

October, 2015

3M™ Gripping Material GM641

Product Description

Finite Element Analysis (FEA) data is available for this product at: 3m.com/FEA

3M™ Gripping Material utilizes 3M's proprietary micro-replication technology to create a high-friction surface which can enhance grip and reduce slippage. These Pressure Sensitive Adhesive (PSA) versions of 3M™ Gripping Materials are constructed using a thin flexible fabric backing laminated to an acrylic PSA which is designed to bond to a wide variety of surfaces; including low surface energy substrates. These products all utilize the same 300LSE PSA which allows the Gripping Materials to be easily applied using a peel and stick application. 3M™ Gripping Material products are designed to be used alone, or as a two-part mated system. When used alone (on a single surface), the soft 3M™ Gripping Materials provide a strong secure grip. When used as a two-part mated system, for example, on a glove and handle bar, grip strength is maximized. As firmly as 3M™ Gripping Material holds, it releases just as easily.



Product Features

- Composed of tough, durable thermo-plastic elastomer
- The 3M™ Gripping Materials contain 3,000 stems or 'tiny fingers' per square inch to provide excellent grip performance in both wet and dry conditions
- Stems can provide a cushioned feel for many applications
- Good abrasion resistance
- Reinforced with polyester knit
- Wide useable temperature range: -40°F to 140°F (-40°C to 60°C) (Dependent upon the particular application)
- Contains mineral oil which can migrate out of the product under some conditions
- This product can also be ordered with 6035PC PSA

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		Method
Color	Black		
Total Tape Thickness	0.97 mm	38 mil	ASTM D3652
Weight (Without liner)	568 g/m ²	16.8 oz/yd ²	

Typical Cured Characteristics

Shore A Hardness: 40

Conditions

Temp C: 23C

Temp F: 73F

Methods

ASTM D2240

Typical Performance Characteristics

Tensile Strength		Test Condition
41.5 N/cm	379 oz/in	Machine Direction
49.3 N/cm	450 oz/in	Cross Direction

Property: Tensile Strength
Method: ASTM D5035

Tear Resistance		Test Condition
10.4 N	2.3 lb	Machine Direction
12.7 N	2.8 lb	Cross Direction

Property: Tear Resistance
Method: ASTM D5734

Property	Values	Method	Test Condition	Notes
Elongation at Break	55 %	ASTM D882	Machine Direction	
Elongation at Break	101 %	ASTM D882	Cross Direction	
Abrasion Resistance	3000 revolutions	ASTM D3389	Wear through	H18, 500g
Abrasion Resistance	0.21 mg/revolution		Wear rate	Weight loss rate at 1000 revolutions
Coefficient of Friction	2.6/2.1	ASTM D1894	Grip to Grip System – Dry / Wet	COF of 3M™ Gripping Material to itself.

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Typical Performance Characteristics (continued)

Property	Values	Method	Test Condition	Notes
Coefficient of Friction	1.9/1.3	ASTM D1894	Grip to Synthetic Classic Leather – Dry / Wet	Synthetic Nassimi Classic Faux Leather (Vinyl)

Available Sizes

Property	Values	
Standard Roll Length	32.9, 65.8 m	36, 72 yd
Standard Width	2.54, 61 cm	1, 24 in

Handling/Application Information**Application Examples**

When used to spiral wrap a handle, it is recommended that electrical tape be used to finish off the ends of the wrap. This helps the wrap look great and prevents ends from lifting during use.

Application Techniques

For maximum bond strength, the substrate surface should be thoroughly cleaned and dried. Typical cleaning solvents are heptane and isopropyl alcohol. Test the substrate surface to ensure the solvents clean the surface properly and do not harm the surface. Carefully read and follow the manufacturer's precautions and directions for use when using cleaning solvents. This cleaning recommendation may not be compliant with the rules of certain Air Quality Management Districts in California; consult applicable rules before use.

Ideal tape temperature application range is 70°F to 100°F (21°C to 38°C). Application to substrate surfaces that are below 50°C is not recommended because the adhesive can become too firm to adhere readily. Once properly adhered, low temperature holding is generally satisfactory.

Firm, even pressure should be used when applying 3M™ Gripping Material to ensure good adhesion between the substrate and adhesive. Minimum tension should be used to avoid stretching and distortion of the product. In some applications, a roller may be used to apply the 3M™ Gripping Material, but care must be taken to ensure that this does not damage the stems of the 3M™ Gripping Material.

3M™ Gripping Material will bond on contact, so parts can be handled immediately. Once applied, adhesive bond strength will continue to increase with time, pressure, and temperature. At room temperature, approximately 50% of the ultimate strength will be achieved after 20 minutes, 90% after 24 hours, and 100% after 72 hours. Bond strength can be improved with firm application pressure and moderate heat, from 100°F (38°C) to 130°F (54°C), which causes the adhesive to develop improved contact with the substrate surface. Abrasion of the substrate surface and / or the use of 3M Primers / Adhesion Promoters such as 3M™ Primer 94 and 3M™ Adhesion Promoter 111 can also be used. Consult the Technical Data Sheets for these and other 3M Primers / Adhesion Promoters for additional information.

Maintenance

3M™ Gripping Materials can be hand washed with mild detergent in cool to warm water. Surface contamination – lint or other debris – can be easily removed with Scotch® Tape, Scotch® Lint Roller and Scotch® Lint Sheets, or other lint removing mechanisms.

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Converting

Pressure Sensitive Adhesive backed 3M™ Gripping Materials can be shear cut, die-cut, or converted by other applicable methods. Minimum tension should be used to avoid stretching and distortion of the product. Avoid direct contact with heated processing surfaces, in excess of 160°F (71°C), for prolonged periods of time.

Storage and Shelf Life

Store under normal conditions of 60° to 80°F (16° to 27°C) and 40% to 60% Relative Humidity in the original carton. To obtain best performance, use this product within 18 months from date of manufacture.

Trademarks

3M is a trademark of 3M Company.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/company-us/search/?Ntt=GM641
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=GM641

Family Group

	GM631	GM641	GM531	GM400
Color	Gray	Black	Black	Black
Total Tape Thickness (mm)	0.97	0.97	0.91	0.81

ISO Statement

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

Information

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