

American Mineralogist: April 2025 Online Materials AM-25-49378
BRUGGER ET AL.: CO-MOBILITY OF TI-REE-NB-AS DURING METAMORPHISM

Table SUPP. 5: LA-ICP-MS data on allanite - epidote

Sample aln_type	SC1 matrix	SC1 matrix	SC1 matrix	SC1 matrix	SC1 matrix	SC1 matrix	SC1 matrix	SC1 matrix	SC1 matrix	SC1 matrix	SC1 matrix	SC1 matrix	SC1 matrix	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	
	1	2	3	6	7	8	9	10	12	15	17	19																	
wt%																													
SiO2	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	
CaO	11.89	13.30	10.30	10.41	11.27	14.53	9.91	16.00	13.86	13.96	11.98	12.14	11.12	12.36	10.74	10.49	11.08	10.85	10.53	10.98	10.45	10.19	9.76	10.56	9.56	10.20	9.26	9.64	9.67
Na2O	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	
Al2O3	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	
Fe2O3	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	
La2O3	2.07	2.25	3.34	0.04	2.46	0.82	4.36	1.37	2.42	3.20	0.73	1.47	2.37	3.03	3.95	4.18	3.14	3.41	3.41	3.96	3.97	4.28	4.21	4.28	4.22	4.57	4.24	4.59	4.58
Ce2O3	4.33	4.57	6.82	0.09	5.01	1.67	9.07	2.74	5.22	6.61	1.58	3.15	4.89	6.17	7.82	8.36	6.46	6.89	6.94	7.90	8.08	8.66	9.03	8.34	9.22	9.40	8.19	8.86	8.87
Pr2O3	0.47	0.51	0.77	0.01	0.56	0.19	1.01	0.31	0.60	0.75	0.18	0.35	0.54	0.69	0.86	0.92	0.73	0.77	0.77	0.89	0.90	0.96	1.03	0.93	0.96	1.08	0.91	0.95	0.97
Nd2O3	1.64	1.82	2.83	0.05	2.03	0.71	3.69	1.20	2.22	2.83	0.69	1.27	2.05	2.64	3.23	3.38	2.83	2.96	2.96	3.38	3.35	3.53	3.94	3.42	3.53	4.00	3.31	3.46	3.53
Sm2O3	0.30	0.33	0.53	0.02	0.36	0.13	0.66	0.21	0.42	0.51	0.13	0.24	0.41	0.54	0.62	0.63	0.60	0.60	0.60	0.66	0.65	0.65	0.75	0.63	0.64	0.74	0.60	0.62	0.62
Gd2O3	0.25	0.23	0.39	0.03	0.26	0.11	0.41	0.17	0.30	0.39	0.12	0.19	0.34	0.43	0.43	0.41	0.48	0.47	0.44	0.47	0.41	0.40	0.48	0.40	0.39	0.47	0.38	0.39	0.38
Y2O3	0.64	0.54	0.57	0.31	0.50	0.41	0.24	0.48	0.46	0.64	0.36	0.50	0.78	0.70	0.38	0.32	0.60	0.56	0.44	0.43	0.33	0.29	0.30	0.30	0.25	0.28	0.27	0.29	0.28
ThO2	0.05	0.03	0.06	0.00	0.03	0.02	0.03	0.04	0.04	0.05	0.03	0.03	0.03	0.05	0.07	0.08	0.06	0.06	0.05	0.07	0.07	0.08	0.12	0.08	0.08	0.11	0.07	0.08	0.08
MgO	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	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	0.00	0.00	0.00
MnO	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	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	0.00	0.00	0.00
TiO2	0.08	0.16	0.22	0.18	0.17	0.11	0.33	0.08	0.15	0.23	0.18	0.08	0.10	0.14	0.25	0.29	0.22	0.26	0.26	0.27	0.30	0.40	0.42	0.31	0.45	0.58	0.54	0.53	0.56
SUM	50.92	52.91	55.02	40.33	51.83	47.89	58.89	51.79	54.89	58.36	45.16	48.61	51.83	55.93	57.55	58.25	55.39	56.02	55.60	58.22	57.71	58.63	59.25	58.44	58.48	60.61	56.95	58.60	58.73
ppm																													
Nb	0.34	2.11	0.17	14.04	0.06	6.39	0.45	0.41	0.13	0.23	20.38	0.15	0.07	0.11	0.05	0.06	0.06	0.04	0.05	0.09	0.07	0.08	0.11	0.11	0.06	0.07	0.12	0.08	0.09
Zn	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Sr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	180.1	217.6	261.8	278.1	216.4	228.6	212.5	239.2	237.2	240.3	238.4	276.9	266.2	236.1	365.3	383.9	389.4
As	97.5	99.2	151.6	29.6	109.1	37.4	182.8	71.3	111.4	130.3	38.4	60.5	119.8	132.5	157.5	161.4	137.7	143.1	141.1	166.3	161.6	174.8	187.4	161.2	180.7	189.7	155.9	163.5	154.7
Pr	4037.0	4363.4	6551.6	101.0	4800.5	1631.7	8594.2	2645.7	5155.6	6379.2	1508.5	2949.5	4622.4	5857.5	7371.9	7824.9	6249.4	6617.2	6594.4	7612.3	7720.9	8218.4	8804.0	7909.5	8184.2	9186.6	7755.6	8127.0	8260.6
Sm	2620.9	2824.8	4592.3	151.0	3147.1	1120.0	5703.5	1815.7	3661.5	4409.7	1128.6	2056.3	3508.5	4627.2	5346.8	5450.4	5162.9	5216.8	5153.7	5731.5	5597.2	5594.7	6486.8	5441.1	5540.2	6364.0	5168.7	5367.2	5319.3
Eu	193.3	198.0	333.8	14.7	222.7	87.3	389.8	134.8	252.0	311.3	85.3	154.4	307.5	396.7	431.8	418.2	454.1	449.7	440.3	473.4	424.1	416.3	482.1	409.6	415.4	461.7	375.3	385.9	378.7
Gd	2186.3	1986.8	3418.8	237.3	2260.4	955.0	3578.9	1501.3	2612.3	3388.0	1002.2	1649.5	2983.6	3747.0	3701.3	3565.4	4202.0	4047.2	3837.3	4104.0	3586.3	3485.1	4161.0	3451.1	3402.4	4094.9	3286.4	3358.0	3270.5
Tb	294.8	245.5	404.1	53.8	261.9	132.2	345.4	190.2	287.4	386.2	140.8	215.5	394.4	453.0	390.8	364.0	498.0	473.4	431.8	430.8	370.2	340.8	398.4	346.0	326.6	384.7	320.5	325.1	320.1
Dy	1506.6	1192.5	1724.3	449.4	1194.9	738.1	1165.1	1003.2	1239.8	1759.5	762.7	1113.7	2373.1	2179.6	1550.0	1372.9	2194.4	2070.2	1765.8	1714.1	1403.4	1246.0	1398.7	1300.2	1194.3	1301.4	1163.6	1191.9	1186.3
Ho	214.0	174.3	205.3	96.4	165.0	124.2	105.0	155.6	158.5	229.5	122.4	162.7	313.2	281.7	165.8	145.0	254.1	237.5	195.4	182.9	147.0	127.8	138.4	136.0	115.7	127.1	121.7	126.8	126.0
Er	409.3	360.3	344.8	275.9	313.0	297.6	151.4	346.8	297.7	409.4	274.2	322.4	585.1	494.5	270.8	228.6	420.5	392.3	313.3	296.6	236.4	203.1	210.9	216.3	180.6	188.7	197.8	215.5	216.7
Tm	40.4	39.6	32.8	35.2	31.6	35.6	14.9	40.6	30.4	40.7	33.5	33.3	56.4	48.8	26.7	23.0	40.0	38.8	31.5	28.5	23.9	21.2	20.4	21.6	17.8	18.2	21.1	23.8	23.8
Yb	207.9	210.2	165.6	196.3	166.1	201.0	84.4	220.8	162.3	208.6	185.2	177.3	265.8	237.2	137.4	117.9	204.2	196.4	160.2	150.1	123.1	111.4	105.9	109.4	99.3	99.4	123.9	135.2	133.4
Lu	25.0	27.1	19.7	20.9	21.0	24.2	10.1	27.0	20.1	25.5	21.7	21.8	26.6	24.5	14.6	12.8	21.4	20.9	17.0	16.7	13.7	12.3	11.5	12.3	11.1	11.7	13.7	15.7	15.1
Pb	206.3	247.7	860.1	46.1	497.6	161.0	1582.7	232.6	331.6	367.7	123.5	227.4	100.0	91.9	134.2	136.9	102.7	106.8	112.7	123.2	131.1	142.6	162.8	154.3	222.9	160.6	200.3	198.8	209.9
Th	4500.7	2493.3	5147.4	160.1	2315.0	2096.0	2605.8	3389.8	3899.4	4438.6	2301.4	3028.5	2776.5	4008.5	6231.7	6831.6	5158.5	5209.6	4792.5	6005.5	6579.0	7087.0	10691.1	6835.6	6825.4	10028.5	6352.9	6822.2	7344.5
U	274.0	314.7	132.1	208.8	214.7	468.0	43.2	519.9	278.8	214.6	271.2	366.7	336.4	340.3	287.5	278.2	398.5	407.3	328.9	300.3	243.0	225.9	400.7	253.0	241.3	430.6	250.6	258.4	255.3
SUM_wt																													
Si_pfu	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
SUM	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
La_pfu	0.078	0.085	0.127	0.001	0.093	0.031	0.165	0.052	0.092	0.121	0.028	0.056	0.090	0.115	0.150	0.158	0.119	0.129	0.129	0.150	0.150	0.162	0.160	0.162	0.160	0.173	0.161	0.174	0.174
Ce_pfu	0.163	0.172	0.256	0.003	0.188	0.063	0.341	0.103	0.196	0.248	0.060	0.118	0.184	0.232	0.294	0.314	0.243	0.259	0.261	0.297	0.304	0.325	0.340	0.313	0.346	0.353	0.308	0.333	0.333
Nd_pfu	0.060	0.066	0.103	0.002	0.074	0.026	0.135	0.044	0.081	0.104	0.025	0.046	0.075	0.097	0.118	0.124	0.103	0.108	0.108	0.124	0.123	0.129	0.144	0.125	0.129	0.146	0.121	0.127	0.129
Pr_pfu	0.018	0.019	0.029	0.000	0.021	0.007	0.038	0.012	0.023	0.028	0.007	0.013	0.020	0.															

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SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule	SC4 nodule
29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	
7.70	9.50	9.83	10.12	9.86	9.66	9.51	9.93	9.30	9.99	9.15	9.67	9.79	10.17	9.91	10.07	7.70	10.60	8.83	9.86	8.41	8.89	8.76	8.51	9.03	9.94	9.57	9.59	9.49	9.49	9.80	9.57	9.48	
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	14.77	16.22	15.70	13.92	14.61	14.06	14.24	13.85	13.53	13.83	14.15	14.12	13.83	14.57	14.77	14.74	14.45	14.79	
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	13.17	12.69	16.71	13.80	17.39	16.02	16.89	16.29	16.68	18.31	18.99	18.94	18.76	18.43	18.38	18.21	18.53	18.56	
3.67	4.32	4.45	4.79	4.68	4.61	4.47	4.65	4.44	4.47	4.02	4.41	4.28	4.39	4.19	2.93	3.05	4.08	3.60	4.45	3.98	4.21	4.29	4.45	4.81	4.98	5.17	4.91	4.95	4.55	4.63	4.92	4.66	
7.11	8.70	8.75	9.33	9.37	8.94	9.21	9.54	9.00	9.13	8.75	9.07	8.63	9.03	8.84	5.88	6.16	8.22	7.23	8.97	8.20	8.82	8.56	8.74	9.53	9.92	10.10	9.63	9.92	9.42	9.67	9.93	9.72	
0.81	0.95	0.98	1.06	1.04	1.00	1.04	1.08	1.03	1.06	1.00	1.07	1.00	1.06	1.07	0.64	0.66	0.87	0.75	1.01	0.92	1.00	0.96	0.97	1.05	1.09	1.10	1.05	1.07	1.06	1.10	1.10	1.11	
3.04	3.52	3.61	3.90	3.80	3.67	3.80	3.96	3.81	3.94	3.70	4.06	3.84	4.09	4.11	2.42	2.53	3.26	2.81	3.87	3.58	3.92	3.70	3.70	4.06	4.15	4.16	4.00	4.06	4.20	4.35	4.30	4.34	
0.55	0.63	0.64	0.70	0.65	0.67	0.67	0.71	0.68	0.72	0.66	0.73	0.71	0.76	0.78	0.38	0.40	0.50	0.44	0.64	0.60	0.66	0.62	0.61	0.70	0.69	0.70	0.64	0.64	0.68	0.71	0.68	0.71	
0.34	0.38	0.39	0.43	0.39	0.41	0.40	0.42	0.41	0.43	0.39	0.45	0.46	0.50	0.51	0.24	0.26	0.30	0.27	0.40	0.37	0.41	0.40	0.42	0.67	0.46	0.69	0.40	0.39	0.43	0.46	0.43	0.45	
0.26	0.28	0.31	0.36	0.28	0.35	0.29	0.30	0.29	0.28	0.25	0.29	0.31	0.33	0.32	0.32	0.40	0.24	0.26	0.29	0.26	0.27	0.27	1.09	7.00	1.40	4.41	0.29	0.29	0.29	0.29	0.28	0.29	
0.06	0.07	0.08	0.08	0.13	0.07	0.13	0.13	0.13	0.12	0.11	0.13	0.11	0.11	0.13	0.13	0.13	0.06	0.08	0.11	0.10	0.11	0.07	0.07	0.10	0.09	0.09	0.09	0.12	0.13	0.12	0.12	0.13	
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	0.00	0.00	0.29	0.54	0.62	0.32	0.42	0.49	0.39	0.36	0.36	0.39	0.39	0.41	0.40	0.45	0.46	0.41	0.42	0.41	
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	0.00	0.00	0.52	0.43	0.62	0.55	0.73	0.67	0.71	0.67	0.66	0.69	0.77	0.73	0.80	0.78	0.81	0.71	0.74	0.69	
0.24	0.27	0.31	0.33	0.43	0.31	0.37	0.39	0.39	0.36	0.37	0.39	0.48	0.49	0.47	0.08	0.08	0.12	0.11	0.18	0.16	0.18	0.15	0.16	0.20	0.21	0.21	0.24	0.18	0.21	0.21	0.20	0.20	
52.96	57.80	58.54	60.29	59.83	58.87	59.08	60.31	58.67	59.70	57.61	59.47	58.79	60.13	59.52	81.12	80.53	91.20	82.27	92.30	87.19	90.08	88.30	89.29	99.74	96.57	99.71	93.96	94.69	94.27	94.79	95.05	94.93	
0.27	0.33	0.08	0.05	0.07	0.07	0.05	0.05	0.10	0.11	0.20	0.06	0.08	0.14	0.10	0.24	0.57	0.29	0.16	0.12	0.10	0.06	0.08	0.05	0.25	0.23	0.11	0.09	0.17	0.04	0.05	0.05	0.04	
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	162.79	174.18	261.60	163.73	221.70	254.45	200.24	206.92	211.44	246.54	244.28	246.54	236.10	267.24	238.73	223.02	220.57	219.72	
289.4	332.9	351.8	320.8	200.6	292.8	201.4	209.1	209.9	218.7	213.6	218.4	210.7	215.4	233.5	179.4	160.0	223.7	180.7	231.4	221.3	210.7	275.0	287.0	280.4	298.2	277.4	276.7	304.2	228.1	223.6	201.4	228.6	
150.6	174.2	165.5	178.5	172.5	164.2	173.8	177.4	179.9	194.3	172.3	178.7	176.0	195.5	185.5	155.3	184.4	96.9	87.1	89.2	85.7	85.4	87.2	893.9	1684.4	93.6	119.5	94.1	96.5	95.4	96.5	96.0		
6899.9	8105.3	8331.3	9023.3	8872.8	8559.1	8910.8	9215.6	8802.4	9086.3	8562.2	9110.7	8577.0	9087.4	9106.3	5448.4	5655.4	7433.9	6436.4	8591.3	7894.9	8581.9	8167.8	8271.3	9005.3	9287.6	9381.7	9005.3	9146.5	9090.0	9381.7	9419.4	9447.6	
4711.2	5448.5	5560.7	6039.7	5633.0	5771.7	5778.5	6124.0	5833.8	6181.8	5714.5	6305.0	6134.5	6596.0	6737.7	3246.4	3453.5	4300.3	3773.4	5537.8	5137.8	5674.2	5316.6	5269.6	6003.5	5909.4	5994.1	5523.6	5561.3	5900.0	6144.7	5868.0	6097.6	
337.6	386.4	400.6	443.0	399.6	419.8	409.6	433.4	414.8	443.5	414.6	449.1	451.1	495.8	493.7	255.5	273.8	331.2	295.2	424.7	391.1	348.4	413.1	415.0	513.8	456.4	521.3	420.6	419.3	454.4	476.5	446.9	467.1	
2991.3	3296.3	3379.7	3751.9	3369.4	3561.6	3500.9	3671.3	3593.1	3754.7	3424.7	3890.2	3967.5	4378.1	4417.3	2063.5	2230.2	2616.0	2352.5	3473.2	3246.4	3548.2	3439.3	3641.7	5853.0	4008.6	5965.9	3450.6	3886.6	3751.7	3985.1	3715.0	3867.5	
299.3	323.0	340.1	382.1	327.6	365.1	335.8	356.2	346.7	355.8	325.8	366.8	385.7	418.2	424.5	216.9	238.1	256.0	240.0	349.2	320.6	353.9	339.4	429.1	1091.6	475.2	1044.5	314.8	338.2	366.7	384.3	355.0	373.8	
1185.8	1200.6	1282.8	1454.7	1203.1	1404.5	1249.9	1295.7	1252.8	1257.4	1125.0	1289.0	1376.8	1492.0	1472.7	826.2	922.2	855.4	847.8	1163.1	1039.8	1122.6	1095.3	1985.5	8280.8	2286.6	6690.5	1138.6	1117.0	1181.9	1223.3	1149.0	1202.6	
118.0	124.4	136.7	158.9	124.8	153.2	128.6	133.4	128.4	125.0	114.3	130.2	137.9	148.3	143.5	110.0	127.0	94.1	99.0	122.3	106.9	112.7	113.1	320.9	1825.5	395.2	1251.5	121.7	120.6	120.2	122.9	118.7	121.9	
195.0	209.6	234.2	270.5	209.9	261.0	211.9	219.0	209.9	195.7	176.7	205.0	225.7	221.1	213.6	222.1	269.1	160.4	169.4	190.5	164.0	168.5	127.4	669.0	4281.5	846.9	2728.9	196.2	198.7	184.0	180.7	186.1	188.2	
21.1	22.4	25.3	28.9	21.7	27.3	21.8	23.0	21.2	20.2	17.7	20.7	22.7	21.6	20.7	24.8	31.1	16.0	17.0	17.2	14.8	14.8	16.1	69.5	462.0	89.4	299.2	18.9	19.9	16.8	16.8	17.7	17.2	
114.3	120.3	138.4	154.9	117.1	139.5	118.7	124.2	116.2	109.0	93.1	108.0	121.5	117.4	106.9	135.5	176.9	89.7	91.2	92.1	79.8	79.4	87.5	361.3	2371.3	470.5	1543.2	103.4	111.3	91.2	91.7	96.4	94.2	
13.0	13.7	15.9	17.2	13.5	15.7	13.6	14.3	13.5	12.6	10.8	12.2	13.9	13.4	12.2	15.3	20.2	10.2	10.2	10.5	9.1	9.3	10.2	40.6	266.3	52.7	173.1	12.0	12.8	10.6	10.7	11.6	11.1	
129.9	164.8	154.4	135.2	129.1	145.8	129.5	130.8	134.1	123.3	139.5	141.4	140.1	152.6	155.8	88.2	85.0	129.9	110.8	134.6	135.1	131.1	124.0	125.8	141.7	148.3	144.6	149.6	163.7	146.4	135.7	118.7	139.7	
5129.8	6146.5	6782.8	6905.5	11755.4	6402.9	11294.4	11491.7	11310.3	10554.0	9599.8	11364.9	9245.0	9375.8	11003.9	11668.3	11856.5	5128.4	6831.6	9250.0	8563.1	9306.4	6427.0	6295.3	8600.7	7829.1	7904.4	8196.1	10162.7	11508.4	10369.8	10736.8	11150.8	
218.6	162.0	275.8	310.0	453.5	296.7	471.6	486.7	483.4	427.3	416.2	414.6	486.2	511.5	459.1	668.1	771.6	172.0	188.2	284.1	319.4	373.5	265.2	311.5	647.4	348.2	416.9	327.5	639.9	375.3	419.1	439.7	413.9	
3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	
3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	
0.139	0.164	0.169	0.181	0.177	0.175	0.170	0.176	0.168	0.170	0.152	0.167	0.162	0.166	0.159	0.111	0.115	0.155	0.136	0.169	0.151	0.160	0.162	0.169	0.182	0.189	0.196	0.186	0.188	0.176	0.186	0.167		
0.267	0.327	0.329	0.351	0.372																													

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[illegible]

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BRUGGER ET AL.: CO-MOBILITY OF TI-REE-NB-AS DURING METAMORPHISM

SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule
29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	
9.24	9.45	9.41	9.18	9.41	9.26	9.28	9.03	9.40	9.49	9.03	9.55	7.23	9.47	9.48	9.49	9.10	8.62	9.23	8.62	9.52	9.72	9.27	7.23	9.69	6.61	9.35	9.57	8.74	6.70	8.99	9.52	
0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.15	0.16	0.16	0.15	0.13	0.11	0.14	0.15	0.15	0.18	0.16	0.18	0.17	0.18	0.18	0.16	0.14	0.18	0.11	0.13	0.12	0.16	0.13	0.13	0.13	
15.18	15.15	14.97	14.81	14.94	14.77	14.94	15.07	15.24	15.41	15.46	15.45	15.26	15.47	15.42	15.01	15.33	15.24	14.77	15.11	14.46	14.58	14.65	15.34	14.67	15.12	15.63	15.68	14.67	14.94	14.88	14.76	
22.26	22.67	23.08	23.10	22.72	22.92	22.94	22.17	21.23	21.18	19.95	19.84	16.32	19.31	19.01	18.79	18.86	17.16	17.92	20.94	17.35	17.85	16.89	19.54	17.83	13.12	18.95	19.82	16.64	16.55	16.75	17.51	
4.89	4.93	5.26	5.12	5.34	5.23	5.18	5.66	5.35	5.47	5.19	5.18	4.55	5.34	5.33	5.21	5.45	4.97	5.52	5.03	5.45	5.64	5.19	3.86	5.27	3.26	4.45	3.81	5.08	4.08	4.23	4.77	
10.52	10.75	11.11	11.08	11.22	11.59	11.04	11.99	11.28	11.44	11.07	11.78	10.76	11.51	11.08	10.62	11.39	10.92	12.05	11.04	12.14	12.55	11.53	9.04	12.14	7.83	10.19	9.04	12.25	11.89	10.14	11.35	
1.03	1.06	1.11	1.10	1.11	1.13	1.11	1.15	1.13	1.16	1.10	1.12	1.01	1.18	1.11	1.05	1.12	1.08	1.16	1.06	1.15	1.18	1.08	0.87	1.19	0.74	1.00	0.88	1.18	0.94	1.00	1.11	
3.98	4.12	4.32	4.31	4.32	4.41	4.38	4.42	4.48	4.58	4.36	4.44	4.02	4.68	4.35	4.06	4.32	4.27	4.30	3.90	4.25	4.35	3.97	3.28	4.46	2.80	3.82	3.33	4.44	3.54	3.79	4.25	
0.63	0.66	0.69	0.69	0.69	0.71	0.70	0.69	0.72	0.73	0.70	0.76	0.68	0.80	0.71	0.64	0.67	0.69	0.64	0.59	0.64	0.66	0.60	0.52	0.71	0.46	0.64	0.57	0.72	0.57	0.63	0.71	
0.43	0.45	0.46	0.46	0.46	0.47	0.47	0.45	0.46	0.45	0.44	0.52	0.45	0.54	0.48	0.43	0.44	0.46	0.41	0.37	0.41	0.42	0.39	0.35	0.47	0.31	0.46	0.41	0.47	0.37	0.43	0.48	
0.53	0.55	0.53	0.50	0.53	0.51	0.54	0.50	0.37	0.36	0.35	0.56	0.49	0.54	0.54	0.51	0.41	0.43	0.34	0.30	0.34	0.34	0.39	0.32	0.44	0.34	0.55	0.61	0.41	0.36	0.63	0.48	
0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.12	0.10	0.11	0.10	0.06	0.06	0.06	0.08	0.09	0.11	0.08	0.13	0.12	0.12	0.14	0.12	0.11	0.14	0.09	0.11	0.11	0.14	0.13	0.16	0.12	
0.58	0.40	0.37	0.36	0.36	0.41	0.37	0.37	0.39	0.40	0.41	0.39	0.48	0.39	0.41	0.38	0.39	0.43	0.49	1.26	0.38	0.40	0.40	1.95	0.42	0.54	1.03	1.06	0.43	0.71	0.45	0.44	
1.30	1.37	1.45	1.49	1.45	1.46	1.51	1.40	1.21	1.22	1.14	0.82	0.66	0.78	0.90	1.01	1.07	0.97	1.17	1.26	1.17	1.18	1.06	0.95	1.14	0.73	1.05	0.99	0.99	1.14	1.12	1.24	
0.27	0.26	0.29	0.28	0.27	0.27	0.28	0.25	0.16	0.16	0.15	0.14	0.13	0.15	0.16	0.16	0.17	0.13	0.20	0.19	0.20	0.21	0.20	0.16	0.21	0.16	0.16	0.19	0.20	0.21	0.18	0.24	
100.29	101.26	102.50	101.93	102.26	102.63	102.20	102.60	100.87	101.50	98.79	99.92	91.39	99.53	98.40	96.79	98.20	94.80	97.70	99.16	96.97	98.58	95.08	92.84	98.16	81.41	96.70	95.38	95.72	91.45	92.71	96.29	
0.36	0.19	0.90	0.13	0.08	0.11	0.14	0.07	0.10	0.09	0.13	0.16	0.22	0.07	0.11	0.16	0.13	0.13	0.08	0.09	0.11	0.10	0.13	0.21	0.16	0.26	0.19	0.66	0.16	0.36	0.17	0.20	
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	
8817.1	9052.4	9445.7	9381.7	9466.4	9635.8	9475.8	9833.4	9673.4	9908.7	9382.7	9598.1	8600.7	10078.1	9457.0	8967.7	9560.5	9231.2	9899.3	9043.0	9824.0	10106.3	9250.0	7471.5	10134.5	6361.1	8534.8	7499.7	10096.9	8073.7	8572.5	9457.0	
5471.9	5721.2	5927.3	5970.6	5914.2	6138.1	6060.0	5972.5	6225.6	6287.7	6058.1	6550.3	5862.4	6859.9	6163.5	5550.0	5815.3	5984.7	5555.6	5047.5	5557.5	5648.8	5166.1	4479.1	6118.3	3971.0	5533.0	4893.2	6238.8	4883.8	5467.2	6159.8	
438.1	451.7	458.8	460.1	448.9	466.4	457.4	451.5	470.1	464.8	455.3	525.1	460.1	540.5	483.2	430.2	445.8	469.1	445.1	404.7	453.2	459.8	430.0	381.1	516.6	335.9	491.6	431.0	523.2	412.2	464.7	528.5	
3771.5	3895.7	3994.5	4013.3	3984.2	4075.4	4059.5	3876.9	3987.0	3914.5	3830.8	4512.1	3942.8	4647.6	4169.5	3700.9	3789.4	3989.8	3565.4	3197.5	3587.1	3640.7	3381.9	3001.8	2672.4	3981.3	3560.7	4036.9	3218.2	3739.5	4179.9		
395.6	403.7	403.4	397.6	396.8	398.5	398.3	381.7	356.2	341.8	341.7	459.8	399.0	464.0	418.6	369.3	359.6	388.0	349.8	318.4	361.5	367.5	352.3	318.1	425.5	296.4	455.6	431.0	426.3	343.5	431.0	443.8	
1401.1	1436.0	1398.3	1338.1	1373.9	1349.4	1368.2	1308.0	1125.4	1085.0	1078.2	1585.6	1389.8	1562.1	1460.4	1306.1	1196.0	1278.8	1155.5	1064.3	1203.5	1222.4	1244.9	1107.6	1459.5	1093.4	1716.4	1727.7	1411.5	1230.8	1684.4	1530.1	
159.6	165.5	159.5	150.3	157.4	151.6	158.7	150.2	122.3	108.3	117.3	173.7	153.1	168.3	165.4	151.5	130.9	134.6	120.8	110.8	124.0	127.1	134.4	116.2	149.2	118.2	183.5	198.7	142.7	128.4	201.4	158.2	
266.7	280.0	273.7	256.2	273.2	267.7	283.2	271.9	207.4	219.9	275.9	247.5	263.5	272.6	260.2	220.4	208.9	196.1	179.8	197.2	202.8	216.7	176.6	225.2	182.6	270.3	307.7	211.6	203.3	343.5	236.6		
26.1	27.5	27.9	26.0	28.6	28.1	29.5	29.3	19.8	20.4	20.0	23.8	21.0	21.8	24.7	24.6	21.5	18.3	20.4	18.6	20.2	21.1	21.7	16.3	20.7	16.7	23.5	27.4	19.0	20.3	33.9	21.2	
140.0	148.7	151.7	143.1	160.3	158.4	168.2	170.3	110.8	115.3	114.1	115.8	102.8	104.5	122.6	131.2	122.7	94.9	125.1	114.5	122.1	128.5	126.6	91.6	110.0	86.9	114.2	136.9	99.7	118.6	181.6	113.4	
15.3	16.1	17.5	15.9	18.4	17.6	18.8	19.4	12.9	13.1	13.0	11.6	10.4	10.6	13.1	14.2	14.9	10.0	16.3	15.1	15.7	16.7	15.7	10.9	12.8	9.4	12.3	15.2	11.5	12.7	20.4	12.6	
191.6	185.4	209.9	200.5	220.0	204.9	215.6	250.9	219.8	229.1	208.1	170.8	145.5	161.9	185.6	172.9	168.1	144.4	165.3	220.2	168.9	165.7	144.9	123.8	134.7	93.2	138.5	151.5	130.1	142.1	152.9	156.4	
10840.3	10925.0	11828.3	11856.5	11254.3	12120.0	12214.1	10463.9	9174.7	9353.5	8563.1	4912.0	5194.3	5485.1	7016.1	7753.8	9438.2	7001.0	11291.9	10247.4	10906.1	11969.5	10303.9	9466.4	12656.4	7857.3	9240.6	9362.9	12458.8	11423.7	14491.3	10567.4	
339.4	368.1	425.3	408.7	430.6	433.0	471.4	356.4	240.4	240.0	229.2	265.3	236.2	268.2	300.3	248.2	318.7	267.6	413.8	367.8	383.3	433.6	301.1	379.2	514.5	295.5	307.9	399.0	455.4	479.0	677.5	511.0	
3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	
0.185	0.187	0.199	0.194	0.203	0.198	0.196	0.215	0.203	0.207	0.197	0.196	0.172	0.202	0.202	0.197	0.207	0.188	0.209	0.191	0.207	0.214	0.197	0.146	0.200	0.123	0.169	0.144	0.192	0.155	0.160	0.181	
0.395	0.404	0.417	0.416	0.421	0.436	0.415	0.450	0.424	0.430	0.416	0.443	0.404	0.432	0.416	0.399	0.428	0.410	0.453	0.415	0.456	0.472	0.433	0.340	0.456	0.294	0.383	0.340	0.460	0.447	0.381	0.427	
0.146	0.151	0.158	0.158	0.158	0.161	0.160	0.162	0.164	0.167	0.159	0.162	0.147	0.171	0.159	0.149	0.158	0.156	0.157	0.143	0.155	0.159	0.145	0.120	0.163	0.102	0.140	0.122	0.162	0.12			

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	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC8 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	
	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	
	9.32	8.98	7.70	9.69	9.22	9.48	9.19	8.95	9.14	9.22	8.80	9.27	9.39	8.26	9.62	8.40	9.27	9.53	9.10	8.72	7.20	9.41	8.83	9.26	9.52	10.41	10.66	9.35	10.35	10.86	9.36	15.54								
	0.15	0.15	0.14	0.16	0.18	0.19	0.19	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.12	0.12	0.08	0.18	0.16	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	14.80	14.74	14.46	14.77	14.76	14.88	15.34	15.45	15.84	15.84	15.60	15.82	15.91	15.54	15.88	15.79	15.77	15.79	15.75	15.63	15.93	14.95	15.02	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	17.62	18.19	16.64	18.69	18.33	17.55	19.27	19.08	18.26	17.87	19.29	18.72	18.62	17.30	18.17	17.30	17.67	18.38	18.56	19.50	16.70	19.34	18.63	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	4.74	4.88	4.19	4.99	4.94	4.36	4.44	5.07	5.13	4.98	5.04	5.14	5.40	4.86	5.04	4.52	4.48	4.85	5.23	5.24	2.74	5.42	5.16	4.11	4.41	3.82	4.29	4.05	3.10	2.11	3.34	1.52								
	11.00	11.10	9.38	11.14	11.83	10.46	10.30	11.19	11.39	11.15	11.26	11.31	12.12	11.17	11.25	10.64	10.42	10.90	11.95	12.03	7.09	11.53	11.09	8.01	8.75	7.47	8.47	8.08	6.13	4.31	6.62	3.15								
	1.08	1.11	0.94	1.12	1.18	1.09	1.11	1.16	1.16	1.13	1.15	1.12	1.23	1.09	1.14	1.09	1.06	1.12	1.22	1.20	0.61	1.11	1.07	0.91	0.99	0.85	0.95	0.89	0.68	0.47	0.71	0.37								
	4.16	4.26	3.65	4.32	4.64	4.36	4.55	4.52	4.47	4.47	4.46	4.31	4.75	4.19	4.43	4.26	4.12	4.35	4.70	4.62	2.36	4.16	4.02	3.36	3.61	3.25	3.48	3.24	2.39	1.72	2.38	1.49								
	0.69	0.71	0.61	0.72	0.79	0.74	0.78	0.74	0.73	0.73	0.73	0.69	0.77	0.68	0.73	0.72	0.69	0.72	0.78	0.76	0.41	0.63	0.62	0.55	0.57	0.57	0.53	0.50	0.36	0.30	0.36	0.31								
	0.48	0.49	0.42	0.50	0.53	0.50	0.52	0.47	0.46	0.47	0.47	0.44	0.49	0.43	0.47	0.46	0.45	0.47	0.50	0.48	0.32	0.40	0.39	0.29	0.28	0.31	0.27	0.26	0.21	0.21	0.20	0.28								
	0.55	0.54	0.46	0.56	0.53	0.51	0.70	0.50	0.41	0.43	0.51	0.44	0.45	0.39	0.47	0.41	0.60	0.55	0.50	0.48	0.55	0.36	0.32	0.19	0.16	0.26	0.24	0.20	0.27	0.32	0.24	0.54								
	0.16	0.13	0.11	0.13	0.15	0.14	0.15	0.10	0.08	0.08	0.10	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.11	0.12	0.11	0.04	0.04	0.03	0.05	0.04	0.04	0.03	0.04	0.03	0.04								
	0.43	0.39	0.54	0.37	0.39	0.39	0.52	0.49	0.37	0.37	0.40	0.40	0.35	0.37	0.34	0.38	0.35	0.35	0.37	0.40	1.85	0.45	0.40	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	0.00	0.00		
	1.27	1.36	1.24	1.48	1.33	1.14	1.13	1.36	1.25	1.24	1.37	1.24	1.27	1.09	1.23	1.14	1.17	1.29	1.31	1.40	0.81	1.12	1.02	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	0.00	0.00	0.00	
	0.23	0.24	0.23	0.26	0.24	0.20	0.20	0.17	0.16	0.16	0.16	0.16	0.16	0.15	0.16	0.16	0.15	0.16	0.16	0.16	0.10	0.18	0.17	0.26	0.33	0.23	0.21	0.27	0.17	0.08	0.21	0.06								
	95.89	96.46	89.89	98.09	98.22	95.19	97.59	98.56	98.16	97.46	98.63	98.49	100.31	94.90	98.32	94.67	95.58	97.88	99.52	100.02	86.03	98.58	96.21	56.18	57.85	56.41	58.32	56.08	52.88	49.60	52.64	52.49								
	0.14	0.09	0.20	0.09	0.10	0.14	0.09	0.11	0.19	0.10	0.11	0.10	0.19	0.14	0.10	0.10	0.12	0.13	0.08	0.06	0.44	0.16	0.28	0.18	0.11	0.37	0.33	0.87	0.16	1.62	0.69	0.33								
	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd		
	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd		
	9230.2	9447.6	8045.5	9588.7	10087.5	9325.3	9494.6	9880.4	9871.0	9686.6	9786.3	9551.1	10548.6	9278.2	9758.1	9287.6	9024.1	9588.7	10398.0	10266.3	5187.7	9504.0	9127.7	7749.2	8438.3	7265.9	8097.4	7631.6	5769.1	4050.1	6031.8	3195.0								
	5985.7	6151.3	5241.3	6237.9	6819.4	6423.2	6699.9	6351.7	6304.7	6329.1	6265.1	5980.0	6681.1	5862.4	6279.3	6220.0	5945.2	6206.8	6756.3	6537.1	3526.8	5439.0	5338.3	4782.7	4921.0	4885.1	4595.3	4328.7	3139.9	2585.8	3107.6	2710.6								
	513.9	525.2	444.4	527.3	563.4	520.6	514.8	480.8	474.5	480.3	474.4	451.3	506.3	445.4	482.8	479.9	463.0	489.4	526.0	507.1	299.5	417.1	407.9	310.1	312.9	331.9	287.2	274.4	211.5	195.0	203.1	220.1								
	4134.7	4257.1	3629.4	4334.2	4639.1	4343.6	4518.7	4100.9	4008.6	4084.9	4053.8	3838.3	4256.1	3750.8	4073.6	4029.3	3913.6	4098.0	4370.9	4169.5	2733.6	3429.9	3355.6	2495.3	2466.7	2721.4	2328.1	2233.6	1799.8	1795.7	1739.8	239.8								
	447.6	454.6	381.9	455.5	473.9	439.9	451.7	403.0	390.6	398.7	401.1	377.2	410.7	371.4	403.6	399.0	410.4	420.0	437.6	418.7	331.7	329.3	319.2	191.0	184.2	231.8	187.6	176.6	164.4	189.1	161.0	291.8								
	1620.4	1617.6	1333.4	1601.6	1602.5	1501.8	1599.7	1333.4	1262.8	1290.1	1339.0	1248.7	1334.3	1219.5	1329.6	1297.6	1481.1	1454.8	1459.5	1372.0	1364.4	1090.6	1035.1	606.3	540.6	813.2	661.4	586.2	671.3	820.6	646.0	1359.6								
	179.7	174.1	143.6	174.1	168.3	162.3	204.2	151.6	137.4	139.5	152.5	139.6	143.1	134.2	145.1	138.7	176.0	165.9	157.3	150.8	168.7	121.7	109.6	62.9	53.4	91.6	76.9	66.9	90.7	109.7	83.2	188.6								
	289.8	276.8	230.8	282.3	263.2	254.3	385.8	262.7	222.1	223.6	265.5	233.8	232.0	218.4	236.9	220.5	301.1	278.7	257.7	256.0	276.0	210.0	183.7	112.7	96.4	161.6	141.5	126.5	179.7	216.1	170.6	349.5								
	27.6	26.6	22.7	27.9	25.1	23.5	40.5	26.5	20.3	20.6	27.2	22.4	21.1	20.7	21.8	20.3																								

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BRUGGER ET AL.: CO-MOBILITY OF TI-REE-NB-AS DURING METAMORPHISM

SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule	SC15 nodule
29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19	29.19
8.96	10.91	15.63	11.99	10.07	9.81	9.86	10.13	9.85	9.88	9.64	9.79	8.90	6.61
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.08
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.21
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	13.53
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	16.22
3.14	3.32	0.86	0.56	2.11	3.04	2.48	3.78	4.41	4.64	3.58	3.35	3.00	12.69
6.30	6.78	1.95	1.22	4.40	6.09	5.02	7.28	8.72	9.13	7.26	6.65	6.06	23.10
0.70	0.77	0.22	0.15	0.52	0.69	0.55	0.74	0.93	0.94	0.80	0.73	0.63	0.56
2.34	2.87	0.96	0.66	2.00	2.57	1.90	2.30	3.09	3.33	2.84	2.57	2.17	5.66
0.34	0.54	0.22	0.16	0.38	0.42	0.30	0.30	0.43	0.48	0.43	0.40	0.32	1.22
0.18	0.36	0.22	0.17	0.26	0.25	0.17	0.15	0.22	0.26	0.24	0.23	0.18	12.55
0.21	0.33	0.48	0.36	0.35	0.28	0.21	0.18	0.18	0.20	0.20	0.25	0.21	0.15
0.03	0.06	0.03	0.02	0.05	0.04	0.03	0.03	0.03	0.05	0.03	0.03	0.03	7.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
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	0.16
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	0.00
0.19	0.16	0.04	0.05	0.11	0.15	0.12	0.28	0.33	0.32	0.21	0.19	0.15	1.95
51.59	55.29	49.80	44.54	49.43	52.52	49.82	54.36	57.38	58.43	54.42	53.37	50.85	0.00
0.49	0.90	0.21	3.61	0.94	0.18	0.32	0.82	0.26	0.13	3.05	0.42	0.79	1.51
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.58
nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.04
156.6	171.7	66.8	53.7	112.6	142.0	112.7	157.2	171.3	203.0	172.3	195.4	166.1	44.54
6004.0	6545.6	1920.2	1316.7	4442.0	5866.2	4694.1	6309.2	7924.8	8071.5	6798.6	6244.5	5408.3	102.63
2952.8	4633.5	1888.6	1363.3	3283.7	3581.6	2549.0	2624.0	3735.4	4171.3	3730.4	3418.6	2723.1	
187.3	347.0	157.5	122.5	245.1	243.8	182.5	164.4	242.2	277.2	248.5	241.1	188.1	
1590.1	3107.3	1890.6	1446.2	2289.9	2182.6	1505.4	1310.5	1897.2	2254.1	2050.3	2031.6	1550.8	
139.9	306.6	242.5	187.5	230.2	194.0	136.0	114.1	149.4	176.4	162.5	178.7	138.3	
535.3	1147.9	1181.4	908.5	962.7	726.9	534.4	444.8	508.9	576.7	566.1	682.6	536.8	
66.4	124.1	165.5	124.9	119.7	87.8	66.2	58.5	58.7	64.9	65.7	84.0	65.7	
134.3	211.8	311.1	226.8	222.4	167.3	126.5	122.2	110.5	121.2	125.6	159.1	126.2	
15.6	22.5	29.4	20.4	22.6	18.0	13.4	15.2	13.9	14.9	16.6	17.8	15.1	
101.0	135.3	146.2	100.9	131.1	110.5	83.0	101.1	90.9	100.1	124.5	111.5	94.2	
15.0	18.0	19.6	13.6	17.6	15.9	12.0	16.5	14.9	15.1	21.5	15.8	13.4	
423.7	412.6	179.3	152.7	229.3	275.0	520.2	993.4	1253.9	863.7	758.9	637.0	613.3	
2249.9	5686.2	2340.9	1653.3	4262.8	3780.0	2309.3	2257.2	2634.8	4631.4	2871.8	2756.3	3018.7	
18.5	27.2	142.2	102.8	57.8	26.8	39.9	21.9	7.0	9.5	71.4	27.1	21.3	
3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	
3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	
0.119	0.126	0.033	0.021	0.080	0.115	0.094	0.143	0.167	0.176	0.136	0.127	0.114	
0.237	0.255	0.073	0.046	0.165	0.229	0.189	0.273	0.328	0.343	0.273	0.250	0.228	
0.086	0.105	0.035	0.024	0.073	0.094	0.070	0.084	0.113	0.122	0.104	0.094	0.080	
0.026	0.029	0.008	0.006	0.019	0.026	0.021	0.028	0.035	0.035	0.030	0.027	0.024	
0.987	1.201	1.721	1.320	1.109	1.080	1.086	1.115	1.085	1.088	1.062	1.078	0.980	
0.011	0.018	0.026	0.020	0.019	0.015	0.011	0.010	0.010	0.011	0.011	0.014	0.012	
1.466	1.734	1.897	1.437	1.465	1.559	1.470	1.654	1.737	1.775	1.615	1.589	1.436	
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
8.42	8.80	8.25	7.67	8.18	8.52	8.24	8.73	9.04	9.15	8.72	8.61	8.35	
113081	119539	31030.4	20223.8	75878.7	109258	89085.9	136071	158730	167059	128805	120492	108026	
87739.6	94416	27200.7	17028	61264.8	84767.2	69901.6	101363	121443	127170	101063	92581.1	84370.4	
64698.5	70534.8	20691.6	14189.1	47866.9	63212.9	50583.5	67986.8	85397	86977	73260.3	67289.9	58279.2	
43863.9	53911.2	18034.4	12316.9	37452.3	48186.3	35726.2	43101.9	57898.1	62389.1	53256.8	48195.3	40784.9	
19951.4	31307.2	12760.6	9211.22	22187.1	24200.3	17223	17729.6	25239	28184.4	25205.2	23098.7	18399	
3326.9	6163.3	2798.3	2175.0	4353.8	4329.9	3241.7	2920.4	4301.2	4922.8	4413.0	4282.4	3340.7	
7990.4	15614.3	9500.5	7267.3	11506.8	10968.0	7564.9	6585.4	9533.6	11327.1	10303.1	10208.9	7793.0	
3876.4	8493.9	6717.0	5193.9	6376.9	5373.8	3768.2	3159.8	4139.7	4885.3	4500.8	4949.0	3830.6	
2175.9	4666.3	4802.4	3693.2	3913.2	2954.9	2172.2	1808.3	2068.5	2344.4	2301.1	2774.7	2182.1	
1216.2	2273.4	3031.9	2287.8	2192.6	1608.0	1211.7	1070.6	1075.6	1188.2	1204.0	1539.3	1204.0	
839.7	1324.0	1944.4	1417.5	1390.2	1045.5	790.7	763.8	690.7	757.6	784.9	994.3	788.5	
632.6	912.2	1190.3	826.5	915.9	730.1	543.2	616.7	564.3	603.4	673.6	722.4	611.6	
627.3	840.6	908.2	626.6	814.1	686.6	515.5	627.9	564.8	621.5	773.0	692.3	585.2	
607.7	731.2	795.4	554.4	713.4	648.2	488.7	669.7	607.4	614.4	875.5	641.5	544.0	