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APPENDIX

Sweating process

Table A1 Effect of temperature and time for sweating process on drop melting point

Raw material		Drop melting point (°C)				
Temperature (°C)	Time (hr.)	1	2	3	Average	SD
65	12	78.0	78.0	78.0	78.0	0.0
	24	78.0	78.0	78.0	78.0	0.0
	36	78.0	78.0	78.0	78.0	0.0
	48	78.0	78.0	78.0	78.0	0.0
70	12	78.5	78.5	78.5	78.5	0.0
	24	79.0	79.5	79.5	79.3	0.2
	36	79.5	80.0	79.5	79.7	0.2
	48	80.0	80.5	80.0	80.2	0.2
73	12	79.5	79.0	79.5	79.3	0.2
	24	81.5	81.0	81.5	81.3	0.2
	36	82.0	82.0	82.5	82.2	0.2
	48	82.5	83.0	83.0	82.8	0.2
75	12	81.5	81.0	81.5	81.3	0.2
	24	82	82.0	82.0	82.0	0.0
	36	83.5	83.0	83.0	83.2	0.2
	48	84.0	83.5	84.0	83.8	0.2

Table A2 Effect of temperature and time for sweating process on oil content

Raw material		Oil Content (%wt)				
Temperature (°C)	Time (hr.)	1	2	3	Average	SD
65	12	4.55	4.59	4.57	4.57	0.16
	24	4.50	4.52	4.51	4.51	0.08
	36	4.47	4.48	4.49	4.48	0.08
	48	4.39	4.42	4.41	4.41	0.13
70	12	4.21	4.14	4.19	4.18	0.29
	24	4.94	3.89	3.82	4.22	0.51
	36	3.57	3.70	3.63	3.63	0.05
	48	3.40	3.28	3.33	3.34	0.05
73	12	3.76	3.85	3.72	3.78	0.05
	24	3.47	3.58	3.51	3.52	0.05
	36	3.08	3.11	3.01	3.07	0.04
	48	2.94	2.89	2.90	2.91	0.02
75	12	3.46	3.41	3.36	3.41	0.04
	24	3.01	3.05	2.96	3.01	0.04
	36	2.78	2.82	2.87	2.82	0.04
	48	2.69	2.63	2.70	2.67	0.03

Table A3 Effect of temperature and time for sweating process on %yield

Raw material		% Yield				
Temperature (°C)	Time (hr.)	1	2	3	Average	SD
65	12	100.00	100.00	100.00	100.00	0.00
	24	99.91	99.93	99.89	99.91	0.02
	36	99.88	99.85	99.87	99.87	0.01
	48	99.56	99.63	99.71	99.63	0.06
70	12	98.48	97.09	97.27	97.61	0.62
	24	94.62	93.81	93.72	94.05	0.40
	36	91.93	92.81	92.11	92.28	0.38
	48	89.74	88.37	89.06	89.06	0.56
73	12	91.87	92.54	91.13	91.85	0.58
	24	88.21	89.85	89.67	89.24	0.73
	36	82.44	83.15	81.91	82.50	0.51
	48	79.16	77.38	78.96	78.50	0.79
75	12	87.25	86.92	85.37	86.51	0.82
	24	80.51	81.36	80.01	80.63	0.56
	36	71.28	74.91	73.82	73.34	1.52
	48	58.33	56.83	61.34	58.83	1.88

Oxidation waxes

Table A4 Effect of %catalyst and time for oxidation waxes on drop melting point

Sweated Wax		Drop Melting Point (°C)			
%Catalyst (by wt of Ox.wax)	Time (hr.)	1	2	Average	SD
1%	12	82.0	82.0	82.0	0.0
	15	81.5	81.5	81.5	0.0
	20	81.0	81.0	81.0	0.0
	24	80.5	80.5	80.5	0.0
	36	80.0	80.0	80.0	0.0
	48	79.0	79.0	79.0	0.0
2%	12	81.5	81.5	81.5	0.0
	15	81.0	81.0	81.0	0.0
	20	80.5	80.5	80.5	0.0
	24	80.0	80.0	80.0	0.0
	36	78.5	79.0	78.8	0.3
	48	78.0	78.0	78.0	0.0
5%	12	79.0	78.5	78.8	0.3
	15	78.5	78.0	78.3	0.3
	20	77.5	77.0	77.3	0.3
	24	76.5	76.0	76.3	0.3
	36	75.0	75.0	75.0	0.0
	48	74.0	74.0	74.0	0.0

Table A5 Effect of %catalyst and time for oxidation waxes on acid number

Sweated Wax		Acid Number			
%Catalyst (by wt of Ox.wax)	Time (hr.)	1	2	Average	SD
1%	12	23.9	22.6	23.3	0.7
	15	30.4	29.8	30.1	0.3
	20	38.9	37.6	38.3	0.7
	24	46.4	46.1	46.3	0.2
	36	51.4	50.9	51.2	0.3
	48	53.9	53.3	53.6	0.3
2%	12	29.9	29.2	29.6	0.4
	15	35.9	35.1	35.5	0.4
	20	44.4	43.9	44.2	0.3
	24	56.9	56.4	56.7	0.3
	36	73.8	73.3	73.6	0.3
	48	81.2	80.5	80.9	0.4
5%	12	43.9	44.1	44.0	0.1
	15	52.4	52.9	52.7	0.3
	20	66.4	67.1	66.8	0.4
	24	74.3	74.8	74.6	0.3
	36	82.6	83.1	82.9	0.3
	48	85.4	85.9	85.7	0.3

Table A6 Effect of %catalyst and time for oxidation waxes on penetration @25 °C

Sweated Wax		Penetration @25 °C (mm/5s)			
%Catalyst (by wt of Ox.wax)	Time (hr.)	1	2	Average	SD
1%	12	65.0	64.5	64.8	0.3
	15	63.5	63.0	63.3	0.3
	20	52.0	51.5	51.8	0.3
	24	47.0	47.0	47.0	0.0
	36	36.5	36.0	36.3	0.3
	48	29.0	28.5	28.8	0.3
2%	12	63.0	63.5	63.3	0.4
	15	59.0	59.5	59.3	0.3
	20	49.5	50.0	49.8	0.3
	24	43.0	44.0	43.5	0.5
	36	34.5	35.0	34.8	0.3
	48	28.0	27.5	27.8	0.3
5%	12	64.0	64.5	64.3	0.3
	15	58.5	59.0	58.8	0.3
	20	42.5	42.0	42.3	0.3
	24	34.5	34.0	34.3	0.3
	36	31.0	30.0	30.5	0.5
	48	25.5	25.0	25.3	0.3

Table A7 Effect of %catalyst and time for oxidation waxes on kinematic viscosity @100°C

Sweated Wax		Kinematic viscosity @100°C (cSt)			
%Catalyst (by wt of Ox.wax)	Time (hr.)	1	2	Average	SD
1%	12	20.15	20.96	20.56	0.41
	15	24.30	25.21	24.76	0.16
	20	32.09	32.89	32.49	0.40
	24	39.56	40.13	39.85	0.29
	36	47.15	47.69	47.42	0.27
	48	49.27.	49.98	49.63	0.36
2%	12	21.93	21.46	21.69	0.24
	15	31.56	30.84	31.20	0.36
	20	38.47	38.05	38.26	0.21
	24	46.38	46.17	46.28	0.11
	36	49.86	48.92	49.39	0.05
	48	52.24	51.73	51.99	0.26
5%	12	23.43	24.21	23.82	0.39
	15	36.23	37.56	36.89	0.67
	20	44.32	44.96	44.64	0.32
	24	48.87	49.17	49.02	0.15
	36	51.78	52.74	52.26	0.48
	48	53.04	53.77	53.41	0.37

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