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Appendix A.2 Test result data of drying cycles -2 (Copy right by Jiffy products SL (pvt) Ltd)

	Sequence	Frequency (rev/second)	Feed rate (l/min)	Input moisture	Temperature C	Out put moisture			Avg. output moisture	Averge volume weight (W/L)	Expansion height (mm)		
						sample 1	sample 2	sample 3			sample 1	sampe 2	sample 3
28	11	0.05	10	65%	100	24.00%	24.52%	23.95%	24.16%	100.00	48	50	47
29	12	0.05	15	65%	100	43.62%	44.52%	42.92%	43.69%	139.50			
30	13	0.05	20	65%	100	56.75%	55.45%	54.65%	55.62%	136.50			
31	14	0.07	10	65%	100	32.46%	33.56%	31.48%	32.50%	128.20	40	40	47
32	15	0.07	15	65%	100	42.95%	41.50%	42.30%	42.25%	122.20			
33	16	0.07	20	65%	100	48.52%	47.95%	48.90%	48.46%	111.80			
34	17	0.14	10	65%	100	40.05%	41.31%	42.56%	41.31%	117.40			
35	18	0.14	15	65%	100	44.15%	44.90%	44.20%	44.42%	121.00			
36	19	0.14	20	65%	100	46.50%	46.35%	47.25%	46.70%	123.00			
40	23	0.07	10	65%	110	8.50%	8.46%	8.75%	8.57%	128.2	52	50	52
41	24	0.07	15	65%	110	8.90%	8.64%	9.10%	8.88%	120.9	60	61	60
42	25	0.07	20	65%	110	9.20%	9.15%	9.30%	9.22%	116.1	60	57	53
43	26	0.14	10	65%	110	14.50%	14.75%	14.25%	14.50%	119.2	55	52	50
44	27	0.14	15	65%	110	14.75%	14.90%	15.10%	14.92%	131.4	52	55	50
45	28	0.14	20	65%	110	28.00%	28.75%	29.15%	28.63%	116.0	49	50	51
46	47	0.05	10	75%	90	16.00%	16.85%	16.50%	16.45%	104.6	48	50	45
47	48	0.05	15	75%	90	46.50%	45.95%	46.75%	46.40%	107.6			
48	49	0.05	20	75%	90	56.55%	56.75%	57.10%	56.80%	113.8			
49	50	0.07	10	75%	90	27.65%	26.90%	28.10%	27.55%	119.3	30	32	30
50	51	0.07	15	75%	90	43.60%	42.75%	43.85%	43.40%	116.2			
51	52	0.07	20	75%	90	56.75%	55.40%	54.80%	55.65%	116.8			
52	53	0.14	10	75%	90	25.70%	24.85%	24.90%	25.15%	106.2	25	23	29
53	54	0.14	15	75%	90	42.40%	41.85%	42.80%	42.35%	124.8			
54	55	0.14	20	75%	90	52.45%	51.45%	49.85%	51.25%	126.8			
55	56	0.05	10	75%	100	30.00%	28.95%	31.10%	30.02%	109.3	30	27	27
56	57	0.05	15	75%	100	54.45%	53.85%	54.10%	54.13%	124.5			

Appendix A.3 Test result of drying cycles - 3 (Copy right by Jiffy products SL (pvt) Ltd)

	Sequence	Frequency (rev/second)	Feed rate (l/min)	Input moisture	Temperature C	Out put moisture			Avg. output moisture	Averge volume weight (W/L)	Expansion height (mm)		
						sample 1	sample 2	sample 3			sample 1	sampe 2	sample 3
57	58	0.05	20	75%	100	56.50%	57.35%	59.85%	57.90%	149.7			
58	59	0.07	10	75%	100	54.00%	53.85%	52.45%	53.43%	113.5			
59	60	0.07	15	75%	100	56.00%	54.35%	52.25%	54.20%	152.4			
60	61	0.07	20	75%	100	58.50%	57.45%	57.95%	57.97%	172.1			
61	62	0.14	10	75%	100	52.75%	51.65%	50.90%	51.77%	133.6			
62	63	0.14	15	75%	100	58.15%	56.45%	58.75%	57.78%	145.1			
63	64	0.14	20	75%	100	60.35%	59.28%	61.70%	60.44%	152.3			
64	65	0.05	10	75%	110	18.45%	18.90%	19.25%	18.87%	101.5	49	52	51
65	66	0.05	15	75%	110	34.45%	34.75%	33.82%	34.34%	93.5	30	25	23
66	67	0.05	20	75%	110	42.58%	41.45%	40.65%	41.56%	104.6			
67	68	0.07	10	75%	110	24.45%	25.16%	24.80%	24.80%	99.8	46	45	42
68	69	0.07	15	75%	110	48.50%	47.45%	48.23%	48.06%	92.5			
69	70	0.07	20	75%	110	50.50%	51.35%	51.05%	50.97%	103.5			
70	71	0.14	10	75%	110	42.45%	41.85%	43.50%	42.60%	96.3			
71	72	0.14	15	75%	110	52.65%	52.10%	51.65%	52.13%	117.1			
72	73	0.14	20	75%	110	58.70%	57.65%	58.35%	58.23%	141.6			

Appendix B.1 NIPALS Algorithm

https://documents.software.dell.com/statistics/textbook/partial-least-squares#nipals

The standard algorithm for computing partial least squares regression components (i.e., factors) is nonlinear iterative partial least squares (NIPALS). There are many variants of the NIPALS algorithm which normalize or do not normalize certain vectors. The following algorithm, which assumes that the *X* and *Y* variables have been transformed to have means of zero, is considered to be one of most efficient NIPALS algorithms.

For each h=1,...,c, where $A_0=X'Y$, $M_0=X'X$, $C_0=I$, and c given,

1. compute q_h, the dominant eigenvector of $A_h'A_h$
2. $w_h=C_hA_hq_h$, $w_h=w_h/||w_h||$, and store w_h into W as a column
3. $p_h=M_hw_h$, $c_h=w_h'M_hw_h$, $p_h=p_h/c_h$, and store p_h into P as a column
4. $q_h=A_h'w_h/c_h$, and store q_h into Q as a column
5. $A_{h+1}=A_h - c_hp_hq_h'$ and $M_{h+1}=M_h - c_hp_hp_h'$
6. $C_{h+1}=C_h - w_hp_h'$

The factor scores matrix T is then computed as $T=XW$ and the partial least squares regression coefficients B of Y on X are computed as $B=WQ$.

SIMPLS Algorithm

An alternative estimation method for partial least squares regression components is the SIMPLS algorithm (de Jong, 1993), which can be described as follows.

For each h=1,...,c, where $A_0=X'Y$, $M_0=X'X$, $C_0=I$, and c given,

1. compute q_h, the dominant eigenvector of $A_h'A_h$
2. $w_h=A_hq_h$, $c_h=w_h'M_hw_h$, $w_h=w_h/sqrt(c_h)$, and store w_h into W as a column
3. $p_h=M_hw_h$, and store p_h into P as a column
4. $q_h=A_h'w_h$, and store q_h into Q as a column
5. $v_h=C_hp_h$, and $v_h=v_h/||v_h||$
6. $C_{h+1}=C_h - v_hv_h'$ and $M_{h+1}=M_h - p_hp_h'$
7. $A_{h+1}=C_hA_h$

Similarly to NIPALS, the T of SIMPLS is computed as $T=XW$ and B for the regression of Y on X is computed as $B=WQ'$.