

LOCTITE® EDAG PM 404

April 2025

PRODUCT DESCRIPTION

LOCTITE® EDAG PM 404 provides the following product characteristics:

Technology	Thermoplastic
Appearance	Black
Operating temperature, °C	100, continuous
Product benefits	<ul style="list-style-type: none"> • Non-conductive • Screen printable • Flexible low temperature drying cycles • Flexible resistive • Excellent screen residence time • Flexible low temperature drying cycles • Good adhesion
Cure	Heat drying
Application	Non-conductive ink
Typical assembly applications	Various resistive applications, Printed resistors, Heating elements, Sensing devices and Protection against electrostatic discharge (ESD)
Key substrates	PET, PEN, PI, Paper

LOCTITE® EDAG PM 404 is a non-conductive ink. It is used to adjust and increase the resistance of the carbon conductive ink LOCTITE® EDAG 6017SS for resistive heating applications.

TYPICAL PROPERTIES OF UNDRIED MATERIAL

Solid content, wt%	39
Viscosity, Brookfield RVT, 25°C, after 1 min, mPa.s (cP) Speed 20 rpm	18,000
Density, g/cm ³	1.27
Theoretical coverage, m ² /kg at 10 µm dry coating thickness	14
Shelf life at 5 to 30°C, from date of qualification in original seal, days	365
Flash point, DIN 53213, °C	78

TYPICAL SCREEN PRINTING PROCESS

Blends of LOCTITE® EDAG PM 404 and ELECTRODAG® 6017SS are applied by standard screen printing techniques.

Emulsion thickness	
Emulsion thickness, µm	20 to 40

Recommended squeegee

Polyurethane, durometer	70 to 75
-------------------------	----------

Recommended screen type

Monofilament polyester screen, threads/cm	61 to 90
Stainless steel screen, threads/cm	77 to 110

Printing equipment type

Manual
Semi-automatic
High speed reel-to-reel

TYPICAL DRYING PERFORMANCE

Recommended drying cycle

15 minutes at 120°C

Blends of LOCTITE® EDAG PM 404 and LOCTITE® EDAG 6017SS can be dried in conventional air circulated ovens. Higher temperatures will shorten the drying time and will lead to more stable resistance values. For high speed production, jet drying, infra-red drying and drying in high speed reel-to-reel equipment can be used.

The above drying profile is a guideline recommendation. Conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer drying equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF THE DRIED MATERIAL

Physical properties

Adhesion on PET, ASTM D3359, grade	5B
------------------------------------	----

Blending ratios of LOCTITE® EDAG PM 404 and LOCTITE® EDAG 6017SS, dried 15 minutes @ 120°C.

EDAG 6017SS (wt%)	EDAG PM 404 (wt%)	Sheet Resistance (Ohm/sq/25µm)
100	0	35
90	10	50
80	20	70
70	30	105
60	40	170
50	50	290
40	60	675
30	70	2,160
25	75	4,500
20	80	35,000
10	90	> 1 x 10 ⁹

GENERAL INFORMATION

For safe handling information on this product, consult the Safety Data Sheet (SDS).

Directions for use

1. LOCTITE® EDAG PM 404 is supplied ready for use.
2. Should dilution be necessary, use butyl glycol acetate (CAS: 112-07-2). Henkel recommends a maximum of 10 wt%. This should be accomplished by adding solvent at 0.5 wt% intervals until desired viscosity and printability is achieved.
3. If a gel structure forms after extended storage, the product may be warmed slightly in a water bath (not exceeding 50°C) and stirred with a mechanical stirred. Very often, stirring is enough to obtain a proper viscosity again.
4. Blending with LOCTITE® ECI 7004LR or LOCTITE® ECI 7004HR should be performed with a mechanical propeller mixer for the entire jar volume. Avoid rapid stirring as this causes air entrapment.

Clean-up

The screen and equipment can be cleaned with dilution solvent, or esters (butylacetate, propylacetate, or ethylacetate), or ketones (MEK, Acetone), or similar solvents.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal storage: 5 to 30°C

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Henkel representative.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on the specifications of this product.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\mu\text{m} / 25.4 = \text{mil}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

Disclaimer

The information provided in this Technical data sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical data sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, or Henkel Canada Corporation, the following disclaimer is applicable:

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.



Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 2