

OBJS2

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E65007

System Component, Electrical Insulation -Component

INNOVATIVE PAPER TECHNOLOGIES L L C

83 MANVILLE RD PO BOX 739 TILTON NH 03276

System Component:	System Designation	System Temp (Class)
CeQuin 3000, CeQuin 30F, 30F30, F30F, CeQuin 30G, 30G30, G30G, CeQuin I, CeQuin IF, IFI, FIF, CeQuin IG, IGI, GIG, CeQuin II, CeQuin V, CeQuin VF, FVF, VFV, CeQuin VG, CeQuin VGV, GVG, CeQuinbord 3000, CeQuinbord CGA, CorQuin, TufQuin 100, 110, 120, TufQuin 100G, 110G, 120G, TufQuin 100R, 110R, 120R, TufQuin 110, TufQuin 120, TufQuin PC, TufQuin TF, TFT, FTF, TufQuinbord	QT-200	200(N)

Underwriters Laboratories Inc.

Complies with IEC Publication 85

Construction Details (Table I)

The use of this insulation system is limited to the combination of materials specified below. Where more than one item is designated under Insulation Function, they may be used together, unless otherwise indicated, or they may be used as alternates to one another. Functions designated "optional" are not necessarily required for every design. Insulation thicknesses and/or layers indicated below are minimum.

Alternate Constructions:

Winding Wire - Recognized Component - Magnet wire (OBMW2), single build or greater or
 - Recognized Component - Single and Multi-Layer Insulated Winding Wire (OBJT2) or
 - Recognized Component - Appliance Wiring Material (AVLV2)

(unless otherwise noted, winding wire types listed below may be used in combination within a single product)

MW 35 or 200C Polyester-amide-imide (Polyamide-imide)

MW 73 or 200C Polyester-amide-imide (Polyamide-imide)

Bare Conductor - wrapped with any Ground insulation in this table. 2 mils (0.051mm) min., 50% overlap

Ground & Interwinding Insulation

Designation (No.)	mils(mm)	Comments
E. I. Dupont de Nemours & Co.		
Nomex 410	5 (0.13)	aramid insulating paper
Nomex 411	11.5 (0.29)	aramid insulating paper
Nomex 414	5 (0.13)	aramid insulating paper
Nomex 416	5 (0.13)	aramid insulating paper
Nomex 418	5 (0.13)	aramid insulating paper
Nomex 424	5 (0.13)	aramid insulating paper
Nomex 425	5 (0.13)	aramid insulating paper
Nomex 992	10 (0.25)	aramid insulating paper
Nomex 993	8.25 (0.21)	aramid insulating paper
Nomex 994	8.25 (0.21)	aramid insulating paper
Nomex E56A	7.5 (0.19)	aramid insulating paper
Innovative Paper Technologies, LLC		
CeQuin 3000	5 (0.13)	minimum thickness of CeQuin portion
CeQuin 30F, 30F30, F30F	5 (0.13)	minimum thickness of CeQuin portion

CeQuin 30G, 30G30, G30G	5 (0.13)	minimum thickness of CeQuin portion
CeQuin I	5 (0.13)	unfired ceramic based rubber bonded paper minimum thickness of CeQuin portion
CeQuin IF, IFI, FIF	5 (0.13)	minimum thickness of CeQuin portion
CeQuin IG, IGI, GIG	5 (0.13)	minimum thickness of CeQuin portion
CeQuin II	5 (0.13)	unfired ceramic based rubber bonded paper minimum thickness of CeQuin portion
CeQuin V	5 (0.13)	heat treated unfired ceramic like base rubber bonded paper minimum thickness of CeQuin portion
CeQuin VF, FVF, VFV	5 (0.13)	minimum thickness of CeQuin portion
CeQuin VG	5 (0.13)	heat treated unfired ceramic like base rubber bonded paper with glass cloth & acrylic adhesive minimum thickness of CeQuin portion
CeQuin VGV, GVG	5 (0.13)	minimum thickness of CeQuin portion
CeQuinbord 3000	5 (0.13)	minimum thickness of CeQuin portion
CeQuinbord CGA	5 (0.13)	unfired ceramic millboard and rubber bonded paper minimum thickness of CeQuin portion
TufQuin 110	3 (0.08)	minimum thickness of TufQuin portion
TufQuin 120	3 (0.08)	minimum thickness of TufQuin portion
TufQuin PC	4 (0.1)	
TufQuin TF, TFT, FTF	3 (0.08)	minimum thickness of TufQuin portion
TufQuinbord	3 (0.08)	minimum thickness of TufQuin portion
Paramount Paper Tube Mfg. Co.		
ParaQuin	5 (0.13)	minimum thickness of CeQuin (or TufQuin) portion
ParaQuin F	5 (0.13)	minimum thickness of CeQuin (or TufQuin) portion
Rigid ParaQuin	5 (0.13)	minimum thickness of CeQuin (or TufQuin) portion
Rigid ParaQuin F	5 (0.13)	minimum thickness of CeQuin (or TufQuin) portion
Von Roll Isola (Acme)		
Acuflex CQM	5 (0.13)	minimum thickness of CeQuin (or TufQuin) portion
Acuflex CQMCQ	5 (0.13)	Cequin-Mylar-Cequin (ceramic based rubber bonded paper/PET film/ceramic based rubber bonded paper) minimum thickness of CeQuin (or TufQuin) portion
Von Roll Isola (Bedford Materials)		
CQG	5 (0.13)	minimum thickness of CeQuin (or TufQuin) portion
CQM	5 (0.13)	minimum thickness of CeQuin (or TufQuin) portion
MCQ	5 (0.13)	minimum thickness of CeQuin (or TufQuin) portion
Lead Wire (optional)		
200C SI - silicone rubber - with or without glass braid		
Minor Sheet Insulation (optional) layer, outer, wrap, etc.		
Designation (No.)	Comments	
Any sheet insulation or tape described in this table with no minimum thickness requirement.		
Asheville Schoonmaker Mica Co.		
NEMA No. 6		
Cotrell Paper Co Inc.		
Copaco 125		
Kraft Paper		
Innovative Paper Technologies, LLC		
CorQuin		
TufQuin 100, 110, 120		
TufQuin 100G, 110G, 120G		
TufQuin 100R, 110R, 120R		
U.S. Samica		
4800-6		
Isomica 64100		
Cores, Tubes, Bobbins (optional) (for mechanical support only)		
Designation (No.)	Comments	
E. I. Dupont de Nemours & Co.		
Rynite 415HP		
Rynite 530		
Rynite 935		
Rynite FR543		
Rynite FR945		

Highlander

Hi-Temp 600

Insul-Fab

Insul-Core

J. L. Clark Mfg. Co.

Kapton

Mylar

Nomex

Paramount Tube

Paratherm

Rigid Paratherm

Precision Paper Tube Co.

Pyroform 360

Tapes (optional)

Designation (No.)

Comments

3M (Minnesota Mining & Mfg Co)

1	polyester film/epoxy resin composite
10	thermosetting rubber, polyester nonwoven/epoxy resin composite
20+	polyester nonwoven/epoxy resin composite
44	thermosetting rubber adhesive, web reinforced polyester film
46	thermosetting rubber adhesive, web reinforced polyester film
54	thermosetting rubber adhesive, polyester film
55	thermosetting rubber adhesive, polyester film/mat
56	thermosetting rubber adhesive, polyester film
57	thermosetting rubber adhesive, polyester film
58	thermosetting rubber adhesive, polyester film
69	thermosetting silicone adhesive, glass cloth
74	thermosetting rubber adhesive, polyester film
75	thermosetting rubber adhesive, double coated polyester film
79	acrylic adhesive, glass cloth
92	thermosetting silicone adhesive, polyimide film
1169	thermosetting rubber adhesive, polyester film
1205	acrylic adhesive, polyimide film
1291	acrylic adhesive, polyester film
1298	acrylic adhesive, polyester film
1318	acrylic adhesive, polyester film
1339	acrylic adhesive, polyester film

Columbia Electric Tape Mfg. Co.

C-150WS

no adhesive, heat treated glass cloth

ECC11B

no adhesive, heat treated glass cloth

Custom Tape Co.

CT-900

silicone adhesive, glass cloth

DeWal Industries Inc.

D/W 469

thermosetting silicone adhesive, glass cloth

Flouroglass (Mystik)

7000

silicone adhesive, glass cloth

7001

silicone adhesive, glass cloth

7020

thermosetting rubber adhesive, solvent resistant

7021

thermosetting rubber adhesive, solvent resistant

7344

thermosetting rubber adhesive, polyester film

7805

thermosetting acrylic adhesive, paper/polyester film

7845

thermosetting acrylic adhesive, glass reinforced polyester film

Ideal Tape Co Inc

730

thermosetting rubber adhesive, glass cloth

7170

thermosetting silicone adhesive, polyimide film

7177

thermosetting acrylic adhesive, polyimide film

7270

thermosetting silicone adhesive, polyimide film

7300

thermosetting silicone adhesive, glass cloth

7307

thermosetting acrylic adhesive, glass cloth

Intertape Polymer Group (Tesa, Tuck, Spinnaker)

16

acrylic adhesive, polyester film glass reinforced

17

thermosetting rubber adhesive, film/glass filament reinforced

41

thermosetting rubber adhesive, polyester film laminated to rope fiber

51	thermosetting rubber adhesive, glass cloth
58	rubber adhesive, glass cloth
59	thermosetting silicone adhesive, glass cloth
4238	polyester film glass reinforced
4426-00	polyester film laminated to rope fiber
4616-00	glass cloth
4617	glass cloth
4618	glass cloth
51599	polyester film glass reinforced
Nitto Denko Corp	
31B	
31C	
188	
315	rubber adhesive, polyester film
316	flame retardant acrylic adhesive, polyester film
354	epoxy resin polyester nonwoven backing, acrylic adhesive
354E	epoxy resin impregnated polyester nonwoven adhesive
360N	
903	PTFE
Permacel	
P-201	cotton cloth
P-21	thermosetting rubber adhesive, glass cloth
P-212	thermosetting silicone adhesive, glass cloth
P-212HD	thermosetting silicone adhesive, glass cloth
P-213	thermosetting acrylic adhesive, glass cloth
P-22	thermosetting rubber adhesive, polyester film/polyester non-woven
P-221	thermosetting silicone adhesive, polyimide film
P-222	thermosetting silicone adhesive, polyimide film
P-223	thermosetting silicone adhesive, polyimide film
P-224	thermosetting silicone adhesive, polyimide film
P-232	thermosetting silicone adhesive, polyester film
P-235	thermosetting rubber adhesive, polyester film/paper
P-236	thermosetting rubber adhesive, polyester film/paper
P-24	thermosetting rubber adhesive, acetate taffeta cloth
P-240	thermosetting silicone adhesive, polyester film/polyester non-woven
P-242	acetate taffeta cloth
P-243	thermosetting rubber adhesive, polyester film/non-woven mat
P-245	thermosetting rubber adhesive, polyester film/non-woven mat
P-246	thermosetting rubber adhesive, glass cloth
P-247	oil resistant polyester film glass filament
P-248	thermosetting rubber adhesive, polyester film/paper
P-252	semi-cured rubber adhesive, polyester film
P-253	semi-cured rubber adhesive, polyester film
P-254	semi-cured rubber adhesive, polyester film
P-255	semi-cured rubber adhesive, polyester film
P-256	semi-cured rubber adhesive, polyester film
P-257	thermosetting rubber adhesive, polyester film
P-258	semi-cured rubber adhesive, printable polyester film
P-259	semi-cured rubber adhesive, printable polyester film
P-262	flame retardant thermosetting acrylic adhesive, aramid paper
P-263	flame retardant thermosetting acrylic adhesive, aramid paper
P-277	thermosetting rubber adhesive, paper (creped kraft)
P-278	
P-280	thermosetting acrylic adhesive, printable polyester film
P-281	thermosetting acrylic adhesive, printable polyester film
P-286	thermosetting acrylic adhesive, polyester film
P-286HD	thermosetting acrylic adhesive, polyester film
P-421	thermosetting silicone adhesive, PTFE film
P-422	thermosetting silicone adhesive, PTFE film
P-423	thermosetting silicone adhesive, bondable PTFE film
P-424	thermosetting silicone adhesive, PTFE film
P-427	thermosetting silicone adhesive, PTFE film

P-430	thermosetting acrylic adhesive, PTFE film
PPI Adhesive Products Ltd	
10140	synthetic rubber adhesive, polyester film
10150	synthetic rubber adhesive, polyester film
10220	polysiloxane adhesive, polyester film
10260	synthetic rubber adhesive, polyester film
10270	synthetic rubber adhesive, polyester film
10280	synthetic rubber adhesive, polyester film
16200	thermosetting rubber adhesive, polyester/polyester fleece
17110	synthetic rubber adhesive, poly/glass cloth
65100	synthetic rubber adhesive, polyamide paper, aramid paper
65110	synthetic rubber adhesive, polyamide paper, aramid paper
70100	thermosetting polyacrylate adhesive, polyimide film
Spec Tape	
ST101	thermosetting rubber adhesive, reinforced polyester film
ST102	thermosetting rubber adhesive, reinforced polyester film
ST115	thermostable rubber adhesive, polyester glass reinforced
Spacers, Wedges (optional)	
Designation (No.)	Comments
Any material described in this table with no thickness requirement.	
Glastic Corp.	
FHT	
MTS	
SG-200	
TSF	polyester/glass
Haysite	
EHC-P	
ETR-FR-C	flame retardant glass reinforced polyester
ETS-FR-II	
H755	NRMA GPO-1 155
HST-II	glass reinforced thermosetting polyester
HTF	flexible, glass reinforced thermosetting polyester
Industrial Dielectric	
4400 C	
Nohl	
APO-1	
APO-2	
APO-2PT	
APO-3	
APO-3PT	
NTR-155	
NTR-220	
Spaulding	
Spauldite G-3-789	
Spauldite G-9-851	
Spauldite T-536	
Spaulrod	
Various Manufacturers	
Hardwood, Untreated	
Von Roll Isola (Bedford Materials)	
Polyglas	
Supersil	
Sleevings (optional)	
Designation (No.)	Comments
Federal Mogul (Bently Harris)	
Ben Har Acryl A	polyacrylate resin coated fiber glass
Ben Har Acryl C	
Ben Har Ex-Flex 1500 C-3	
Ben Har ST-1250 C3	
1062 A	
1062 B	
1062 C	

Ben Har 1151-FR A
 Ben Har 1151-FR C
 Ben Har 1151-HA-1 silicone rubber coated fiberglass
 Ben Har 1151-XL-200 A
 Ben Har 1151-XL-220 A
 Ben Har 1151-XL-240 A
 1258
 1258-1
 1258-2

Hilec (Brand Rex, Voltube)

Hilec 210 C
 Hilec 220 C
 Hilec 400
 Hilec 540 R
 Hilec 610 C
 Hilec 620 C
 Hilec 710 C
 Hilec 720 C
 Turbo 117E A
 Turbo 117F A
 Turbocryl

Natvar

Acryliglas 727 N
 Natglas
 Natglas T & D
 Sil/Rub SRG-200 A
 Sil/Rub SRG-200 B
 Sil/Rub SRG-200 C

Sofanou (Jenisco)

AC 435
 AW 751
 AW 752
 ER 565
 HT 210
 HT 220
 WV 651
 WV 652

Sofanou (Markel Corp.)

Hygrade SR 398 H-A-1
 Hygrade SR 398 H-B-1
 Hygrade SR 398 H-C-1
 Hygrade SR 398 VW-1

Suflex (Essex)

Suflex Acrylflex C-1
 Suflex Acrylflex C-2
 Suflex Acrylflex C-3
 Suflex Acrylflex F A
 Suflex Acrylflex F B
 Suflex Acrylflex F C
 Suflex Acrylflex VPI
 Suflex Flexicone 200 A
 Suflex Flexicone 200 B
 Suflex Flexicone 200 C-1
 Suflex Silicone Resin A
 Suflex Silicone Resin B
 Suflex Silicone Resin C-1
 Suflex Silicone Resin C-2
 Suflex Silicone Resin C-3
 Suflex Silverflex T & D

Varflex

Varglas A397 F-A-1
 Varglas A397 F-B-1

Varglas A397 F-C-1
 Varglas Non-Fray Type H
 Varglas Non-Fray Type HO
 Varglas Silicone Resin 500 H-A-1
 Silicone Resin 500 H-B-1
 Silicone Resin 500 H-C-1
 Varglas Silicone Resin A
 Varglas Silicone Resin B
 Varglas Silicone Resin C
 Silicone Rubber ES 4400 H-A-1
 Silicone Rubber ES 4400 H-B-1
 Silicone Rubber ES 4400 H-C-1
 Silicone Rubber H-A-1
 Silicone Rubber H-B-1
 Silicone Rubber H-C-1
 Varglas 343 acrylic F-A-1
 Varglas 343 acrylic F-B-1
 Varglas 343 acrylic F-C-1

Tie Cords (optional)

Designation (No.)	Comments
Federal Mogul (Bently Harris)	
HT-30	Nomex
Hilec (Brand Rex, Voltube)	
FB856	
FB858	
800 Series	fiberglass tape
Varflex	
46	silicone coated fiberglass
48	silicone coated fiberglass
Various Manufacturers	
Fiberglass, untreated	
Potting Compounds (optional)	
Designation (No.)	Comments
Copps Industries, Inc.	
D-105	
Esterlite Co.	
146	
P. D. George Co.	
300	
Ripley Resin Engineering Co Inc	
468-2	
471-5LL	
Varnishes (optional)	Recognized Component - Varnishes (OBOR2)
Designation (No.)	Comments
Dow Corning Corp	
DC-997	for use only with a wrapped conductors.
John C. Dolph Co	
BC-346A, BC-346B, BC-346AN,	for use only with a wrapped conductors.
BC-346-E	
BC-359, BC-359MS	for use only with a wrapped conductors.
BC-362	for use only with a wrapped conductors.
CC-1096	for use only with ANSI Type MW35 magnet wire.
CC-1105, CC-1105HTC	for use only with a wrapped conductors.
P. D. George Co	
12-0-12	for use only with a wrapped conductors.
12-0-12I	for use only with a wrapped conductors.
40, F.C. 40, 13-0-40	for use only with a wrapped conductors.
711-F-2106	for use only with wrapped conductor or ANSI Type MW35 magnet wire.
961, 961-40	for use only with wrapped conductor or ANSI Type MW35 magnet wire.
1000	for use only with a wrapped conductors.
P. D. George Co/Sterling	

WS-79028	for use only with a wrapped conductors.
Thermodur Y-210, Blk, Grey, Y-210PS	for use only with a wrapped conductors.
Ranbar Electrical Materials Inc.	
B-142-5*, B-142-6*, B-142-7*, B-142-13*	* with or without suffix -66. for use only with a wrapped conductors.
B-185-4	may be followed by 1 or 2 characters, possibly followed by a -66 suffix and possibly by a -B, -R, -S or -T indicating types and amounts of solvents, fillers and/or colors for use only with a wrapped conductors.
B-529-@	@ may be followed by the letters A, B, C, F, LV, M, PC, T or a color. for use only with wrapped conductor or ANSI Type MW35 magnet wire.
B-535-5	for use only with a wrapped conductors.
B7-606-@	@ may be followed by the letters A, B, C, F, LV, M, PC, T or a color. for use only with a wrapped conductors.
534	for use only with a wrapped conductors.
Schenectady International Inc	
Aquanel 550, 550L	for use only with a wrapped conductors.
Aquanel 600	for use only with a wrapped conductors.
Isonel 31-398, 32RF, 31-863, 31-863X, 30	for use only with a wrapped conductors.
Isonel 51, 51FC	for use only with a wrapped conductors.
