



HIPEC® Q1-4939 Semiconductor Protective Coating

FEATURES

- Two part, 10:1 mixing ratio
- High purity
- Long pot life
- Protection of device surface against moulding compound induced stress
- High optical transparency for optocoupler applications
- Variable mixing ratio to control hardness
- Excellent moisture barrier
- Flexible over a wide range of temperature, from -55°C to +200°C
- Excellent dielectrical properties

High purity, transparent soft silicone elastomer

APPLICATIONS

- Formulated for the protection of semiconductors mounted in transfer moulded dual-in-line packages or plastic leadless chip carriers.
- Soft gel consistency protects large dies from stress induced by the moulding compound and reduces failures due to metallisation shifts or passivation cracking.
- Optically transparent for use in the protection of optocouplers.
- Wide operating temperature allows the assembled package to withstand severe environments without changes in the behaviour of the material.

TYPICAL PROPERTIES

Specification writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales representative prior to writing specifications on this product.

CTM*	ASTM*	Property	Unit	Value
Physical properties, as supplied				
0004	D445	Viscosity - Base	cSt	5,400
0004	D445	Viscosity - Curing Agent	cSt	2,200
0022	D792	Relative density at 25°C - Base		1.04
0022	D792	Relative density at 25°C - Curing Agent		1.03
0088		Sodium content, max.	ppm	2.0
0088		Potassium content, max.	ppm	2.0
0018		Hydrolyseable chloride content, max.	ppm	4.0
As supplied - mixed 10:1/base:curing agent				
0004	D445	Viscosity	cSt	5,200
0055		Pot life at 25°C	days	>7
Physical properties, cured 2 hours at 150°C				
0155		Penetration	1/10 mm	50
0002	D1218	Refractive index at 25°C		1.410
		Glass transition	°C	-119
		Water absorption 24 hours at 25°C	%	0.08
Electrical properties, cured 1 hour at 150°C				
0114	D149	Dielectric strength	kV/mm	22

* CTM: Corporate Test Method, copies of CTMs are available on request.

ASTM: American Society for Testing and Materials.

HOW TO USE

Mixing

HIPEC Q1-4939 Semiconductor Protective Coating consists of a base and curing agent supplied in separate containers. The recommended mixing

ratio for initial trials is 10:1 by weight. A suitable hand mixing procedure is as follows:

1. Use clean glass containers to minimise the possibility of contamination. The mixing container

should have at least four times the volume of material to allow for the expansion during the vacuum de-airing process described below.

2. Thoroughly mix the two components (see Handling Precautions) with a clean metal or plastic spatula, taking care to minimise air entrapment.
3. De-air the mixture by placing it in a vacuum of 10-20mm of mercury. 30 minutes is usually adequate. Releasing the vacuum several times during the first few minutes of the procedure helps to break the air bubbles which form. Allow the de-aired material to stand for 5 to 10 minutes to allow the remaining traces of the bubbles to be released.

Some customers have obtained beneficial results by increasing the hardness of HIPEC Q1-4939 Semiconductor Protective Coating in order to reduce movement of the coating during moulding. This can be achieved by varying the mixing ratio of the two components supplied.

Base	Curing agent	Hardness
10	1	Gel-penetration 50 x 0.1mm
9	1	Gel-penetration 33 x 0.1mm
4	1	60 Shore 00
3	1	18 Shore A
2	1	29 Shore A
1.5	1	39 Shore A
1	1	48 Shore A

Dispensing

HIPEC Q1-4939 Semiconductor Protective Coating can be dispensed onto the semiconductor surface using either a manual or semi-automatic syringe dispensing system. Fully automated mixing and dispensing equipment may also be used.

Cure

HIPEC Q1-4939 Semiconductor Protective Coating should be cured for 2 hours at 150°C in an air circulating oven with adequate ventilation. Curing temperatures below 120°C are not recommended.

HANDLING PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE FROM YOUR LOCAL DOW CORNING SALES REPRESENTATIVE.

USABLE LIFE AND STORAGE

When stored at or below 30°C in the original unopened containers, HIPEC Q1-4939 Semiconductor Protective Coating has a usable life of 24 months from the date of production.

PACKAGING

HIPEC Q1-4939 Semiconductor Protective Coating base and curing agent should be ordered in the desired ratio. The base is available in 454g and 3.62kg containers. The curing agent is available in 56.7g and 454g containers. The batch numbers of the base and curing agent supplied should be identical.

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Health, Environment and Regulatory Affairs specialists available in each area.

For further information, please consult your local Dow Corning representative.

WARRANTY INFORMATION - PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed

to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that Dow Corning's products are safe, effective, and fully satisfactory for the intended end use. Dow Corning's sole warranty is that the product will meet the Dow Corning sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. Dow Corning specifically disclaims any other express or implied warranty of fitness for a particular purpose or merchantability. Unless Dow Corning provides you with a specific, duly signed endorsement of fitness for use, Dow Corning disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.