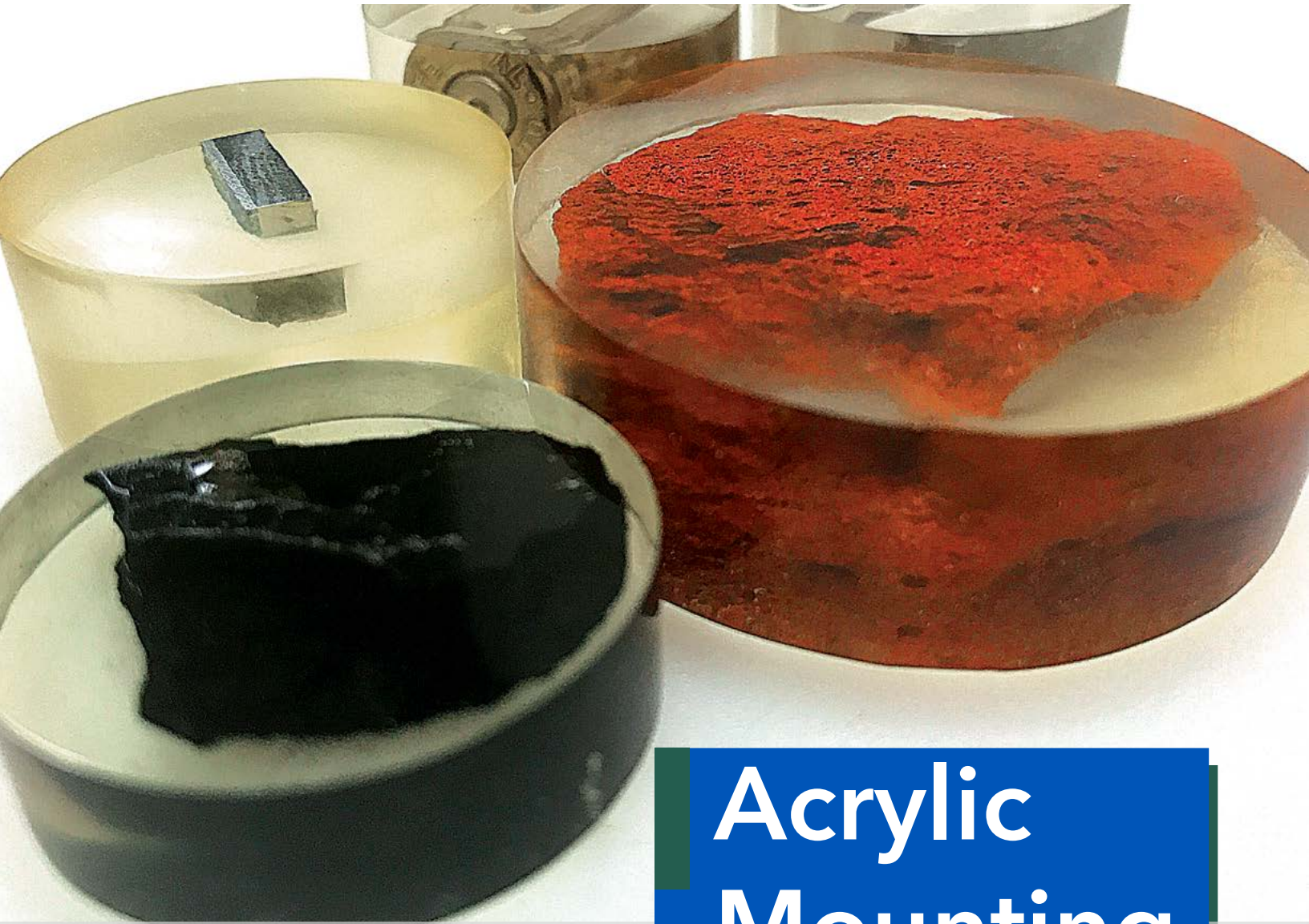




BUEHLER

Strong Partner, Reliable Solutions



A complete line of Acrylic
Mounting Systems, & Accessories

Acrylic Mounting Guide



www.buehler.com

WHY IS MOUNTING IMPORTANT?

Sample Quality

Mounting metallographic samples helps to protect and preserve edges during metallographic preparation. Maintaining specimen edges is crucial when evaluating the material surface.

Automation

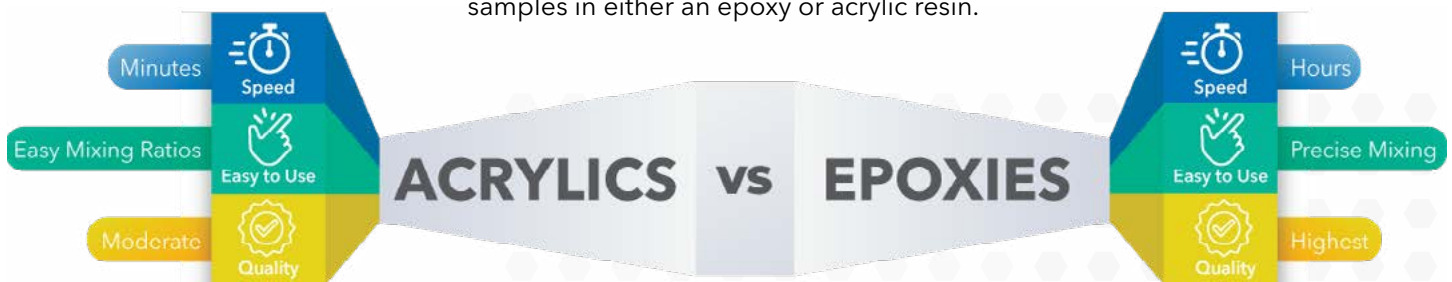
Mounting enables automation of preparation processes, quality of material preparation, and eliminates subjectivity of operator. A secondary benefit of mounting is ease of handling during the preparation process in the event manual preparation is performed.

What is Proper Mounting?

The mounting process should not cause any damage to the microstructure of the specimen. It is important to understand what conditions will adversely affect the material being mounted and to choose a mounting technique accordingly.

Castable Mounting Systems

Recommended for mounting specimens that are sensitive to heat and/or pressure. The term "castable mounting" refers to mounting samples in either an epoxy or acrylic resin.



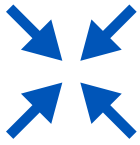
Not sure if acrylics are right for you? Learn more about Buehler's epoxy mounting systems on our website.



Visit www.buehler.com for more information

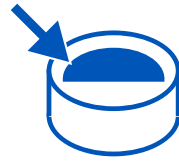
Castable Mounting with Acrylics

Acrylic mounting involves the mixing of a powder and one or more liquids to be poured into a mounting cup. Buehler offers a variety of products to meet needs for throughput, hardness, edge retention, and more. Acrylic media is preferred when you need a fast cure time and easy to mix ratios.



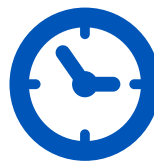
Shrinking

Shrinkage gaps between the mounting media and the specimen may entrap abrasives that can become dislodged during subsequent preparation steps, contaminating the polishing cloth and causing damage to the sample surface. These gaps can also entrap suspensions, water, or etch solutions that may bleed out after preparation and obstruct clear view of the sample surface. Excessive shrinkage can even cause separation of layers or coatings and a loss of edge-retention. A mounting media with low shrinkage and better adhesion to the specimen provides a higher quality mount and improved edge retention.



Edge Retention

Edge retention is the capability of mount media to preserve edge information on the encapsulated sample. Ideally, the media and sample abrade at a comparable rate. When the abrasion rate between the media and sample differs, the two are in different planes at their interface. This complicates inspection of the sample near the edge due to difficulty of focus in this region.



Cure Time

When increased throughput is necessary, acrylic mounting media offers cure times as low as five minutes. Faster cure times are often associated with higher peak temperatures.



Clarity and Color

Clarity of media may be essential for viewing a particular region of interest during preparation, such as when cross-sectioning to a specific plane. Clarity can be improved for acrylic systems by mounting under pressure. Color of mount media is useful for quick identification of a particular type of sample, and to create contrast under the microscope.



Peak Exotherm

Some samples need to be protected from excessive heat. Low exotherm products should be used for heat sensitive samples. Consider the peak exotherm of each acrylic before media selection.



Infiltration

Infiltration refers to the mount media's capability to infiltrate sample features during molding. Porous materials, or those with cracks and fine features are best mounted using media with an excellent flow capable of filling these areas. Acrylic media selection can provide different levels of infiltration. For applications where infiltration is a priority, an **epoxy** media with use of a vacuum mounting system is recommended.



Chemical Resistance

Metallurgical samples that are intended to be etched after preparation require chemical-resistant mounting compounds that resist the attack of acidic and caustic solutions. For these samples, **epoxy** is the preferred media over acrylic.



Conductivity

Conductive media is useful when material characterization includes electron microscopy. In these applications, **epoxy** is used in conjunction with a conductive filler.



To learn more about epoxy mounting systems, see our [Epoxy Mounting Guide](#)

Acrylic Systems

Selecting the Right Acrylic Compound

With cure times as low as five minutes, our line of acrylics is designed to increase throughput in your mounting process while providing consistent results.

SamplKwick®



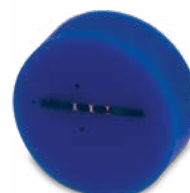
VariKleer®



VariDur® 10



VariDur® 200



VariDur® 3003



Acrylic System Selection Guide

		Cure Time	Peak Exotherm	Shore D	
Material		Properties			
General Purpose	SamplKwick	Go-to choice for general purpose applications. Does not exhibit an offensive odor of many acrylics on the market	5-8 min @ room temp	179°F [81°C]	85
	VariDur 10	Offers a semi-transparent mount with a reduced odor while curing	8 min @ room temp	212°F [100°C]	80
Specialty	VariKleer	Produces a crystal clear mount when cured under pressure (typically 2 bar)	5-15 min @ room temp	212°F [100°C]	84
	VariDur 200	Quick curing acrylic with good edge retention ideal for mounting hard materials	5-8 min @ room temp	212°F [100°C]	85
	VariDur 3003	Three-part acrylic with minimal shrinkage and high hardness, making it ideal for edge retention applications. Its chemical resistance resists against the attack of acidic and caustic solutions, which could impair viewing of the sample surface	15-30 min @ room temp	252°F [122°C]	90

Acrylic Mounting Tips

- Acrylics cure quickly so it is highly recommended to pour the mixture into the mold immediately after mixing to prevent “gelling”.
- Acrylic systems are not suitable for use with vacuum systems, nor are they for use with disposable mounting cups because the heat of the reaction will soften and deform the plastic cup.
- To improve edge retention for acrylic systems and encourage wicking into small gaps, coat the sample in the liquid hardener prior to mounting.
- Acrylic systems are sensitive to shelf life, which depends on proper storage. Keep out of excessive high or low temps and extreme humidity. It is good practice to date your containers when received.





Selection Guide Notes

Values are compared to other Buehler medias and based on a one to three scale. Best values are ranked as a value of three.

Edge Retention	Viscosity/Infiltration	Shrinking	Recommended Use
★★	★★★★	★★	Ideal for electronic applications. <i>See our Industry Highlights on page 7 to learn more.</i>
★	★	★	Ideal for general use applications
★★	★★	★★	Useful for acrylic applications where clarity is required
★★	★	★★	Good for harder materials, and for color contrast at edges and cracks
★★★★	★	★★★★	Best for hard materials where edge examination is critical.

Partner with **Buehler** for your Success

Buehler's Material Scientists are experts in listening. Our team takes a consultative approach to address specific goals for the materials lab including minimizing training time, minimizing rework, or minimizing the total cost/number of steps in a process. Our applications experts frequently process samples in our labs giving them first-hand knowledge of not only the science but also the day-to-day challenges that materials labs can face. Our solutions strive to remove complexity from the preparation and analysis process making improvements easier to implement and easier to maintain.

- Worldwide support labs
- Buehler SumMet Guide
- TechNotes and SumNotes
- Seminars, webinars, and classes



Click [Here](#) to contact our Lab!



Click [Here](#) to register for our webinars

Mounting Ordering Information



Material	Powder		Liquid†	
	Part Number	Size	Part Number	Size
SamplKwick®	20-3562	1 lb [0.45kg]	20-3564	12oz [0.36L]
	20-3566	5 lbs [2.3kg]	20-3568	64oz [1.9L]
	20-3562-025	25 lbs [11.3kg]	20-3564-320	2.5gal [9.5L]
	20-3562-100	100 lb [45kg]	20-3564-640	5gal [19L]
VariKleer®	20-3591	2.2 lbs [1kg]	20-3592	16.9oz [500mL]
	20-3591-002	4.4 lbs [2kg]	20-3592-001	33.8oz [1L]
	20-3591-010	22 lbs [10kg]	20-3592-005	1.3gal [5L]
VariDur® 10	11-1027	2.2 lbs [1kg]	11-1029	16.9oz [500mL]
	11-1031	22 lbs [10kg]	11-1033	1.3gal [5L]
VariDur® 200	11-1030	2.2 lbs [1kg]	11-1029	16.9oz [500mL]
	11-1034	22 lbs [10kg]	11-1033	1.3gal [5L]
VariDur® 3003 3-part system	20-3531	3.3 lbs [1.5kg]	20-3535	0.65gal [2.5L] Liquid 1
	20-3534	16.5 lbs [7.5kg]	20-3536	1.3gal [5L] Liquid 2
			20-3532	Kit Contains: 6.9oz [500mL] Liquid 1 33.8oz [1L] Liquid 2

† Restricted article, requires special packaging

Castable Mounting Cups & Molds

SamplKup®



Reusable with best dimensional stability and suitable for use with all Buehler castable systems. (Qty 12) *not for use in ovens

20-9178 1in x 1in H
20-8180 1.25in x 1in H
20-9181 1.5in x 1in H
20-9184 2in x 1in H

20-9177 25mm x 1in H
20-9179 30mm x 1in H
20-9182 40mm x 1in H
20-9183 50mm x 1in H

EPDM Round & Rectangular Molds



Suitable for use with all Buehler castable systems. Best choice for large, rectangular mounts and for curing mounts in ovens

EPDM Round Molds (Qty 5)

20-8181 1in dia x 5/8in H
20-8182 1.25in dia x 5/8in H
20-8183 1.5in dia x 5/8in H
20-8184 2in dia x 1in H
20-7183 40mm dia x 31mm H
20-7184 50mm dia x 31mm H

EPDM Rectangular Molds (Qty 1)

20-7185 2.2 x 1.2 x 0.9in [55 x 30 x 22mm]
20-6185 2.5 x 1.4 x 1.8in [63 x 25 x 46mm]
20-7186 2.8 x 1.6 x 0.9in [70 x 40 x 22mm]
20-6186 6 x 4 x 2in [150 x 100 x 50mm]
20-6187 6 x 3 x 1in [150 x 76 x 25mm]

Mounting Clips & Clamps



SamplKlip Support Clip
20-4000-100 Stainless Steel (qty 100)



UniClip Support Clip
20-5100-100 Clear Plastic (qty 100)
113043 Black Plastic (qty 100)

Release Agents

Apply release agent or mold release powder to the upper and lower molds rams at the end of each shift or day of use to reduce potential of mount media sticking to mount mold.



Release Agent - A light petroleum distillate liquid that is applied with a swab.

20-8186-004† 4oz [120mL]
20-8186-032† 32oz [950mL]

† Restricted article, requires special packaging



Mold Release Powder - Non-hazardous wax powder that is applied using a brush.

20-3048 2oz [45g]

Mold Release Spray
20-3050-008 8oz [0.24L]



Industry Highlight: Electronics

Printed Circuit Board Preparation for Quality Control

Buehler knows that quality control throughout the Printed Circuit Board (PCB) manufacturing process is critical. It's important to detect any deviations from required manufacturing standards as early as possible, and to avoid adding more processing steps to any defective product. **This reduces scrap, increases productivity, and achieves a more cost-effective operation.**

Our team of experts have established techniques for preparing PCB samples that provide quick, repeatable results. We developed SamplKwick acrylic resin specifically for this application, with a fast cure time under ten minutes and excellent wetting characteristics.



SamplKwick

Speed up your process using SamplKwick acrylic
An excellent choice for rapid and effective encapsulation of PCB coupons. Buehler's SamplKwick offers good penetration and the edge retention needed for great electronics preparation.

Did you know?
SamplKwick does not exhibit the offensive odor of many acrylics on the market.



Your Partner for Efficiency

Our focus is ensuring your team has the tools they need to get the job done effectively. With acrylic mixing ratios less precise than other castable mounting solutions, Buehler's SamplKwick is the easy-to-use solution. Your lab is moving fast, and with less sensitive mixing, you can focus on what's critical - maintaining samples suitable for quality control.

Increase your throughput with the PC-Met®

Built for high volume PCB sample preparation, this addition to your process can hold up to 36 coupons and is able to accurately target the center of coupon features. To save time and increase throughput, SamplKwick can be filled directly into each cavity. Once cured, the sample holder is quickly ready for grinding and polishing. *Want to learn more about the PC-Met?*

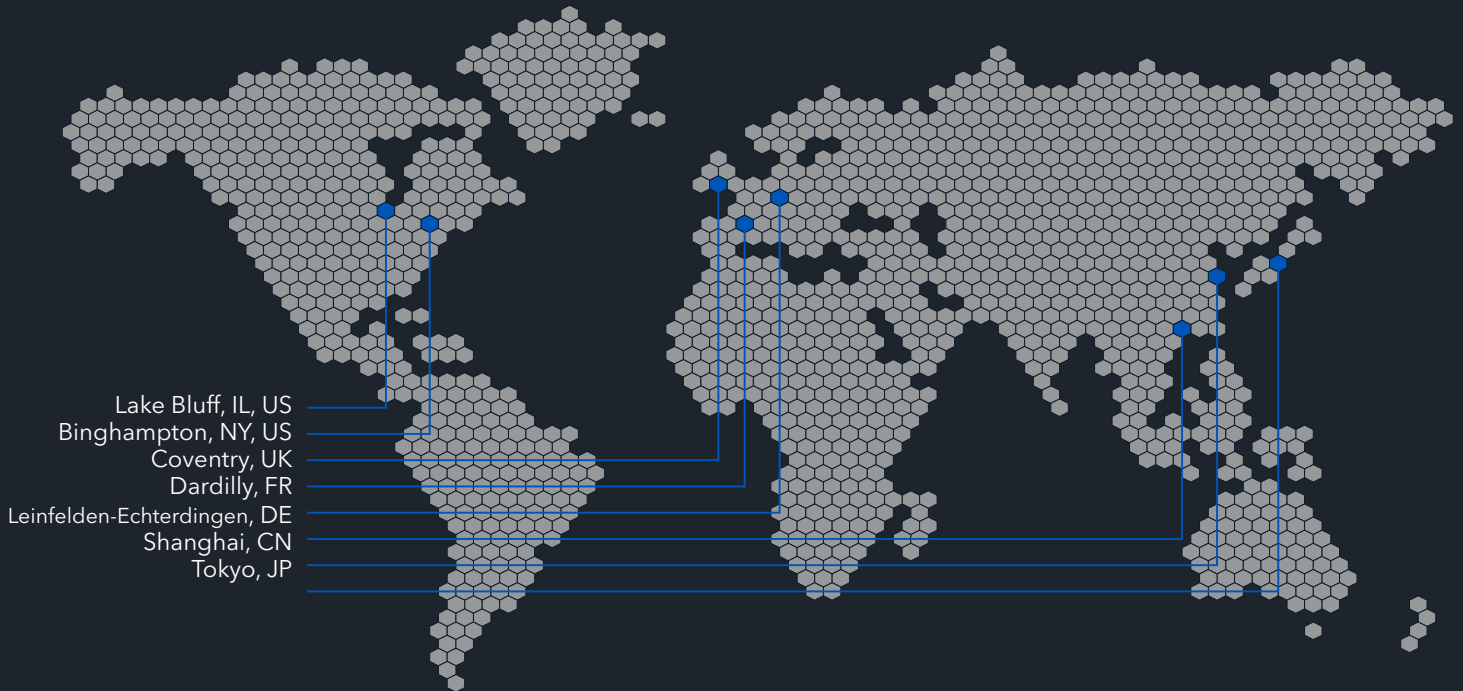
PC-Met®

Precision high volume printed wiring board accessory



(a) Coupons mounted into holder prior to pouring the resin (b) cured mounts in the mounting assembly (c) the grinding fixture with the molding plate removed

Buehler Worldwide Locations



Solutions for Materials Preparation, Testing and Analysis

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on a Buehler location near you.

