SC36 SCC	SC30 SCC	ST1 SCC	SC31 SCC	SC32 SCC	TO2 SCS	SC29 SCS	TO1 SCS	SC8 SCS	SC25 SCS
Lat (N)°	19°28'28"	19°25'20"	19°28'07"	19°25'35"	19°23'58"	19°23'16"	19°28'08"	19°24'31"	19°22'41"	19°17'40"	19°19'00"	19°17'45"	19°16'50"	19°20'01"
Long (W)°	99°28'56"	99°25'53"	99°28'59"	99°25'41"	99°26'58"	99°19'06"	99°28'49"	99°17'49"	99°21'16"	99°20'27"	99°22'18"	99°23'57"	99°22'58"	99°26'17"
Locality	Diablo	Cutas	Xilotzingo	Peñas	Aire	Huixquilucan	Xilotzingo	Bartolito	Dos Rios	Las Cruces	Carretero	Salazar	Silencio	Chupamirto
TAS	D	D	D	D	D	D	D	D	D	A	D	D	D	D
Original composition (% m/m)														
SiO ₂	62.43	63.11	62.67	62.43	61.99	64.02	62.87	64.01	66.06	60.85	63.25	62.49	64.42	63.88
TiO ₂	0.743	0.650	0.721	0.658	0.757	0.659	0.755	0.642	0.615	0.883	0.644	0.887	0.593	0.637
Al ₂ O ₃	16.57	16.16	15.62	15.83	16.56	15.90	16.43	16.05	15.79	16.08	15.51	15.93	15.99	15.40
Fe ₂ O ₃	4.88	4.88	4.87	4.57	5.73	4.60	4.96	4.35	4.00	5.89	4.67	5.26	4.29	4.24
MnO	0.082	0.071	0.08	0.076	0.077	0.073	0.074	0.069	0.077	0.093	0.085	0.05	0.078	0.05
MgO	2.56	3.44	3.01	3.52	2.24	3.34	1.91	3.06	1.48	3.82	3.45	1.53	2.79	2.09
CaO	5.27	4.94	5.14	4.78	3.84	4.77	4.41	4.69	3.72	5.70	4.78	3.90	4.83	3.80
Na ₂ O	4.19	4.32	4.20	4.29	4.03	4.49	4.19	4.58	4.41	4.25	4.27	4.60	4.49	3.88
K ₂ O	1.63	1.67	2.10	1.67	1.89	1.78	2.12	1.85	2.14	1.63	1.92	2.02	1.92	2.12
P ₂ O ₅	0.15	0.14	0.24	0.15	0.16	0.16	0.23	0.16	0.16	0.22	0.17	0.22	0.15	0.17
LOI	0.84	0.60	0.93	0.52	3.86	0.79	2.18	0.49	1.48	0.55	0.59	2.01	0.42	2.63
Total	99.345	99.981	99.581	98.494	101.134	100.582	100.129	99.951	99.932	99.966	99.339	98.897	99.971	98.897
Adjusted composition (% m/m)														
SiO ₂	63.61	63.73	63.76	63.94	64.01	64.37	64.43	64.57	67.30	61.49	64.28	64.78	64.92	66.57
Na ₂ O	4.27	4.36	4.27	4.39	4.16	4.52	4.29	4.62	4.49	4.29	4.34	4.77	4.53	4.04
K ₂ O	1.66	1.69	2.14	1.71	1.95	1.79	2.17	1.87	2.18	1.65	1.95	2.09	1.94	2.21
MgO	2.61	3.47	3.06	3.61	2.31	3.36	1.96	3.09	1.51	3.86	3.51	1.59	2.81	2.18
CIPW norm														
Q	16.49	15.46	15.28	15.55	18.69	15.78	17.55	15.68	21.57	11.95	15.82	17.05	16.55	21.81
Or	9.82	9.96	12.62	10.11	11.53	10.58	12.84	11.03	12.88	9.73	11.53	12.37	11.44	13.05
Ab	36.12	36.92	36.16	37.18	35.21	38.20	36.33	39.09	38.02	36.33	36.72	40.34	38.29	34.22
An	22.00	19.97	17.87	19.46	18.59	18.07	20.25	17.92	17.29	20.19	17.77	17.46	17.94	18.49
C	-	-	-	-	1.33	-	-	-	-	-	-	-	-	0.23
Di	2.97	3.12	5.25	3.08	-	3.77	0.52	3.63	0.37	5.61	4.19	0.91	4.225	-
Hy	8.91	11.11	8.96	11.19	10.51	10.19	8.55	9.37	6.74	11.89	10.52	7.51	8.42	8.83
Mt	1.91	1.89	1.90	1.80	2.27	1.77	1.95	1.68	1.56	2.07	1.82	2.09	1.66	1.70
Il	1.44	1.25	1.39	1.28	1.49	1.26	1.47	1.23	1.19	1.69	1.24	1.75	1.14	1.26
Ap	0.35	0.33	0.57	0.36	0.38	0.37	0.55	0.37	0.38	0.51	0.40	0.53	0.35	0.41
Mg - v														
Mg	58.56	65.51	62.48	67.48	51.30	66.17	50.92	65.46	49.93	62.82	66.56	43.95	63.67	57.04
FeO/MgO	1.72	1.28	1.46	1.17	2.30	1.24	2.34	1.28	2.43	1.39	1.22	3.09	1.38	1.83

Table 8.-(Cont.)
Tabla 8.- (Cont.)

Sample	FDE rock type						ME rock type				
	SC13	SC23	SC24	SC7	SC6	SC2	SC37a	SC49a	SC24a	SC49b	SC35a
Sector	SCT	SCT	SCT	SCT	SCT	SCT	SCC	SCN	SCS	SCN	SCC
Lat (N°)	19°14'21''	19°10'45''	19°12'27''	19°11'04''	19°12'13''	19°11'53''	19°28'07''	19°31'32''	19°12'27''	19°31'32''	19°25'35''
Long (W°)	99°25'08''	99°21'15''	99°16'34''	99°18'47''	99°17'09''	99°14'38''	99°28'59''	99°25'31''	99°16'34''	99°25'31''	99°25'41''
Locality	S. Agustín	A. Pájaros	Tezontle	A. Pájaros	Tezontle	Ajusco31	S.A.Xilotzingo	Peña Lobos	Tezontle	Peña Lobos	PeñasCuatas
TAS	A	A	D	A	D	D	A	A	A	A	A
Original composition (% m/m)											
SiO ₂	59.59	60.65	62.33	61.61	62.83	64.68	54.93	58.24	58.35	58.96	59.33
TiO ₂	0.792	0.820	0.799	0.774	0.739	0.615	1.044	0.701	0.976	0.689	0.765
Al ₂ O ₃	15.84	16.58	16.49	16.21	16.91	16.65	16.05	15.42	17.02	15.02	16.83
Fe ₂ O ₃	5.73	5.64	4.84	5.20	4.96	4.09	6.99	5.79	6.71	5.92	5.75
MnO	0.099	0.095	0.086	0.086	0.081	0.078	0.111	0.096	0.115	0.093	0.069
MgO	5.06	3.82	2.63	3.22	2.38	1.74	3.45	6.45	3.83	6.08	3.79
CaO	5.75	5.12	4.79	5.03	4.86	4.45	6.37	6.44	5.7	6.22	4.8
Na ₂ O	4.22	4.24	4.43	4.10	4.73	4.49	4.04	3.51	4.09	3.57	4.13
K ₂ O	1.58	1.75	1.59	1.90	1.52	1.57	1.41	1.43	1.4	1.41	1.54
P ₂ O ₅	0.18	0.22	0.18	0.21	0.18	0.17	0.31	0.14	0.22	0.14	0.16
LOI	0.37	0.25	0.33	1.13	0.37	0.82	5.314	0.480	1.523	0.598	3.029
Total	99.411	99.185	98.495	99.470	99.560	99.353	100.019	98.697	99.934	98.700	100.193
Adjusted composition (% m/m)											
SiO ₂	60.64	61.57	63.73	62.90	63.58	65.84	58.33	59.57	59.60	60.38	61.34
Na ₂ O	4.28	4.30	4.53	4.19	4.79	4.57	4.29	3.59	4.18	3.66	4.27
K ₂ O	1.60	1.78	1.63	1.94	1.54	1.60	1.50	1.46	1.43	1.44	1.59
MgO	5.13	3.88	2.69	3.29	2.41	1.77	3.66	6.60	3.91	6.23	3.92
CIPW norm											
Q	9.39	11.87	15.95	14.53	15.00	19.87	7.63	9.12	10.14	10.61	12.069
Or	9.47	10.50	9.61	11.47	9.09	9.44	8.85	8.64	8.45	8.53	9.408
Ab	36.22	36.42	38.32	35.42	40.50	38.68	36.30	30.38	35.35	30.936	36.131
An	19.89	21.36	20.87	20.64	20.66	21.01	22.83	22.60	24.46	21.292	23.539
C	-	-	-	-	-	-	-	-	-	-	0.025
Di	6.32	2.40	1.81	2.80	2.08	0.27	7.01	7.32	2.41	7.521	-
Hy	14.75	13.36	9.56	11.31	8.90	7.54	11.94	18.20	14.40	17.328	14.877
Mt	2.02	1.99	1.90	1.84	1.93	1.60	2.58	2.06	2.38	2.105	2.064
Il	1.53	1.58	1.55	1.50	1.42	1.19	2.11	1.36	1.89	1.341	1.502
Ap	0.42	0.52	0.43	0.50	0.42	0.40	0.76	0.33	0.52	0.331	0.382
Mg ²⁺ /v	69.70	63.83	59.42	61.73	56.38	53.40	56.25	74.37	59.79	72.793	63.192
FeO/MgO	1.02	1.33	1.66	1.45	1.88	2.12	1.82	0.81	1.58	0.876	1.365

Table 8.- (Cont.)

Tabla 8.- (Cont.)

Sample Sector	F rock type					FDE rock type							
	SC45 SCN	SC20 SCS	SC10 SCS	SC21 SCS	SC28 SCS	SC49 SCN	SC43 SCN	JQ4 SCN	CHI SCN	SC47 SCN	SC39 SCN	AJ2 SCN	JQ2 SCN
Lat (N) ^o	19°31'30"	19°16'30"	19°16'20"	19°16'28"	19°18'53"	19°31'32"	19°34'02"	19°33'32"	19°26'15"	19°31'48"	19°31'11"	19°31'20"	19°33'48"
Long (W) ^o	99°30'50"	99°23'49"	99°24'04"	99°22'33"	99°23'31"	99°25'31"	99°33'36"	99°33'38"	99°19'20"	99°27'57"	99°28'03"	99°28'05"	99°34'50"
Locality	Potrillos	Quellamel	Quellamel	Conejo	Salazar	Peña Lobos	C. Nepen	C. Nepen	Magnolia	Peñitas	Cerro Prieto	Cerro Prieto	Palomas
TAS	D	D	D	D	D	D	D	D	D	D	D	D	D
V	64	85	77	75	69	101	96	87	99	89	94	86	68
Cr	30	100	99	70	30	160	60	62	99	90	70	88	39
Co	7	13	11	5	7	16	14	14	14	11	11	11	6
Ni	b.d.l.	60	45	30	b.d.l.	50	40	53	26	40	30	45	b.d.l.
Cu	b.d.l.	30	18	20	10	10	20	25	b.d.l.	10	20	20	b.d.l.
Zn	30	40	b.d.l.	50	60	50	70	62	78	40	50	73	69
Ga	19	20	19	18	19	18	20	19	19	19	20	19	19
Rb	58	48	46	58	57	40	47	48	49	51	57	57	67
Sr	408	448	416	364	414	431	461	449	439	601	553	594	447
Y	14.0	14.0	17.0	16	22	18.0	21.0	19.1	17.2	14.0	16.0	14.3	13.7
Zr	145	132	129	157	146	109	145	146	129	137	142	153	139
Nb	5.0	3.0	4.0	4.0	3.0	4.0	5.0	6.2	5.2	4.0	4.0	5.0	7.4
CS	4.1	1.6	1.2	2.1	2.7	1.3	2.3	2.0	1.7	2.1	2.3	2.2	2.4
Ba	473	417	397	499	456	414	428	417	420	517	534	509	581
La	16.5	13.8	14.1	16.9	17.1	14.0	16.8	15.7	13.6	16.9	20.7	18.2	20.9
Ce	32.1	25.8	25.9	29.2	29.9	26.4	32.4	32.2	29.1	35.7	41.9	37.4	38.6
Pr	3.91	3.61	3.69	4.53	4.60	3.56	4.39	4.16	3.89	4.31	5.26	4.37	4.51
Nd	15.0	14.6	15.2	18.7	19.1	14.6	17.9	16.5	15.6	17.2	20.8	18.0	17.9
Sru	3.30	3.30	3.40	4.20	4.30	3.40	4.10	3.56	3.21	3.60	4.30	3.54	3.31
Eu	0.91	1.04	1.10	1.15	1.28	1.04	1.15	1.23	1.07	1.08	1.27	1.19	1.02
Gd	3.10	3.20	3.40	3.80	4.00	3.50	4.10	3.47	3.17	3.40	3.70	2.83	2.53
Tb	0.50	0.50	0.50	0.60	0.70	0.50	0.60	0.56	0.52	0.50	0.60	0.45	0.43
Dy	2.40	2.60	2.80	3.00	4.00	3.00	3.70	3.19	3.03	2.50	3.00	2.51	2.38
Ho	0.50	0.50	0.60	0.50	0.70	0.60	0.70	0.65	0.59	0.50	0.60	0.48	0.43
Er	1.30	1.40	1.60	1.50	2.20	1.80	2.00	1.84	1.64	1.30	1.70	1.34	1.25
Tm	0.20	0.21	0.24	0.23	0.32	0.26	0.31	0.26	0.24	0.20	0.25	0.20	0.18
Yb	1.30	1.3	1.6	1.5	2.0	1.70	2.10	1.69	1.51	1.30	1.60	1.26	1.16
Lu	0.20	0.20	0.22	0.22	0.30	0.26	0.32	0.26	0.24	0.20	0.24	0.20	0.17
Hf	3.9	3.4	3.7	3.7	3.8	3.2	3.8	3.8	3.7	3.6	4.0	4.3	3.9
Ta	0.50	0.3	0.3	0.4	0.4	0.30	0.50	0.40	0.32	0.40	0.50	0.41	0.50
Th	6.30	3.50	3.40	4.10	4.40	3.60	4.70	4.08	4.07	5.80	6.30	5.50	5.79
U	2.30	1.40	1.60	1.80	2.00	1.40	1.70	1.71	1.75	2.10	2.60	2.42	2.41

b.d.l. = below detection limit.

Table 9.-Trace element analysis of representative rocks from Sierra de las Cruces
 Tabla 9.- Análisis de elementos traza de rocas representativas de la Sierra de las Cruces

Sample Sector	FDE rock type													
	SC38 SCC	PC2 SCC	SC37 SCC	SC35 SCC	SC36 SCC	SC30 SCC	ST1 SCC	SC31 SCC	SC32 SCC	TO2 SCS	SC29 SCS	TO1 SCS	SC8 SCS	SC25 SCS
Lat (N) ^a	19°28'28"	19°25'20"	19°28'07"	19°25'35"	19°23'58"	19°23'16"	19°28'08"	19°24'31"	19°22'41"	19°17'40"	19°19'00"	19°17'45"	19°16'50"	19°20'01"
Long (W) ^b	99°28'56"	99°25'53"	99°28'59"	99°25'41"	99°26'58"	99°19'06"	99°28'49"	99°17'49"	99°21'16"	99°20'27"	99°22'18"	99°23'57"	99°22'58"	99°26'17"
Locality	Diablo	Cuatas	Xilotzingo	Peñas	Aire	Huixquilucan	Xilotzingo	Bartolito	Dos Rios	Las Cruces A	Carretero	Salazar	Silencio	Chupamirto
TAS	D	D	D	D	D	D	D	D	D	D	D	D	D	D
V	99	89	103	91	92	82	91	87	71	117	92	90	84	66
Cr	60	160	110	150	150	150	110	170	50	204	180	85	129	100
Co	12	14	15	15	17	15	14	12	10	17	20	11	12	11
Ni	20	52	50	50	70	90	38	60	b.d.l.	295	110	54	37	40
Cu	20	15	20	20	20	30	18	20	10	23	10	24	25	20
Zn	50	61	60	40	50	70	67	40	50	74	70	80	50	80
Ga	20	19	20	18	20	19	19	19	20	18	19	20	19	20
Rb	34	44	43	37	42	40	46	40	59	36	43	47	48	48
Sr	507	483	683	451	452	473	631	486	434	515	533	499	428	495
Y	16	15.6	17	13	20	16	23.3	15	21	25.1	16.0	12.4	36.0	20.0
Zr	136	125	139	133	138	130	139	133	137	132	125	127	126	164
Nb	4.0	4.5	4.0	3.0	4.0	4.0	5.3	4.0	5.0	5.0	4.0	5.4	4.0	5.0
Cs	0.7	1.3	1.3	1.0	1.3	1.3	1.5	1.1	3.4	0.8	1.4	1.4	1.2	1.9
Ba	420	394	566	370	447	416	566	412	485	401	469	454	434	477
La	14.8	12.8	23.6	12.1	19.1	14.3	27.7	13.8	26.8	18.4	16.5	15.7	18.9	25.2
Ce	31.5	24.9	49.7	26.4	31.2	30.3	49.2	29.1	35.6	33.8	34.9	31.0	29.5	37.7
Pr	3.94	3.55	6.33	3.26	5.15	3.71	8.35	3.60	6.48	4.83	4.44	4.31	4.57	6.53
Nd	16.0	15.2	25.5	13.4	21.5	14.8	34.4	14.9	26.1	21.5	17.8	17.9	18.2	26.8
Su	3.7	3.0	5.1	3.1	4.7	3.3	6.8	3.3	5.4	4.63	3.90	3.33	4.10	5.50
Eu	1.09	1.02	1.45	0.99	1.34	1.01	2.12	1.04	1.48	1.48	1.10	1.18	1.17	1.49
Gd	3.60	2.91	4.40	3.00	4.40	3.20	5.60	3.20	4.90	4.36	3.70	3.08	4.40	4.90
Tb	0.5	0.4	0.6	0.5	0.7	0.5	0.8	0.5	0.7	0.73	0.50	0.46	0.70	0.70
Dy	3.1	2.7	3.2	2.6	3.6	2.7	4.2	2.7	3.9	4.14	2.90	2.28	4.00	3.60
Ho	0.6	0.5	0.6	0.5	0.7	0.5	0.8	0.5	0.7	0.79	0.60	0.41	0.80	0.70
Er	1.7	1.5	1.7	1.4	1.8	1.5	2.3	1.5	2.1	2.32	1.60	1.11	2.60	1.90
Tm	0.26	0.21	0.25	0.21	0.27	0.22	0.32	0.22	0.31	0.33	0.24	0.16	0.36	0.28
Yb	1.7	1.4	1.6	1.3	1.7	1.4	2.1	1.4	1.9	2.1	1.6	1.0	2.1	1.7
Lu	0.26	0.21	0.24	0.21	0.26	0.21	0.33	0.22	0.29	0.31	0.24	0.16	0.30	0.28
Hf	3.7	3.7	3.7	3.6	3.6	3.4	3.9	3.5	3.6	3.7	3.3	3.6	3.6	4.2
Ta	0.30	0.29	0.40	0.30	0.30	0.30	0.35	0.30	0.50	0.3	0.3	0.4	0.4	0.4
Th	3.70	3.14	5.00	3.40	4.00	3.60	4.75	3.60	5.30	2.90	4.30	3.86	3.70	5.40
U	1.00	1.55	1.80	1.30	1.40	1.40	2.02	1.30	2.00	1.20	1.50	1.68	1.70	1.50

Table 9.- (Cont.)

Tabla 9.- (Cont.)

Sample Sector	FDE rock type						ME rock type				
	SC13 SCT	SC23 SCT	SC24 SCT	SC7 SCT	SC6 SCT	SC2 SCT	SC37a SCC	SC49a SCN	SC24a SCC	SC49b SCN	SC35a SCC
Lat (N) ^o	19°14'21"	19°10'45"	19°12'27"	19°11'04"	19°12'17"	19°11'33"	19°28'07"	19°31'32"	19°12'27"	19°31'32"	19°25'35"
Long (W) ^o	99°25'08"	99°21'15"	99°16'34"	99°18'47"	99°17'09"	99°14'38"	99°28'59"	99°25'31"	99°25'31"	99°16'34"	99°25'41"
Locality	S. Agustín	A. Pájaros	Tezontle	A. Pájaros	Tezontle	Ajusco31	S.A.Xilotzingo	Peña Lobos	Tezontle	Peña Lobos	PeñasCatas
TAS	A	A	D	A	D	D	A	A	A	A	A
V	110	102	96	88	80	69	150	125	116	123	100
Cr	203	120	60	86	50	b.d.l.	220	280	120	230	240
Co	20	16	11	12	11	7	26	22	20	22	17
Ni	117	50	30	33	27	b.d.l.	90	80	70	100	80
Cu	24	20	10	24	13	b.d.l.	50	10	40	20	30
Zn	65	60	50	62	59	48	80	60	90	60	80
Ga	20	20	19	19	21	21	18	18	20	17	19
Rb	31	37	28	36	29	27	31	29	27	31	35
Sr	492	458	481	418	503	584	813	474	496	458	453
Y	19	19	17.0	19	19	17	24.0	18.0	19.0	22.0	14.0
Zr	131	168	137	162	142	118	138	100	129	103	114
Nb	4.0	6.0	4.0	6.0	4.0	4.0	3.0	3.0	4.0	3.0	3.0
Cs	1.5	1.6	0.7	1.6	0.6	0.7	1.3	1.0	0.6	1.4	1.1
Ba	406	457	377	495	392	399	507	329	319	358	309
La	14.0	19.1	12.4	17.7	12.1	11.3	26.8	12.3	12.7	13.6	11.1
Ce	30.3	36.8	26.8	36.4	25.6	24.5	58.9	23.9	28.5	25.4	25.0
Pr	3.95	4.85	3.47	4.55	3.43	3.14	8.01	3.12	3.65	3.55	3.22
Nd	16.8	19.9	14.6	18.2	14.4	13.0	34.4	13.3	15.8	14.8	13.5
Sm	3.7	4.2	3.60	3.9	3.3	3.1	7.00	3.10	3.70	3.30	3.10
Eu	1.27	1.33	1.09	1.20	1.12	1.09	2.09	1.03	1.31	1.11	1.10
Gd	3.7	4.1	3.50	3.7	3.5	3.1	5.8	3.30	3.60	3.30	2.90
Tb	0.6	0.6	0.60	0.6	0.5	0.5	0.80	0.50	0.60	0.60	0.50
Dy	3.0	3.4	3.00	3.0	2.9	2.7	4.50	2.90	3.40	3.30	2.80
Ho	0.6	0.7	0.60	0.6	0.6	0.6	0.90	0.60	0.70	0.70	0.50
Er	1.8	1.9	1.60	1.7	1.7	1.6	2.40	1.70	1.90	2.00	1.50
Tm	0.26	0.28	0.24	0.25	0.24	0.25	0.34	0.25	0.28	0.29	0.23
Yb	1.6	1.8	1.5	1.6	1.5	1.6	2.30	1.60	1.80	1.90	1.50
Lu	0.24	0.27	0.24	0.23	0.23	0.24	0.36	0.24	0.26	0.28	0.23
Hf	3.6	4.1	3.6	4.4	3.9	3.5	3.9	2.9	3.40	2.90	3.20
Ta	0.3	0.4	0.3	0.5	0.3	0.3	0.30	0.20	0.30	0.30	0.30
Th	2.7	3.4	2.50	3.3	2.3	2.7	3.80	2.80	2.00	2.80	2.60
U	1.2	1.1	0.80	1.3	1.0	1.4	1.70	0.90	0.70	1.10	1.20

Table 9.- (Cont.)

Tabla 9.- (Cont.)

Sample	Locality	Sector	Rock type	TAS	$^{87}\text{Sr}/^{86}\text{Sr}$	$\pm 2\sigma$	$^{143}\text{Nd}/^{144}\text{Nd}$	$\pm 2\sigma$
SC45	Los Potrerillos	SCN	F	D	0.704173	0.000007	0.512839	0.000007
SC20	Quellamelucan	SCS	F	D	0.703957	0.000009	0.512898	0.000007
SC28	Salazar	SCS	F	D	0.704002	0.000007	0.512903	0.000007
SC39	Cerro Prieto	SCN	FDE	D	0.704145	0.000008	0.512865	0.000007
SC49	Peña de Lobos	SCN	FDE	D	0.704212	0.000008	0.512814	0.000007
SC32	Dos Rios	SCC	FDE	D	0.704045	0.000008	0.512858	0.000005
SC29	Carretero	SCS	FDE	D	0.704095	0.000007	0.512861	0.000006
SC23	Agua de Pájaros	SCT	FDE	A	0.704153	0.000008	0.512875	0.000006
SC49a	Peña de Lobos	SCN	ME	A	0.704199	0.000008	0.512812	0.000006
SC35a	Peñas Cuatas	SCC	ME	A	0.703917	0.000007	0.512864	0.000007
SC37a	Sta. Ana Xilotzingo	SCC	ME	A	0.704268	0.000008	0.512820	0.000006

Rock type: F = Felsic magmas, FDE = Felsic magmas with disequilibrium evidence, ME = Chilled magmatic enclaves. TAS = Rock classification following the Le Bas et al. (1986) scheme. A = andesite, D = dacite.

Table 10.-Sr and Nd isotopic ratios for selected rocks from Sierra de las Cruces

Tabla 10.- Relaciones isotópicas de Sr y Nd para rocas seleccionadas de la Sierra de las Cruces.