

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 500, CeQuin I, CeQuin IF, IFI, FIF, CeQuin IG, IGI, GIG, CeQuin II, CeQuin V, CeQuin VF, VVF, VV, CeQuin VG, CeQuin VGV, GVG, CeQuinbord 3000, CeQuinbord CGA, CeQuinbord M, CorQuin, CorQuin (2 ply), TufQuin 110, TufQuin 120, TufQuin PC, TufQuin TF, TFT, FTF, TufQuinbord	QT-155TQ	155(F)

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.

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)

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)	
CeQuin 30F, 30F30, F30F	5 (0.13)	
CeQuin 30G, 30G30, G30G	5 (0.13)	
CeQuin 500	5 (0.13)	
CeQuin I	5 (0.13)	unfired ceramic based rubber bonded paper
CeQuin IF, IFI, FIF	5 (0.13)	
CeQuin IG, IGI, GIG	5 (0.13)	

CeQuin II	5 (0.13)	unfired ceramic based rubber bonded paper
CeQuin V	5 (0.13)	heat treated unfired ceramic like base rubber bonded paper
CeQuin VF, FVF, VFV	5 (0.13)	
CeQuin VG	5 (0.13)	heat treated unfired ceramic like base rubber bonded paper with glass cloth & acrylic adhesive
CeQuin VGV, GVG	5 (0.13)	
CeQuinbord 3000	5 (0.13)	
CeQuinbord CGA	5 (0.13)	unfired ceramic millboard and rubber bonded paper
TufQuin 110	3 (0.08)	
TufQuin 120	3 (0.08)	
TufQuin PC	4 (0.1)	TufQuin portion 4 mils minimum thickness (For laminate construction)
TufQuin TF, TFT, FTF	3 (0.08)	TufQuin portion minimum thickness
TufQuinbord	3 (0.08)	TufQuin portion minimum thickness

Paramount Paper Tube Mfg. Co.

ParaQuin	5 (0.13)
ParaQuin F	5 (0.13)
Rigid ParaQuin	5 (0.13)
Rigid ParaQuin F	5 (0.13)

Von Roll Isola (Bedford Materials)

CQG	5 (0.13)
CQM	5 (0.13)
MCQ	5 (0.13)

Lead Wire (optional)

- 150C EPDM - ethylene propylene diene monomer
- 150C SI - silicone rubber - with or without glass braid
- 150C XLPE - chemically crosslinked polyethylene
- 200C SI - silicone rubber - with or without glass braid

Minor Sheet Insulation (optional) layer, outer, wrap, etc.

Designation (No.)	Comments
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Any sheet insulation or tape described in this table with no minimum thickness requirement.

Cotrell Paper Co Inc.

Copaco 125

Innovative Paper Technologies, LLC

CeQuinbord M
CorQuin
CorQuin (2 ply)

Cores, Tubes, Bobbins (optional) (for mechanical support only)

Designation (No.)	Comments
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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

Kraft
Paratherm
Rigid Paratherm

Precision Paper Tube Co.

Kraft Paper
Pyroform 360

Tapes (optional)

Designation (No.)	Comments
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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
27	thermosetting rubber adhesive, glass cloth
28	thermosetting rubber adhesive, acetate cloth
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
1310	acrylic adhesive, polyester film
1339	acrylic adhesive, polyester film

DeWal Industries Inc.

D/W 469	thermosetting silicone adhesive, glass cloth
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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

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-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 acetate taffeta cloth
P-242	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
ST102C	rubber based, pressure sensitive glass filament reinforced polyester film
ST115	thermostable rubber adhesive, polyester glass reinforced
Various Manufacturers	
Cotton, Untreated	
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	
Innovative Paper Technologies, LLC	
Cequinbord M	
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	
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	
Ben Har ST (std)	
Ben Har ST-1250	
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	
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
 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
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Federal Mogul (Bently Harris)

HT-30	Nomex
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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 wrapped conductor or ANSI Type MW35 magnet wire.
John C. Dolph Co	
BC-346A, BC-346B, BC-346AN,	for use only with wrapped conductor or ANSI Type MW35 magnet
BC-346-E	wire.
BC-359, BC-359MS	for use only with ANSI Type MW35 magnet wire.
BC-362	for use only with wrapped conductor or ANSI Type MW35 magnet
	wire.
CC-1096	for use only with ANSI Type MW35 magnet wire.
CC-1105, CC-1105HTC	for use only with wrapped conductor or ANSI Type MW35 magnet
	wire.
P. D. George Co	
12-0-12	for use only with wrapped conductor or ANSI Type MW35 magnet
	wire.
12-0-12I	for use only with wrapped conductor or ANSI Type MW35 magnet
	wire.
40, F.C. 40, 13-0-40	for use only with wrapped conductor or ANSI Type MW35 magnet
	wire.
50, 50S	for use only with wrapped conductor or ANSI Type MW35 magnet
	wire.
60-60, 60-60S	for use only ANSI Type MW35 magnet wire.
433-75-VTC	for use only with ANSI Type MW35 magnet wire.
600, 600LV, 600LV Quick Cure,	for use only with ANSI Type MW35 magnet wire.
600HC, 600VT	
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 wrapped conductor or ANSI Type MW35 magnet
	wire.
P. D. George Co/Sterling	
Wat-A-Var WS-200, -200X, -	for use only with ANSI Type MW35 magnet wire.
200X Grey	
WS-79028	for use only with wrapped conductor or ANSI Type MW35 magnet
	wire.
Thermodur Y-210, Blk, Grey, Y-	for use only with wrapped conductor or ANSI Type MW35 magnet
210PS	wire.
Ranbar Electrical Materials Inc.	
B-142-5*, B-142-6*, B-142-7*,	* with or without suffix -66. for use only with a wrapped bare
B-142-13*	conductor.
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 bare
	conductor.
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

B-535-5	wire. for use only with wrapped conductor or ANSI Type MW35 magnet wire.
B7-373-@	@ 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.
B7-606-@	@ 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.
534	for use only with a wrapped bare conductor.
Von Roll Isola U S A Inc	
IMI 701#	# optional suffix A, B, or C. for use only with ANSI Type MW35 magnet wire.
IMI 707#	# optional suffix A, B, or C. for use only with ANSI Type MW35 magnet wire.
IMI 712#	# optional suffix A, B, or C. for use only with ANSI Type MW35 magnet wire.
IMI 73517#	# optional suffix A, B, or C. for use only with ANSI Type MW35 magnet wire.
IMI 73538#	# optional suffix A, B, or C. for use only with ANSI Type MW35 magnet wire.
IMI 9637	for use only with ANSI Type MW35 magnet wire.
