



Technical Data Sheet

DOWSIL™ 7500 Adhesive Kit

Two-part 1:1 mix ratio, translucent green, heat cure electronics pressure sensitive adhesive

Features & Benefits

- Heat cure
- Individual parts are blue and yellow to reduce potential for loading errors
- When properly mixed the PSA is green
- Cures to soft, low stress elastomer
- UV indicator allows for automated inspection
- Easy inspection under UV light
- Stencil / screen printable

Composition

- Two-part, translucent green
- Polydimethylsiloxane PSA

Applications

DOWSIL™ 7500 Adhesive is suitable for use with:

- PSA for bonding electronics components
- Stencil / screen printable pressure sensitive adhesive
- For bonding; FR4, Heat sinks and module components

Typical Properties

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

Test ¹	Property	Unit	Result
	One or two-part		Two
CTM0176	Appearance, Part A		Translucent yellow
CTM0176	Appearance, Part B		Translucent blue
	Appearance, Mixed		Translucent green
	Heat Cure Time at 125°C	minutes	5
CTM1098	Complex Viscosity, Part A, 10 rad/sec	cP	100,000
		mPa-sec	100,000
		Pa-sec	100

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

Typical Properties (Cont.)

Test	Property	Unit	Result
CTM1098	Complex Viscosity, Part B, 10 rad/sec	cP	80,000
		mPa-sec	80,000
		Pa-sec	80
CTM1098	Complex Viscosity, 10 rad/sec	cP	81,000
		mPa-sec	81,000
		Pa-sec	81
CTM1098	Complex Viscosity, 100 rad/sec	cP	35,500
		mPa-sec	35,500
		Pa-sec	35
CTM1098	Thixotropic Ratio		2.3
CTM0099	Durometer	Shore 00	40
CTM0208	Volatile Content	%	5.3
CTM0270	90 °Peel Adhesion	lb/in	2.4
	Shelf Life at 25°C	months	12

Description

DOWSIL™ 7500 Adhesive Kit, electronics pressure sensitive adhesive (PSA), supplied as a two-part liquid component kit and has a convenient 1:1 mix ratio. Part A is a translucent yellow and part B is a translucent blue and contains a UV indicator; upon mix the material becomes a translucent green. DOWSIL™ 7500 Adhesive Kit was designed to be screen or stencil printable. The material is heat cured to achieve a soft PSA for bonding electronics components; FR4, heat sinks and module components.

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 plasticizers, 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.

Processing/Curing

Adhesives 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 adhesive 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 materials. 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 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 material to reach 90% of its final properties. Adhesive will reach a no-flow state prior to full cure. Addition cure silicones 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.

Adhesion

Adhesion typically lags behind cure and may take 72 hours to build in some materials. Dow adhesives are formulated to provide adhesion to most common substrates and materials. On certain difficult, low-surface energy surfaces, adhesion may be improved by priming or by special surface treatment such as chemical or plasma etching.

Usable 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.

Repairability

In the manufacture of Printed Circuit Boards (PCB) system assemblies, it is often desirable to salvage or reclaim damaged or defective units. Adhesive can be removed from the substrates and circuitry by scraping or cutting, or by using solvents or stripping agents. Removal of adhesive to allow necessary repairs can be assisted by using DOWSIL™ OS fluids. Additional information regarding these products is available from Dow.

In addition, if only one component needs to be replaced, a soldering iron may be applied directly through the adhesive to remove the component. Proper ventilation of any fumes should be employed. After work has been completed, the repaired area should be cleaned by brushing or by using solvent, then dried and recoated with additional silicone adhesive.

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.

Packaging Information

In general, DOWSIL™ 2-part adhesives 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 adhesives 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.

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