

April, 2009

## 3M™ Double Coated Urethane Foam Tape 4016

### Product Description

3M™ Double Coated Urethane Foam Tapes are conformable foams that offer high shear strength with a high temperature holding acrylic adhesive system for bonding to various types of surfaces for mounting, joining and holding.

### Product Features

- The natural colored urethane foam tape products vary in color from white to light yellow. The color will change to light yellow upon exposure to sunlight (ultraviolet radiation). This color change is normal and does not affect tape performance.



# 3M™ Double Coated Urethane Foam Tape 4016

## Technical Information Note

The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

## Typical Physical Properties

| Property            | Values                |                       | Notes  |
|---------------------|-----------------------|-----------------------|--|
| Color               | Natural               |                       |  |
| Thickness: Nominal  | 1.6 mm                | 62.5 mil              |  |
| Thickness Tolerance | 1.142 to 2.03 mm      | 45 to 80 mil          |  |
| Adhesive Type       | 100                   |                       | 3M™ Adhesive 100 is a firm acrylic pressure sensitive adhesive system. It features high ultimate bond strength, very good high temperature and solvent resistance and very high shear holding power. Bond strength increases substantially with natural aging. |
| Adhesive Carrier    | Polyurethane Foam     |                       |  |
| Foam Density        | 175 kg/m <sup>3</sup> | 11 lb/ft <sup>3</sup> |  |
| Liner Thickness     | 0.08 mm               | 3 mil                 |  |
| Liner Color         | Green Plaid           |                       |  |

## Typical Performance Characteristics

| Property            | Values   |                        | Notes  |
|---------------------|--|------------------------|--|
| Normal Tensile      | 345 kPa  | 50 lb/in <sup>2</sup>  | ("T" Block); 1 in <sup>2</sup> (6.45 cm <sup>2</sup> ); Jaw Speed 2 in/min (50 mm/min) |
| Tensile Strength    | 965 kPa  | 140 lb/in <sup>2</sup> |  |
| Elongation at Break | 100 %  |                        |  |
| Solvent Resistance  | No apparent degradation when exposed to splash tests of most hydrocarbon solvents. |                        |  |
| UV Resistance       | No apparent degradation when exposed to 7 days in U.V. chamber.                    |                        |  |

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## 3M™ Double Coated Urethane Foam Tape 4016

### Typical Performance Characteristics (continued)

| Property                  | Values  |  | Notes |
|---------------------------|---|--|-------|
| Cold Flex @ -20°F (-30°C) | No cracking when flexed around a 1/4 in (6.4 mm mandrel). |  |       |

| Relative High Temperature Operating Ranges |        | Test Condition              |
|--|--------|-----------------------------|
| 193 °C                                     | 380 °F | Short Term (minutes, hours) |
| 104 °C                                     | 220 °F | Long Term (days, weeks)     |

Property: Relative High Temperature Operating Ranges

| Static Shear | Test Condition   |
|--------------|------------------|
| 1500 g       | Room Temperature |
| 1000 g       | 49°C (120°F)     |
| 750 g        | 66°C (150°F)     |
| 750 g        | 93°C (200°F)     |

Property: Static Shear

### Available Sizes

| Property                  | Values                                |          |
|---------------------------|---------------------------------------|----------|
| Note                      | Subject to Minimum Order Requirements |          |
| Standard Length           | 32.9 m                                | 36 yd    |
| Maximum Length            | 91 m                                  | 100 yd   |
| Available Width           | 1168 mm                               | 46 in    |
| Normal Slitting Tolerance | ±0.8 mm                               | ±1/32 in |

### Electrical and Thermal Properties

| Property                       | Values           |                           |
|--------------------------------|------------------|---------------------------|
| Dielectric Strength            | 200 to 300 V/mil | 8 to 12 V/μm              |
| Thermal Conductivity (k value) | 0.062 W/m/K      | 0.036 (btu-ft)/(h-ft²-°F) |

### Handling/Application Information

#### Application Ideas

The urethane foam tapes are generally ideal for interior applications or for exterior applications where the tape will be protected from the environment. The urethane foam is open cell.

3M™ Double Coated Urethane Foam Tape 4016 – Mount interior signs and nameplates

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## Handling/Application Information (continued)

### Application Techniques

- Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure helps develop better adhesive contact and improve bond strength.
  - To obtain optimum adhesion, the bonding surfaces must be clean, dry and well unified. Typical surface cleaning solvents are isopropyl alcohol\* and water (rubbing alcohol) or heptane.
  - Ideal tape application temperature range is 70°F to 100°F (21°C to 38°C). Initial tape application to surfaces at temperatures below 50°F (10°C) is not recommended because the adhesive becomes too firm to adhere readily. However, once properly applied, low temperature holding is generally satisfactory.
- \*Note: Be sure to follow the manufacturer's precautions and directions for use when using solvents.

### Storage and Shelf Life

Store in original cartons at 70°F (21°C) and 50% relative humidity.  
To obtain best performance, use these products within 24 months from date of manufacture.

### Trademarks

3M is a trademark of 3M Company.

### References

### Safety Data Sheet (SDS)

[https://www.3m.com/3M/en\\_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en\\_US&co=ptn&q=4016](https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=4016)

### Family Group

|  | 4004              | 4008              | 4016              | 4026              | 4032              | 4052              | 4056              | 4085              |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Relative High Temperature Operating Ranges (°C)<br>Test Condition: Short Term (minutes, hours) | 193               | 193               | 193               | 193               | 193               | 193               | 93                |                   |
| Relative High Temperature Operating Ranges (°C)<br>Test Condition: Long Term (days, weeks)     | 104               | 104               | 104               | 104               | 104               | 104               | 52                |                   |
| Color  | Natural           | Natural           | Natural           | Natural           | Natural           | Black             | Black             | Natural           |
| Thickness: Nominal (mm)  | 6.4               | 3.2               | 1.6               | 1.6               | 0.8               | 0.8               | 1.6               | 1.2               |
| Thickness Tolerance (mm)   | 5.46 to 7.24      | 2.79 to 3.81      | 1.142 to 2.03     | 1.142 to 2.03     | 0.64 to 1.02      | 0.64 to 1.02      | 1.142 to 2.03     | 1 to 1.45         |
| Adhesive Type  | 100               | 100               | 100               | 100               | 100               | 100               | 100               | 740               |
| Adhesive Carrier   | Polyurethane Foam | Polyurethane Foam | Polyurethane Foam | Polyurethane Foam | Polyurethane Foam | Polyurethane Foam | Polyurethane Foam | Polyurethane Foam |
| Liner Thickness (mm)   | 0.08              | 0.08              | 0.08              | 0.08              | 0.08              | 0.08              | 0.08              | 0.08              |
| Liner Color  | Green Plaid       | Green Plaid       | Green Plaid       | Green Plaid       | Green Plaid       | Green Plaid       | Green Plaid       | Tan               |

### ISO Statement

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

## Recognition/Certification

MSDS: 3M has not prepared MSDSs for these products which are not subject to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R. 1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, these products should not present a health and safety hazard. However, use or processing of the products in a manner not in accordance with the directions for use may affect their performance and present potential health and safety hazards. TSCA: These products are defined as articles under the Toxic Substances Control Act and therefore, are exempt from inventory listing requirements.

## Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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