Technical Data Sheet

DOWSIL™ 282 Adhesive

Pressure sensitive adhesive

Features & Benefits

- Good adhesion
- Adhesion to 260°C (500°F)

Composition

- Polydimethyl disiloxane gum and resin dispersion; high-viscosity liquid

Applications

- Masking and plating tapes
- Applications requiring a balance of properties emphasizing high adhesion

Typical Properties

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

Property	Unit	Result
Appearance		Translucent
Diluent		Xylene
Active Ingredient	percent	55–57
Viscosity at 25°C (77°F)	cp	30,000–80,000
Specific Gravity at 25°C (77°F)		0.98
Flash Point, tag closed cup	°C (°F)	27 (81)
Electrical Properties of the Cured Adhesive Film[1]		
Electric Strength[2]	V/mil	1500
Dielectric Constant		
At 10^2 Hz		2.98
At 10^5 Hz		2.87
Dissipation Factor		
At 10^2 Hz		0.005
At 10^5 Hz		0.004
Volume Resistivity	ohm-cm	7.2×10^{15}

1. After 96 hours at 23°C (73°F) and 50 percent relative humidity.
2. Measured with 6.35 mm (1/4 in) electrodes on 2 mil film of adhesive cured on an aluminum panel.

Form No. 30-076-01-1120 S2D

Description

DOWSIL™ 282 Adhesive is a dispersion of polydimethyl disiloxane gum and resin. It is diluted with xylene to 55 percent silicone solids content.

How to Use

DOWSIL™ 282 Adhesive can be applied, as supplied, to backing materials by conventional tape coating equipment. It can be further diluted with compatible solvents[1] or blended with other silicone pressure sensitive adhesives before being coated.

Catalysts

To achieve a good balance of tack, adhesive strength and cohesive strength over a wide range of operating temperatures, proper cure is essential. One of the factors affecting cure is the catalyst.

Catalysts such as benzoyl peroxide[2] may be used with DOWSIL™ 282 Adhesive to either accelerate the rate of cure or to allow lower curing temperatures. The use of catalysts also increases the cohesive strength of the adhesive mass and promotes anchorage to the backing material. Peroxide concentration can be varied from 0.5 to 3.0 percent (based on adhesive solids), depending on such factors as backing material, coating equipment, cure cycle and the properties desired. Increasing peroxide concentration in DOWSIL™ 282 Adhesive will decrease the tack and adhesive strength, but will increase the cohesive strength of the product.

The most consistent results are achieved by using powdered 98 percent benzoyl peroxide. Complete blending of peroxide and adhesive is best obtained by first making a 10 percent solution of the peroxide in toluene.

NOTE: Solvent dispersions of peroxides should be used within a day or two after mixing, as the peroxide loses its activity quite rapidly in solvent. Thorough dispersion of the adhesive and peroxide during mixing is necessary to achieve uniform results in the finished product.

Solvent Removal

To cure DOWSIL™ 282 Adhesive following its application to the backing material, first remove the solvent. Recommended temperatures for removal range from 66 to 93°C (150 to 200°F). Higher removal temperatures can cause the peroxide to decompose prematurely and crosslink the solvent into the adhesive. This can reduce the properties of the finished tape. The length of time for solvent removal should be sufficient to ensure that no solvent is present in the adhesive when it enters the curing zone.

Curing the Adhesive

After the solvent is removed, a tacky, uniform film of adhesive is left on the backing. This film's adhesive and cohesive strengths, as well as the tack, can be further developed by a heat cure. The amount of cure depends on a number of factors, including the type of catalyst or equipment and backing material.

A cure of 1 minute at 66°C (150°F) for solvent removal, followed by 2 minutes at 177 to 204°C (350 to 400°F) is used for adhesive that contains benzoyl peroxide.

[1]When using any solvent, always provide adequate ventilation. Follow the solvent manufacturer's safe handling precautions as well as local, state and federal guidelines.
[2]Benzoyl peroxide: Luperox A98 (formerly Lucidol 98 from Afofina Chemicals North America, Cadox BFF 50 powder or BP 55 paste from Akzo Chemie of America, Noury Chemical Division.

How to Use (Cont.)

Curing the Adhesive (Cont.)

If equipment and type of backing material permit the use of higher curing temperatures, the cure time may be shortened. Higher cure temperatures develop cohesive strength of the adhesive in less time than at lower temperatures. The ultimate adhesive strength of the fully cured material is essentially the same whether cured at higher or lower temperatures. The only difference is the time required to reach complete cure.

Anchorage to Backing

To achieve maximum anchorage of the adhesive to the backing, a primer may be required. Contact your local technical service for assistance in selecting a primer formulation.

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

DOWSIL™ 282 Adhesive has a shelf life of 9 months from date of manufacture when stored in original, unopened containers at or below 32°C (90°F). Refer to product packaging for "Use By" date.

Packaging Information

This product is available in a variety of container sizes.

Limitations

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

Shipping Limitations

DOT classification: Flammable.

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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