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10/14/13 San325

Sample: NAD 8-13C dry sed, hybrid dry cell

Anvils: Wedge #1 used Si-C binder SD (Diamond Innovations; wedge #4 4% Co binder U.S. synthetic, new, ← but in pretty good shape restore WC

1250 SAN_325_0001. med Al_2O_3 E+2θ calib, 600s

B1, B3 do stuff -- better recalib

1502 _0002 med Al_2O_3 E+2θ calib again, 600s

1558 ~~_0003. med~~ open, cross (wedges in) @ mid olivine, 600s ~~image #1~~

Y=-2.269; $Z_{photo} = Z_{diff} = 31.96$ ΔY = 0.2 (i.e., ±0.1), ΔZ = 0.4

1544 Beam dumps

1815 Beam finally back up.

1933 _0003. med open press mid ol Y=-2.290, Z=32.0, ΔY=0.2, ΔZ=0.4 image #1

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10/14/13 San 325 (cont)

1906 ~~1806~~ McP to 100%; 50% at 7T, 30% at 11T

1920 15T, McP to 20%

1931 20T ~~12%~~ 16%

19~~2~~38 245T 8%

19~~2~~53 30T

2011 at 1100°C

2049 _0004.med at P = 30T and T = 1100°C before starting rams _0002.tif

X = 19.8, Y = -2.363, Z = 29.1, φ = 19.3, $Y_{detector}$ = -0.7868, $Z_{detector}$ = -0.18845

2110 Diff Rams jogged in

2111 Diff Rams Forward .0005 mm/s, Start Step (1)

30T, 1100°C

			Y	Z	Yr	Zr			
2115	_0005.med	600s	(-2.362,	29.1,	0.2,	0.4)	Image	#3	l_{o1} = 0.833 mm
2126	_0006	"	(		"	)	Clm	#4	l_{o1} = 0.822 mm
2136	_0007	"	(		"	)		#5	l_{o2} = 0.820 mm
2148	_0008	"	(		"	)		#6	l_{o2} = 0.814 mm
2159	_0009	"	(		"	)		#7	l_{o2} = 0.808 mm
2211	_0010	"	(-2.362,	29.15,	"	)		#8	l_{o2} = 0.802 mm
2222	_0011	"	(		"	)		#9	l_{o2} = 0.802 mm
2232	_0012	"			"			#10	l_{o2} = 0.793 mm
2245	_0013	"			"			#11	l_{o2} = 0.791 mm
2255	_0014	"			"			#12	l_{o2} = 0.787 mm
2306	_0015	"			"			#13	l_{o2} = 0.783 mm
2317	_0016	"			"			#14	l_{o2} = 0.781 mm
2327	_0017	"	(-2.382,	29.25,		)		#15	l_{o2} = 0.777 mm
2337	_0018	"						#16	l_{o2} = 0.775 mm
2349	_0019	"						#17	l_{o2} = 0.764 mm
6000	_0020	"						#18	0.762 mm

10/15 ~0015 Check centering: Looks like grain growth centering on Al_2O_3 plug confirms center is still ~19.8

Spot has moved → move spot back

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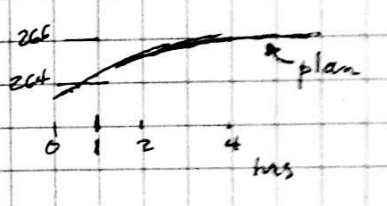
10/14/13 San 325 (cont)

t	T(est)	W	A	n	
2041	~100°C	25		101	Calib curves based on San 323, 324
2603	300	79		89	
2005	500	131		79	
2006	700	182		65	
2008	900	219		57	
too → 2011	1100	260		50	
2016		263		49	
2104	1100	264		47	
2206	1100	265		48	
0007	1100	266		48	
10/15 0421		Quench			
0425	~26	6		6	
0649	~100°C	26		66	
0701	~300	83		58	
0703	500	132		53	
0704	700	186		49	
0707	900	225		46	
0709	1100	278		43	expected ~45
0753	"	277.8		44	
0959	"	278.0		44	beam occasionally ↓ as current in 0.1A jog
1249	"	278.1	79.5	44	been steady for a long time
1316	"	277.9	79.4	44	
1436	"	277.8	79.1	45	Just made this change
1701		278.1	78.9	45	



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10/15/13: Scan 325 Continued

0036 Move ~~table~~ slightly to recover spot.

0043	_0021	GOOs	(-2.402, 29.2, 0.2, 0.4)	im # 19	l_0 = ~~0.748~~	0.752
0053	-0022	"	(")	20		0.748
0103	-0023	"	(")	21		~~0.744~~ 0.748
0118	-0024	"	(")	22		0.744
0128	_0025	"	(")	23		0.740
0139	_0026	"	(")	24		0.738
0200	_0027	"	(")	25		0.729
~~0~~0210	_0028	"	(")	26		0.729
0221	_0029	"	(")	27		0.725
0241	_0030	"	(-2.421, 29.25 ")	28		0.719
0251	_0031	"	(")	29		0.717
0301	_0032	"	(")	30		0.715
0313	_0033	"	(-2.44, 29.30 ")	31		0.713
0324	_0034	"	(")	32		0.707
0334	_0035	"	(")	33		0.705
0349	_0036	"	(")	34		0.702
0359	_0037	"	(")	35		0.698
0410	_0038	"	(")	36		

0421 Stop Runs. End Step(I) Launch

~0715 Note: last entry in Prosilica Scan+Diff GUI says # cycles desired = 3.

0425 Run # 37

0426 MCP to 6%, Target, 70T

0525 59.3T MCP to 4%

0602 67.8T Ring Blowout, very small P loss

0605 center in x on m. Al_2O_3 → x = 19.9

Sample foils look good post-blowout

0653 After beam refill adj det table Y +20 μm, Z ~~-8~~ -9 μm

0750 Careful centering operations, discover slightly easier method to recover Matl W. spot, helps compensate for backlash in det table Y. End up another Y +10 μm. Decide best X center is 19.7

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10/15/13 san 325 (cont.)

0759 -0039.med mid ol, 600s (-2.427, 29.05, 0.0, 0.3) image #38

0818 Diff runs fwd at 0.001 mm/s. Start step (2) 1100°C, 70T

Cycled on GUI

					0.692
0821	-0040.med	"	(-2.447 —— ")	#39	l_{ol} = ~~0.688~~ mm
(~0832)	0041.med			#40	0.692 0.688
0843	42		(-2.496, 29.15 ")	#41	0.688 0.684
(~0853)	43			#42	~~0.684~~ 0.682
0906	44		(-2.545, 29.2 ")	43	0.680
(~0916) ~~0926~~	45			44	0.677
0929	Y, Z drift getting a little bit of a prin...				
0929	46		(-2.650, 29.3 ")	45	0.677
(~0939)	47			46	0.675

Z drift bad enough that edge of z scan might have nicked the Ni foil at top of ol

X posn also reads 19.77 instead of 19.70 it was originally set at

Check x center based on olivine peak locations under diffractometer. No obvious reason to change; keep same [Actually: ~~no longer~~ -- compound X is influenced by Y problem...]

Note

1006	48	(-2.74, 29.50, 0.0, 0.2)	47	l_{ol} = 0.664 mm
(1016)	49		48	0.666

Finishes w/ spot ½ way into anvil! -0049.med is surely unusable. ~~0.653~~

1037	50	(-2.89, 29.65, ——	49	0.655
1049	51	-2.97 29.75	50	0.655
1101	52	-3.01, 29.85	51	0.651
1113	53	(-3.02, 29.85, ΔZ = 0.2 [(*) 1-D Scan selected a GUI]	# ~~50 51~~ 52	0.649

(*) on advice of Ken B.

- after: no drift! That might have worked. Try cycling again.

1124	54	(— " —— [!]	~~52~~ 53	0.646
(1134)			~~53~~ 54	0.642
~~1153~~	~~Check 55~~			

1153 Check x centering based on stressed olivine. 1-9 say ≥20.0, 5 says 19.9. -- So more x to 19.90. Has been ~~19.8~~ ~19.8 since -0047.med or maybe before

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1159	_0056.ned	mid of, 600s	~~(-29.85, 3.01~~ (-3.01, 29.85, 0.2) new	Image #55	l_{ol} = 0.637 mm
(1209)	57	"	"	56	0.635
(1219)	58	"	"	57	0.631
1229/1230	59	"	"	58	0.626
(1240)	60	"	"	59	0.622
(1250)	61	"	"	60	0.620
1301	62	"	"	61	0.616
(1311)	63	"	"	62	0.612
(1321)	64	"	"	63	0.610
1331	65	"	"	64	0.606
(1341)	66	"	"	65	0.602
(1351)	67	"	"	66	0.598
1404	68	"	~~(" , 29.~~ "	67	~~0.590~~ 0.594
(1414)	69			68	~~0.586~~ 0.590
(1424)	70			69	~~0.582~~ 0.586
1433	diff rams 0.001 → 0.0008 mm/s to keep ~ same ti.				
1435	71	"	(" , 2987 , "	70	0.582
(1445)	72			71	0.581
(1455)	73			72	0.572
1506	74			73	0.573
(1516)	75			74	0.569
(1526)	76			75	0.567
1539	77			76	0.563
(1548)	78			77	0.557
1617 Check x centering based on oblique w/ same windows as at 1153 hrs -- x = 19.90 still good					
(1558)	79			78	0.551
1617	80			79	0.549
(1627)	81			80	0.545
(1637)	82			81	0.543
1648	83			82	0.539
1700	Stop diff rams. End step (2)			83	0.538
1701	start cooling				

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10/15/13 <an325 (cont)

1703 Quenched McP to -3.5%
1708 differential rams to - 0.002 mm/s, ~~target~~
1713 dif. rams to -0.003 mm/s
1716 dif. rams to -0.004 mm/s
1720 dif. rams to -0.006 mm/s
1722 McP to -4%, 57.9T
1738 McP to -5%, 46.9T
1754 dif. rams to -0.008 mm/s
1809 dif ~~rams~~ rams to -0.01 mm/s
1806 McP to -6%, 25.3 T
1815 " -8%, 18.0 T
1819 -10% 15.0T
1824:30 -12% 10.0
1826 diff rams to 0.02 mm/s
1832 McP to -20% ST

~ Images #84, 85 Wedges out, 0°, 90°

1900 alumina, 600s E+20 calib _0084.med