

# 3M™ Trizact™ Diamond Tile Abrasive Pad 677XAEL, 45 Micron

## Product Description

3M™ Trizact™ Diamond Tile Abrasive Pad 677XAEL, 45 Micron is a structured, fixed abrasive composite pad consisting of vitreous diamond agglomerates in a cross-linked polymer organic binder capable of lapping a multitude of substrates on varied equipment and processes.

## Key Advantages

- Fast, consistent cut rates
- Finer finish, resulting in faster polishing in subsequent steps
- Helps improve part flatness (TTV)
- Less edge roll-off compared to slurries
- Helps reduce total process time
- Long pad life
- Helps reduce slurry waste
- Virtually eliminates lap plate replacement
- Fits on most lapping machines
- Includes pressure sensitive adhesive (PSA) backing for mounting

## Product Construction / Material Description

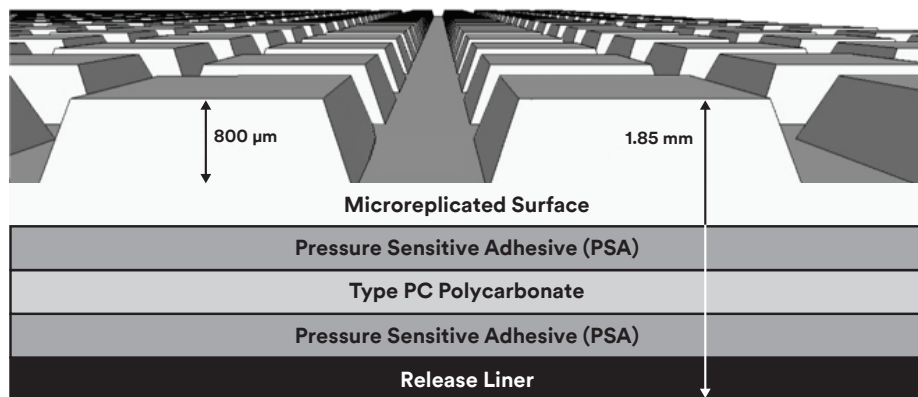
**Note:** The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

3M™ Trizact™ Diamond Tile Abrasive Pad 677XAEL, 45 Micron can be manufactured to almost any shape and lubricant hole configuration. The table below shows the recommended specification based on the disc/sheet size.

### 3M™ Trizact™ Diamond Tile Abrasive Pad 677XAEL, 45 Micron

| Disc/Sheet Size                                     | Specifications                                                                                                                          |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Smaller than 9" (229 mm)                            | 3M™ Trizact™ Diamond Tile Abrasive Pad 677XAEL, 45 Micron                                                                               |
| 9" (229 mm) or larger<br>Smaller than 47" (1193 mm) | 3M™ Trizact™ Diamond Tile Abrasive Pad 677XAEL, 45 Micron Type PC, one piece.<br>Polycarbonate backing adds rigidity to larger discs.   |
| 47" (1193 mm) or larger                             | 3M™ Trizact™ Diamond Tile Abrasive Pad 677XAEL, 45 Micron Type PC, four pieces.<br>Polycarbonate backing adds rigidity to larger discs. |

## 3M™ Trizact™ Diamond Tile Abrasive Pad 677XAEL, 45 Micron



Not to scale

## Applications

- A-, C- and R-plane sapphire rough lapping
- Rough lapping for silicon carbide (SiC), zirconia (ZrO<sub>2</sub>), glass, silicon dioxide and silicon materials
- Trizact pads can be used with either single- or dual-sided lapping tools and can be directly mounted onto most lapping plates, including flat/smooth, grooved and waffle patterns.

## Application Techniques

The following technical application documents are available on [3M.com/electronics](https://www.3m.com/electronics):

- 3M™ Trizact™ Diamond Tile 677XA Machine Prep and Pad Mounting
- 3M™ Trizact™ Diamond Tile 677XA Pad Conditioning Procedure
- 3M™ Trizact™ Diamond Tile 677XA Lubricant Use and Filtering
- 3M™ Trizact™ Diamond Tile 677XA Frequently Asked Questions

## Typical Physical Properties and Performance Characteristics

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### 3M™ Trizact™ Diamond Tile Abrasive Pad 677XAEL, 45 Micron Double-Sided Lapping

| Sapphire Plane             | Removal Rate (µm/min)                                                                   | Ra (µm) | Average Pad Wear (µm/min) |
|----------------------------|-----------------------------------------------------------------------------------------|---------|---------------------------|
| A-Plane                    | 13.0                                                                                    | 0.47    | 0.3                       |
| R-Plane                    | 23                                                                                      | 0.78    | 0.3                       |
| C-Plane                    | 4.8                                                                                     | 0.42    | 0.3                       |
| Machine Process Parameters |                                                                                         |         |                           |
| Pad Diameter (OD x ID)     | 25" x 9" (635 mm x 229 mm)                                                              |         |                           |
| Platen Speed               | Upper: 26 rpm<br>Lower: 60 rpm<br>Sun Gear: 20 rpm                                      |         |                           |
| Lubricant                  | 5% Challenge 543 HT; 2% 35 µm plated white aluminum oxide (PWA) in Deionized Water (DI) |         |                           |
| Flow Rate                  | 60 ml/min                                                                               |         |                           |
| Downforce                  | 1.0 psi                                                                                 |         |                           |
| Wafers per Batch           | 20, 2" (51 mm) diameter sapphire                                                        |         |                           |

## 3M™ Trizact™ Diamond Tile Abrasive Pad 677XAEL, 45 Micron

### Storage and Shelf Life

The shelf life of 3M™ Trizact™ Diamond Tile Abrasive Pad 677XAEL, 45 Micron is 12 months from the date of manufacture when stored flat in the original packaging materials and stored in a dry place at 21°C (70°F) and 50% relative humidity.

3M recommends storing flat in original packaging materials.

**Safety Data Sheet:** Consult Safety Data Sheet before use.

**Regulatory:** For regulatory information about this product, contact your 3M representative.

**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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