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APPENDIX

The abbreviates in this research

C 1-5 = 5% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated cotton fabric

C 1-10 = 10% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated cotton fabric

C 1-15 = 15% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated cotton fabric

C 1-20 = 20% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated cotton fabric

C 2-5 = 5% of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated cotton fabric

C 2-10 = 10% of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated cotton fabric

C 2-15 = 15% of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated cotton fabric

C 2-20 = 20% of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated cotton fabric

C 5-5 = 5% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated cotton fabric

C 5-10 = 10% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated cotton fabric

C 5-15 = 15% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated cotton fabric

C 5-20 = 20% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated cotton fabric

C 10-5 = 5% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated cotton fabric

C 10-10 = 10% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated cotton fabric

C 10-15 = 15% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated cotton fabric

C 10-20 = 20% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated cotton fabric

CNoP 1 = 1 shot of nitrogen plasma treated cotton fabric

CNoP 2 = 2 shots of nitrogen plasma treated cotton fabric

CNoP 5 = 5 shots of nitrogen plasma treated cotton fabric

CNoP 10 = 10 shots of nitrogen plasma treated cotton fabric

CNoPlas 5 = 5% of of diammonium hydrogen phosphate treated cotton fabric

CNoPlas 10 = 10% of diammonium hydrogen phosphate treated cotton fabric

CNoPlas 15 = 15% of diammonium hydrogen phosphate treated cotton fabric

CNoPlas 20 = 20% of diammonium hydrogen phosphate treated cotton fabric

Unt. C. = untreated cotton fabric

PET = polyethylene terephthalate

P 1-5 = 5% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated PET fabric

P 1-10 = 10% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated PET fabric

P 1-15 = 15% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated PET fabric

P 1-20 = 20% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated PET fabric

P 2-5 = 5% of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated PET fabric

P 2-10 = 10% of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated PET fabric

P 2-15 = 15% of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated PET fabric

P 2-20 = 20% of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated PET fabric

P 5-5 = 5% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated PET fabric

P 5-10 = 10% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated PET fabric

P 5-15 = 15% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated PET fabric

P 5-20 = 20% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated PET fabric

P 10-5 = 5% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated PET fabric

P 10-10 = 10% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated PET fabric

P 10-15 = 15% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated PET fabric

P 10-20 = 20% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated PET fabric

PNoP 1 = 1 shot of nitrogen plasma treated PET fabric

PNoP 2 = 2 shots of nitrogen plasma treated PET fabric

PNoP 5 = 5 shots of nitrogen plasma treated c PET fabric

PNoP 10 = 10 shots of nitrogen plasma treated PET fabric

PNoPlas 5 = 5% of diammonium hydrogen phosphate treated PET fabric

PNoPlas 10 = 10% of diammonium hydrogen phosphate treated PET fabric

PNoPlas 15 = 15% of diammonium hydrogen phosphate treated PET fabric

PNoPlas 20 = 20% of diammonium hydrogen phosphate treated PET fabric

Unt. P. = untreated PET fabric

TC = polyester/cotton blended

TC 1-5 = 5% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated TC fabric

TC 1-10 = 10% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated TC fabric

TC 1-15 = 15% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated TC fabric

TC 1-20 = 20% of diammonium hydrogen phosphate and 1 shot of nitrogen plasma treated TC fabric

TC 2-5 = 5% of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated TC fabric

TC 2-10 = 10% of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated TC fabric

TC 2-15 = 15% of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated TC fabric

TC 2-20 = 20% of of diammonium hydrogen phosphate and 2 shots of nitrogen plasma treated TC fabric

TC 5-5 = 5% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated TC fabric

TC 5-10 = 10% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated TC fabric

TC 5-15 = 15% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated TC fabric

TC 5-20 = 20% of diammonium hydrogen phosphate and 5 shots of nitrogen plasma treated TC fabric

TC 10-5 = 5% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated TC fabric

TC 10-10 = 10% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated TC fabric

TC 10-15 = 15% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated TC fabric

TC 10-20 = 20% of diammonium hydrogen phosphate and 10 shots of nitrogen plasma treated TC fabric

TCNoP 1 = 1 shot of nitrogen plasma treated TC fabric

TCNoP 2 = 2 shots of nitrogen plasma treated TC fabric

TCNoP 5 = 5 shots of nitrogen plasma treated TC fabric

TCNoP 10 = 10 shots of nitrogen plasma treated TC fabric

TCNoPlas 5 = 5% of diammonium hydrogen phosphate treated TC fabric

TCNoPlas 10 = 10% of diammonium hydrogen phosphate treated TC fabric

TCNoPlas 15 = 15% of diammonium hydrogen phosphate treated TC fabric

TCNoPlas 20 = 20% of diammonium hydrogen phosphate treated TC fabric

Unt. TC. = untreated TC fabric

bw = before washing

aw = after washing

D Whiteness = different of whiteness

D Yellowness = different of yellowness

DAP = diammonium hydrogen phosphate

Wetting Time of Untreated and Treated Polyester Fabrics Before Washing

Fabrics	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	X	SD
Unt. P.	208	210	231	244	273	250	244	240	316	246	33
PNoP 1	247	325	301	226	267	235	242	246	290	264	34
PNoP 2	297	306	303	256	250	212	230	242	349	272	44
PNoP 5	419	394	375	372	281	332	397	520	718	423	128
PNoP 10	120	96	107	113	174	119	162	122	90	123	28
PNoPlas 5	396	486	481	577	408	451	457	433	375	452	60
PNoPlas 10	406	411	441	416	374	358	403	412	373	399	26
PNoPlas 15	576	378	499	681	684	715	631	547	356	563	131
PNoPlas 20	589	606	492	578	797	590	494	444	601	577	101
P 1-5	790	661	658	567	653	652	654	695	701	670	59
P 2-5	694	656	712	842	766	701	691	694	815	730	63
P 5-5	847	882	677	710	872	807	769	813	894	808	76
P 10-5	912	796	843	779	655	801	887	978	1031	854	113
P 1-10	884	991	854	816	825	898	681	611	713	808	119
P 2-10	1238	1494	670	785	839	932	620	817	844	915	279
P 5-10	1278	1187	702	763	697	907	710	865	1270	931	248
P 10-10	1924	1287	1027	1039	882	1219	974	858	909	1124	334
P 1-15	1393	1263	1080	935	899	1005	635	1442	1171	1091	257
P 2-15	1667	1552	937	1011	1053	820	844	802	788	1053	330
P 5-15	1345	1359	1021	1078	727	1033	811	855	940	1019	220
P 10-15	1860	1219	891	979	824	963	723	1135	1134	1081	333
P 1-20	2546	3076	1506	1371	652	573	622	670	585	1289	940
P 2-20	1415	2063	1085	1938	755	1011	818	782	724	1177	515
P 5-20	1632	1473	793	804	771	765	846	818	827	970	334
P10-20	1145	1293	934	966	626	769	783	748	1035	922	213

Wetting Time of Untreated and Treated Polyester Fabrics After Washing

Fabrics	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	X	SD
Unt. P.	4375	4959	3192	2639	2049	2156	2316	2275	1218	2798	1189
PNoP 1	2464	2506	1993	2055	2171	2312	1869	1738	2206	2146	259
PNoP 2	2089	2833	3686	2878	2521	2456	2634	2436	2671	2689	442
PNoP 5	1853	2144	2032	2065	1984	2171	1998	1774	2836	2095	305
PNoP 10	1028	960	1626	1477	1159	1188	1057	1326	1533	1262	240
PNoPlas 5	1623	1538	1689	1595	1843	1717	1473	1508	1274	1584	163
PNoPlas 10	1807	1888	1380	1513	1519	1915	1663	2057	1642	1709	222
PNoPlas 15	2689	2701	2311	2609	2484	2337	2447	2881	2826	2587	205
PNoPlas 20	1933	1817	1665	2456	2022	2002	1528	1566	1722	1857	288
P 1-1	3084	2485	3442	4327	2879	2632	1958	2305	1764	2764	789
P 2-1	7639	6741	3703	4797	3014	4003	2032	2583	2529	4116	1949
P 5-1	5546	6303	3481	3741	4097	4647	3995	5278	3379	4496	1016
P 10-1	4228	3364	6288	4837	4605	6018	5189	4319	3961	4757	948
P 1-2	5343	5743	5137	5399	4536	5028	5251	5381	2813	4959	869
P 2-2	5301	5262	3600	4154	3263	3030	3135	3515	2917	3797	918
P 5-2	3814	4151	4064	4775	6552	5270	6778	5734	1512	4739	1612
P 10-2	2945	4535	2621	2327	2312	2360	2241	2331	2633	2701	724
P 1-3	1271	3488	1946	3147	2604	3343	2372	2961	3517	2739	765
P 2-3	3255	3022	2407	2375	1865	1955	2304	1763	2860	2423	527
P 5-3	923	918	1525	919	995	1492	1224	979	945	1102	249
P 10-3	1596	1077	1356	825	1083	1315	1069	1710	1806	1315	333
P 1-4	3329	2655	2341	2175	1875	2299	2139	2114	1505	2270	508
P 2-4	1074	1306	1564	1566	1389	1793	1368	1813	1497	1486	234
P 5-4	1124	1558	3236	1798	1414	3160	1142	2079	1290	1867	814
P 10-4	1307	1267	852	1383	1388	919	880	884	803	1076	252

Wetting Time of Untreated and Treated Cotton Fabrics Before Washing

Fabrics	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	X	SD
Unt. C.	29	29	32	52	48	79	178	159	238	94	78
CNoP 1	82	47	39	599	692	652	1217	505	305	460	387
CNoP 2	120	87	92	75	87	939	657	396	309	307	309
CNoP 5	58	68	64	69	195	206	258	300	246	163	98
CNoP 10	197	165	124	111	132	427	284	265	278	220	103
CNoPlas 5	354	151	125	144	131	116	83	47	51	134	91
CNoPlas 10	51	225	319	174	125	77	149	46	45	135	94
CNoPlas 15	83	121	32	52	84	39	40	41	17	57	33
CNoPlas 20	10	12	10	24	16	15	14	24	17	16	5
C 1-5	95	50	42	38	45	23	23	29	33	42	22
C 2-5	25	28	28	46	36	52	46	62	65	43	15
C 5-5	35	39	33	48	61	46	47	74	106	54	23
C 10-5	49	73	53	82	60	67	78	106	110	75	21
C 1-10	15	14	15	10	47	48	75	44	34	34	22
C 2-10	47	76	156	71	31	20	25	20	25	52	44
C 5-10	42	34	137	30	166	101	151	68	38	85	55
C 10-10	42	82	138	99	187	32	168	51	61	96	57
C 1-15	56	74	178	90	184	28	65	32	33	82	60
C 2-15	15	107	41	40	59	43	51	44	24	47	26
C 5-15	25	25	78	19	74	38	72	68	18	46	26
C 10-15	18	34	47	38	97	75	107	64	33	57	31
C 1-20	8	17	8	14	15	18	11	17	8	13	4
C 2-20	12	22	17	14	17	13	19	22	17	17	4
C 5-20	8	10	8	7	9	7	9	7	10	8	1
C 10-20	8	7	7	7	7	7	9	11	12	8	2

Wetting Time of Untreated and Treated Cotton Fabrics After Washing

Fabrics	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	X	SD
Unt. C.	3	3	3	3	3	4	3	4	4	3	1
CNoP 1	4	5	8	6	9	14	10	21	12	10	5
CNoP 2	7	7	5	5	7	17	10	8	6	8	4
CNoP 5	5	4	4	3	3	4	4	4	4	4	1
CNoP 10	11	4	4	4	12	12	7	7	10	8	3
CNoPlas 5	6	13	10	9	6	6	6	6	7	8	3
CNoPlas 10	5	6	5	5	6	7	5	5	5	5	1
CNoPlas 15	11	10	6	6	5	6	4	5	4	6	3
CNoPlas 20	3	5	4	4	4	5	3	6	7	5	1
C 1-5	5	4	5	5	5	4	4	4	5	5	1
C 2-5	4	4	5	5	5	5	4	6	6	5	1
C 5-5	6	5	5	4	3	5	5	7	6	5	1
C 10-5	7	7	5	5	7	5	6	5	9	6	1
C 1-10	20	17	22	15	12	11	21	10	13	16	5
C 2-10	11	15	27	15	19	8	15	10	14	15	6
C 5-10	9	10	21	10	13	10	16	17	12	13	4
C 10-10	18	25	20	21	29	12	22	14	14	19	6
C 1-15	19	23	35	19	33	14	27	16	17	23	8
C 2-15	9	23	15	18	17	15	15	12	12	15	4
C 5-15	7	8	12	7	10	13	12	9	8	10	2
C 10-15	9	10	9	8	7	8	10	12	9	9	1
C 1-20	12	12	18	13	19	10	15	18	14	15	3
C 2-20	14	17	18	9	15	10	24	9	10	14	5
C 5-20	6	8	7	5	6	6	8	9	11	7	2
C 10-20	18	8	11	7	7	6	11	7	8	9	4

Wetting Time of Untreated and Treated T/C Fabrics Before Washing

ผ้า	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	X	SD
Unt. TC.	45	53	49	51	44	37	46	51	46	47	5
TCNoP 1	70	71	71	70	64	55	75	65	79	69	7
TCNoP 2	42	45	51	46	50	61	41	52	58	50	7
TCNoP 5	55	30	31	34	38	60	35	34	37	39	11
TCNoP 10	36	27	34	34	47	22	32	30	39	33	7
TCNoPlas 5	20	20	19	19	19	20	20	20	20	20	1
TCNoPlas 10	29	26	27	28	25	25	22	29	27	26	2
TCNoPlas 15	26	23	21	24	28	24	20	23	25	24	2
TCNoPlas 20	25	27	26	29	25	20	20	21	21	24	3
TC 1-1	47	46	56	50	74	75	67	55	83	61	14
TC 2-1	149	127	116	113	116	115	89	100	143	119	19
TC 5-1	129	114	90	79	89	84	87	97	128	100	19
TC 10-1	90	70	74	51	56	70	71	75	108	74	17
TC 1-2	254	165	114	108	102	138	176	158	153	152	46
TC 2-2	206	163	111	120	117	126	142	110	164	140	32
TC 5-2	246	115	93	61	89	70	88	81	140	109	56
TC 10-2	223	429	257	280	190	255	286	251	294	274	67
TC 1-3	234	314	267	232	231	176	274	347	286	262	51
TC 2-3	251	209	194	149	167	144	176	188	266	194	42
TC 5-3	88	76	89	58	146	120	143	143	207	119	46
TC 10-3	80	85	61	57	71	77	67	77	98	75	13
TC 1-4	618	663	930	644	379	536	588	566	605	614	145
TC 2-4	2096	1912	1485	794	285	485	486	455	641	960	686
TC 5-4	1377	1607	324	291	251	403	433	714	565	663	495
TC 10-4	971	895	871	702	723	693	892	891	1194	870	157

Wetting Time of Untreated and Treated T/C Fabrics After Washing

Fabrics	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	X	SD
Unt. TC.	135	157	238	195	188	215	238	191	184	193	34
TCNoP 1	121	186	171	214	146	137	122	153	219	163	37
TCNoP 2	130	131	150	114	135	127	126	164	136	135	15
TCNoP 5	104	116	156	130	125	136	150	199	162	142	29
TCNoP 10	151	168	165	122	181	146	137	129	117	146	22
TCNoPlas 5	134	141	222	174	204	197	129	134	156	166	35
TCNoplas 10	144	135	161	151	158	150	173	193	136	156	18
TCNoPlas 15	141	133	135	152	172	139	139	127	149	143	13
TCNoPlas 20	190	177	220	174	205	186	207	234	206	200	20
TC 1-5	263	298	367	352	296	292	257	305	384	313	45
TC 2-5	337	327	389	304	473	375	311	272	464	361	70
TC 5-5	720	361	391	508	382	292	354	363	407	420	126
TC 10-5	924	538	699	296	338	547	517	452	528	538	188
TC 1-10	177	189	179	165	213	189	192	166	182	184	15
TC 2-10	164	194	185	196	200	207	193	198	205	194	13
TC 5-10	209	212	217	209	226	199	220	204	183	209	13
TC 10-10	179	191	215	191	217	209	242	207	221	208	19
TC 1-15	138	153	168	189	155	154	180	187	174	166	18
TC 2-15	157	168	197	164	177	196	196	212	195	185	19
TC 5-15	169	189	175	199	193	210	180	189	215	191	15
TC 10-15	200	205	226	228	209	208	194	189	215	208	13
TC 1-20	155	139	181	200	185	203	163	144	158	170	23
TC 2-20	219	191	173	159	162	166	168	197	192	181	20
TC 5-20	190	177	220	174	205	186	207	234	206	200	20
TC 10-20	225	208	301	235	249	260	229	254	228	243	27

VITA

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