chanhvinh.com

Technical Data Sheet

DOWSIL™ OR-2000 Standard Hard Gel

Two-part, translucent, 1:1 mix ratio, fast room temperature cure hard gel

Features & Benefits

- Fast room temperature cure, no ovens required
- Hardened gel for additional mechanical strength
- Optional heat accelerated cure

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Test[1]	Property	Unit	Result
CTM 0050	Viscosity (mixed)	cP	425
		mPa-sec	425
		Pa-sec	0.425
CTM 0540	Specific Gravity (Uncured)		0.97
CTM 0674	Gel Time at 25°C	minutes	10
CTM 0092	Working Time at 25°C	minutes	10
CTM 1098	Cure Time at 25°C (Rheometer T90)	minutes	90
CTM 1098	Cure Time at 50°C (Rheometer T90)	minutes	10
CTM 1098	Cure Time at 75°C (Rheometer T90)	minutes	5
CTM 1098	Cure Time at 100°C (Rheometer T90)	minutes	3
CTM 0099	Durometer	Shore 00	62
CTM 0137	Tensile Strength	psi	45
CTM 0137	Elongation	%	265
CTM 0114	Dielectric Strength	volts/mil	420
		kV/mm	16.5
CTM 0112	Dielectric Constant at 100 Hz		2.85
CTM 0112	Dielectric Constant at 100 kHz		2.86
CTM 0112	Dissipation Factor at 100 Hz		0.03
CTM 0112	Dissipation Factor at 100 kHz		< 0.0001
CTM 0249	Volume Resistivity	ohm*cm	7.10E+13
CTM 0585	Linear CTE (by TMA)	ppm/C	324

1. CTM: Corporate Test Method, copies of CTM's are available on request.

®™Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

© 2025 The Dow Chemical Company. All rights reserved.

chanhvinh.com

Description

Under certain conditions in specific designs or applications, DOWSIL™ OR-2000 Standard Hard Gel may lose adhesion. Full environmental exposure testing is recommended. Product can assist cost of ownership improvements due to their room temperature cure that requires no ovens though they can be heat accelerated if desired. These materials have enhanced chemical adhesion and cure slightly harder than standard gels, but may have limited applicability depending on processing conditions, device design, end-use environment and other conditions.

Gels are a special class of encapsulants that cure to an extremely soft material. Gels cure in place to form cushioning, self-healing, resilient materials. Cured gels retain much of the stress relief and self-healing qualities of a liquid while providing the dimensional stability of an elastomer which is increasingly needed for delicate components. Gels have been used to isolate circuits from the harmful effects of moisture and other contaminants and provide electrical insulation for high voltages. Another use is providing stress relief to protect circuits and interconnections from thermal and mechanical stresses. Gels are usually applied in thick layers to totally encapsulate higher architectures.

Mixing and De-airing

Gels can be dispensed manually or by using one of the available types of meter mix equipment. Typically, the two components are of matched viscosities and are readily mixed with static or dynamic mixers, with automated meter-mix normally used for high volume processes. For low-volume applications, manual weighing and simple hand mixing may be appropriate. Inaccurate proportioning or inadequate mixing may cause localized or widespread problems affecting the gel properties or cure characteristics. If possible, the potential for entrapment and incorporation of gas (typically air) should be considered during design of the part and selection of a process to mix and dispense the gel.

This is especially important with higher-viscosity and faster-curing gels. Degassing at > 28 inches (10–20 mm) Hg vacuum may be necessary to ensure a void-free, protective layer.

Pot Life and Cure Rate

Working time (or pot life) is the time required for the initial mixed viscosity to double at room temperature (RT). The cure reaction begins when DOWSIL™ OR-2000 Standard Hard Gel Parts A and B are mixed. As the cure progresses, viscosity increases until the material becomes a soft gel. Cure conditions are shown in the typical properties table. Cure is defined as the time required for a specific gel to reach 90% of its final properties. Gels will reach a no-flow state prior to full cure. Addition cure silicone gels may be RT and heat cure or exclusively heat cure. Adding heat accelerates the cure reaction. Additional time should be allowed for heating the part to near oven temperature. Cure schedules should be verified in each new application.

®™Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

© 2025 The Dow Chemical Company. All rights reserved.

chanhvinh.com

Useful Temperature Ranges

For most uses, silicone elastomers should be operational over a temperature range of -45 to 200°C (-49 to 392°F) for long periods of time. However, at both the low- and high temperature ends of the spectrum, behavior of the materials and performance in particular applications can become more complex and require additional considerations. For low-temperature performance, thermal cycling to conditions such as -55°C (-67°F) may be possible, but performance should be verified for your parts or assemblies. Factors that may influence performance are configuration and stress sensitivity of components, cooling rates and hold times, and prior temperature history. At the high-temperature end, the durability of the cured silicone elastomer is time and temperature dependent. As expected, the higher the temperature, the shorter the time the material will remain useable.

Compatibility

Certain materials, chemicals, curing agents and plasticizers can inhibit the cure of addition cure adhesives. Most notable of these include: organotin and other organometallic compounds, silicone rubber containing organotin catalyst, sulfur, polysulfides, polysulfones or other sulfur containing materials, unsaturated hydrocarbon plasitcizers, and some solder flux residues. If a substrate or material is questionable with respect to potentially causing inhibition of cure, it is recommended that a small-scale compatibility test be run to ascertain suitability in a given application. The presence of liquid or uncured product at the interface between the questionable substrate and the cured gel indicates incompatibility and inhibition of cure.

Repairability

In the manufacture of PCB system assemblies, salvage or rework of damaged or defective units is often required. Removal of DOWSIL™ dielectric gels to allow necessary repairs can be assisted by using DOWSIL™ OS fluids. Additional information regarding these products is available from Dow.

Digestive stripping agents, such as SU100 from Silicones Unlimited, can also be used. In addition, if only one component needs to be replaced, a soldering iron may be applied directly through the gel to remove the component. After work has been completed, the repaired area should be cleaned with forced air or a brush, dried, and patched with additional silicone gel.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. 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 ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life and Storage

Shelf life is indicated by the “Use Before” date found on the product label. Refer to the product label for storage temperature requirements. Special precautions must be taken to prevent moisture from contacting these materials. Containers should be kept tightly closed and head or air space minimized. Partially filled containers should be purged with dry air or other gases, such as nitrogen. Exposure to moisture could reduce adhesion and cause bubbles to form.

®™Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow

© 2025 The Dow Chemical Company. All rights reserved.

chanhvinh.com

Packaging Information

In general, DOWSIL™ dielectric gels are available in batch-matched kits containing both Part A and Part B components. Packages that are typically available include 210 mL dual cartridges, one gallon pails, five gallon pails and 55 gallon drums. Not all gels may be available in all packages, and some additional packages and package sizes may be available.

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 has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products — from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

How Can We Help You Today?

Tell us about your performance, design, and manufacturing challenges. Let us put our silicon-based materials experience, application knowledge, and processing experience to work for you.

For more information about our materials and capabilities, visit **dow.com**.

To discuss how we could work together to address your specific needs, go to **dow.com** for a contact close to your location. Dow has customer service teams, science and technology centers, application support teams, sales offices, and manufacturing sites around the globe.

®™Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow
DOWSIL™ OR-2000 Standard Hard Gel
© 2025 The Dow Chemical Company. All rights reserved.

chanhvinh.com

dow.com

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to “Dow” or the “Company” mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

®™Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
DOWSIL™ OR-2000 Standard Hard Gel
© 2025 The Dow Chemical Company. All rights reserved.