

## Silicone and Circuit Breakers

### Introduction

Silicone, a polymeric organic silicon compound, is widely used in manufacturing as water-and-heat-resistant lubricants, preservatives, binders, and electric insulators.

Square D™ and Schneider Electric™ brand circuit breakers may contain silicone-based products in the form of insulating sleeves, room-temperature-vulcanizing adhesives/sealants, insulating coatings, and greases.

Silicone is a major concern of some customers because it may result in flawed paint finishes that are either very expensive or impossible to correct. In particular, paint systems used by vehicle manufacturers are extremely sensitive to contamination by silicone particles. These particles repel paint, resulting in "fish-eyes" and streaks.

Most silicone contamination is either by direct transfer or by airborne particles. Airborne particles can contaminate both unpainted parts and paint baths. Direct transfer occurs when manufacturing workers come in contact with a silicone-based grease or oil and manually transfer the silicone to an unpainted part, resulting in a flawed paint finish.

As a result of this paint contamination, some manufacturers restrict the introduction of any form of silicone into their workplace. They have excluded such things as hand creams and lens tissues containing silicone oils. The use of these products by workers may result in direct transfer of silicone to unpainted parts.

In addition, some manufacturers have even excluded vendor products, such as circuit breakers, that are not directly associated with the painting process. The implementation of these silicone restrictions have been uneven and inconsistent. For example, some plant sites within the same company may ban any and all forms of silicone while others may allow inert forms, such as RTV, in the workplace.

### Schneider Electric's Position

It is Schneider Electric's position that customers need not be concerned about the usage of silicone in these circuit breakers. Silicone used in inert forms, such as RTV, on the external surfaces of circuit breakers cannot migrate once set, which usually is a few hours. Most Square D brand circuit breakers are factory sealed; therefore, plant personnel should not come into contact with internally used silicone.

### Silicone Usage

The following table lists Square D and Schneider Electric circuit breakers showing current silicone usage.

Table 1: Square D Brand Circuit Breakers

Circuit Breaker Family	Poles	Rating	Silicone	
ED, EG, EJ	1, 2, 3	15-125	None	
EH, EHB	1, 2, 3	15-30	None	
EH, EHB	1, 2, 3	35-100	B	
EHB-AS	1, 2, 3	15-30	Aa	
EH-EPD	1	15-50	Kk	
FA, FH	1	115-100	None	
FA, FH, FC	2, 3	15-100	A, G, I	
FD, FG	1, 2, 3	15-100	None	
FI	2, 3	20-100	A, B, G, I	
GJL	3	3-100	None	
HOM	1, 2	15-60	None	A. Adhesive sealant, Dow Corning® RTV732
HOM	2, 4	80-200	A	B. Silicone in insulating paint inside the circuit breaker
HOM-GFI, HOMT	1, 2	15-40	E	C. Adhesive sealant, GE RTV103
PowerPact H-Frame	2, 3	15–150 A	K, L, M, N, P	D. Silicone rubber tubing
PowerPact J-Frame	2, 3	70–250 A	K, L, M, N, P	E. Silicone coating inside the circuit breaker, Dow Corning 1-2577
PowerPact L-Frame	2, 3	70–600 A	K, L, M, N	F. Primer, Dow Corning 1204
KA, KH	2, 3	70-250	A, B, E, I	G. Silicone grease, Versilube®G321
KC, KI	2, 3	110-250	A, B, E, I	H. Dow Corning 321 + MoS2
KD, KG	2, 3	100-250	None	I. Silicone compound, Dow Corning #7
LA, LH	2, 3	125-400	A, D, H	J. Silicone coating inside the circuit breaker, Humiseal® 1C-51
LC, LI	2, 3	300-600	B, E, I	K. On the circuit board connection, Humiseal® 1C49
LE, LX, LXI	3	100-600	B, D, E, I	L. On the circuit board, Humiseal® 1A33
MA, MH	2, 3	300-1000	A, G, I	M. Adhesive sealant, Dow Corning® DC744 or GE® RTV5242
ME, MX	3	100-800	A, C, D, G, I	N. Adhesive on current transformers, Delo-Katiobond 45952
NA, NC	2, 3	600-1200	A, D, G	O. On circuit board, Humiseal 1C51 or Humiseal 1C49
NE, NX	3	600-1200	A, B, D, E, G, I	P. Silicone sponge rubber gasket inside circuit breaker
NH	2, 3	800-1200	A, E, I	
PA, PH	2, 3	600-2000	A, C	
PE	3	1000-2500	A, C	
PC	2, 3	1600-2500	A	
PX	3	1000-2500	A	
Q2	2, 3	100-225	None	
Q4	2, 3	250-400	A, D, H	
QE6	2, 3	125-200	A, G	
QEH, QE-VH	2, 3	70-100	B	
QH, QHB	1, 2, 3	15-30	None	
QO™, QOB, QOU	1, 2, 3	10-125	None	
QO-AS, QOB-AS	1, 2, 3	15-30	A	
QOM1	2	70-125	None	
QOM2	2	100-225	None	
QOT	1	15-30	None	
QO-GFI, QOB-GFI	1, 2	15-60	E	
QO-H, QOB-H	2, 3	15-30	None	
QO-H, QOB-H	2, 3	40-125	E	
QO-VH, QOB-VH	1, 2, 3	15-30	None	
QO-VH, QOB-VH	2, 3	40-125	E	
QO-VHGFI, QOB-VHGFI	1	15-30	E	
SE	3	1400-4000	A, C, D, E, F	

**Table 1: Square D Brand Circuit Breakers (continued)**

Circuit Breaker Family	Poles	Rating	Silicone	
Compact™ (IEC)	3, 4	15-3200	None	A. Adhesive sealant, Dow Corning® RTV732 B. Silicone in insulating paint inside the circuit breaker C. Adhesive sealant, GE RTV103 D. Silicone rubber tubing E. Silicone coating inside the circuit breaker, Dow Corning 1-2577 F. Primer, Dow Corning 1204 G. Silicone grease, Versilube®G321 H. Dow Corning 321 + MoS2 I. Silicone compound, Dow Corning #7 J. Silicone coating inside the circuit breaker, Humiseal® 1C-51 K. On the circuit board connection, Humiseal® 1C49 L. On the circuit board, Humiseal® 1A33 M. Adhesive sealant, Dow Corning® DC744 or GE® RTV5242 N. Adhesive on current transformers, Delo-Katiobond 45952 O. On circuit board, Humiseal 1C51 or Humiseal 1C49 P. Silicone sponge rubber gasket inside circuit breaker
CE Compact (UL)	3	15-100	None	
CF Compact (UL)	3	70-250	A	
CJ Compact (UL)	3	400-600	A	
CK Compact (UL)	3	400-1200	None	
CM Compact (UL)	3	1250-2500	None	
PowerPact™ M-Frame	2, 3	300–800	O, M	
PowerPact™ P-Frame	2, 3, 4	100–1200	K, L, M	
PowerPact™ R-Frame	2, 3, 4	240–3000	K, L, M	
Masterpact™ (IEC)	3, 4	800-6300	K, L, M	
Masterpact (UL/ANSI)	3	800-6300	K, L, M	
Multi 9 (IEC)	1, 2, 3, 4	1-125	None	
Multi 9 (UL)	1, 2, 3,	0.5-80	None	

**Schneider Electric USA, Inc.**  
3700 Sixth St. SW  
Cedar Rapids, IA 52404 USA  
1-888-778-2733  
[www.schneider-electric.us](http://www.schneider-electric.us)

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

Square D™ and Schneider Electric™ are trademarks or registered trademarks of Schneider Electric. Other trademarks used herein are the property of their respective owners.