

# Petrography Product Guide

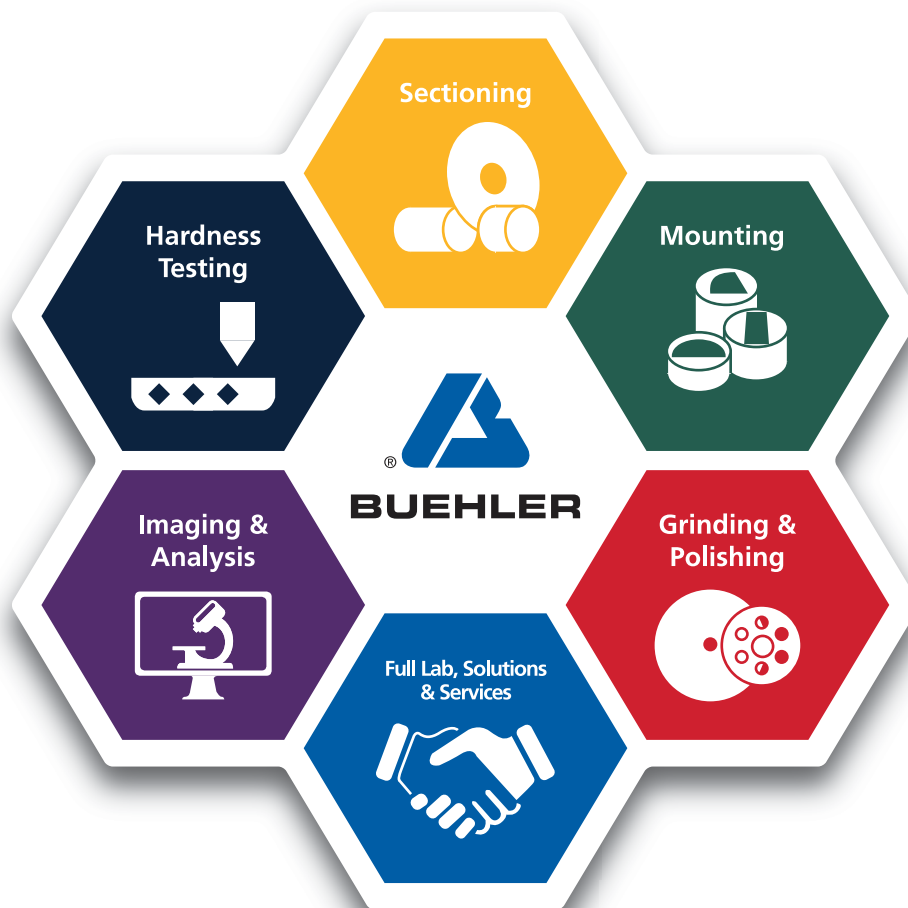
A guide for Petrography and applications for high quality specimens

# Buehler, the Source for Materials Preparation, Testing and Analysis

Buehler is a division of Illinois Tool Works (ITW), and is based in Lake Bluff, Illinois. ITW is a global, Fortune 200 company and global industrial manufacturer of value-added consumables and specialty equipment with related service businesses. Buehler is a premier manufacturer of scientific equipment and supplies for use in materials analysis with offices in nine countries, sales distribution in over 100 countries, and over 45 Buehler Solutions Centers.

Buehler was founded in 1936 by Swiss immigrant, Adolph I. Buehler, who saw a need for metallographic sample preparation equipment and optical inspection instruments for the steel and automotive industries in the Midwest USA. Eighty years later Buehler is well established as the world's leading supplier of materials preparation and analysis instruments, equipment, consumable supplies and application solutions.

Buehler employees and operations are committed to delivering quality and environmentally responsible products guided by ISO 9001 Quality Management Principles and ISO 14001 Environmental Management Systems. Buehler innovates solutions and offers expert service and support throughout the materials preparation and analysis market.



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**P**etrography is the study of rocks and minerals using a microscope. Cross sections are useful for the identification of rocks, minerals and ores and to the characterization of properties such as cleavage, twinning, reflectance, and other characteristics. The classification of rocks is based on the information acquired during the petrographic analysis. There are two types of specimens prepared for petrographic analysis, thin sections and polished bulk specimens. Polished bulk specimens are similar to metallographic specimens in that the surface is prepared for examination with a reflected light microscope. Thin sections, on the other hand, are observed with a transmitted polarized light microscope. The general preparation sequence for making transparent thin sections is as follows: sectioning, impregnation & encapsulation, trimming, surface preparation prior to bonding, bonding, resectioning, grinding & polishing, examination, image analysis and capture. The preparation of thin sections is considerably more difficult than preparing polished bulk specimens. Generally, a thin section must be prepared to a thickness of approximately 30 $\mu$ m, with near perfect parallelism.

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# Petrography

Petrographic microscopy has played an essential role in geological and mineralogical research ever since the invention of the optical microscope. Since then, many other analysis techniques such as SEM, EDS, microprobe and x-ray diffraction microanalysis have been developed. Such methods are typically used to identify minerals and quantify a wide variety of their characteristics. The equipment described in this guide has been developed alongside the analysis techniques to ensure the production of high quality polished specimens of all types, including from minerals, clinker and refractory brick.

Buehler® offers a complete solution for preparation of thin sections, bulk mounts or as a powder such as mineral tailings. Each preparation method is dependent on the type of material and the examination method, and starts with proper sample sectioning and mounting.

## PetroThin™ Thin Sectioning System

- Resections and grinds material within  $\pm 5\mu\text{m}$
- Single spindle design ensures parallelism of sample edges by eliminating the need to remove glass slide between steps

### Precision Micrometer

- Precision metric micrometer for cutting
- Digital (in/mm) micrometer for grinding

### Easy Controls

- Adjustable water/cutting fluid control knob
- Lighted power and vacuum pump On/Off switches

### Safety

- Stainless steel cutting/grinding compartment with door safety interlock switch

### Simple Vacuum System

- Universal vacuum glass slide chuck with self-contained system
- Vacuum gauge (Hg/KPa)
- Vacuum filter with auto-drain
- Vacuum release valve



## At a Glance

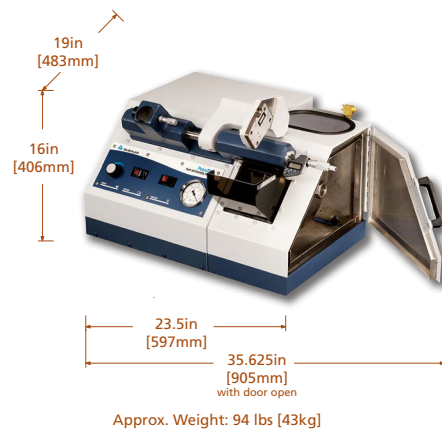
- Features a universal vacuum glass slide chuck which accepts six different sized slides.
- A built-in pump provides a vacuum to insure the glass slide is held in place during preparation.
- Quick release valve allows an operator to remove a sample any time for microscopic inspection.

- Innovative, in-line filter system removes any moisture from the vacuum line during use. The filter jar is automatically drained each time the vacuum pump is turned off.
- A recirculation system (optional) is available for water sensitive materials that require

Part Number	Voltage/Frequency
38-1450-160	115VAC, 60Hz
38-1450-250	220VAC, 50Hz

### Specifications

Voltage/Frequency	115VAC @ 60Hz, 220VAC @ 50Hz, 1 phase
Motor Power	1/3 Hp [250W]
Wheel Diameter	8in [203mm]
Precision Grinding	± 5µm
Wheel Speed	34-1450-160: 220rpm; 38-1450-250: 2100rpm
Compliance	CE



## PetroBond™ Thin Sectioning System Consumables

Part Number	Part Number
11-4278	Continuous Rim Diamond Blade 8 x 0.045 x 1in [203 x 1 x 25mm]
11-4280	Continuous Rim Cubic Boron Nitride Blade 8 x 0.055 x 1in [203 x 1 x 25mm] (recommended for cutting ferrous metals)
40-4508	Diamond Cup Grinding Wheel 8 x 0.25 x 1in [203 x 6 x 25mm]
40-4510	Dressing Stick 0.5 x 0.5 x 4in [13 x 13 x 102mm]



## PetroBond™ Thin Section Bonding Fixture

- Controls adhesive thickness by evenly distributing adhesive between specimen and glass slide during curing
- Holds up to 12 glass slides

### Part Number

38-1490



# Sectioning

The AbrasiMet cutter allows the rapid sectioning of larger blocks of material down to a size suitable for mounting to a glass slide, or encapsulation. The bronze bonded blade is durable and versatile, and is recommended for most petrographic applications.

## AbrasiMet™ 250 with PetroCut™ Kit

Adding a PetroCut Vise Table to an AbrasiMet 250 converts the general purpose cutter into a highly competent Petrographic or Geological cutting tool.

Part Number	Voltage/Frequency	Compatible Recirculating System (not included)
10-10106-260	200-240VAC, 60Hz	10-2165-260
10-10106-460	440-480VAC, 60Hz	10-2165-460
10-10106-250	200-240VAC, 50Hz	10-2165-250
10-10106-400	380-400VAC, 50Hz	10-2165-400



Approx. Weight: 300 lbs [136kg]

Part Number	Accessories and Consumables
10-10106-000	PetroCut Vise Table and 2 Rock Clamps
10-10106-001	Rock Clamp Kit (includes 2 Rock Clamps and posts suitable for mounting samples on PetroCut Vise Table)
11-4710E	250x1.2x32 Diamond Blade, Bronze Bonded, for Ceramics and Petrographic Samples
10-3531	Speed Vise Kit, small
10-3523	Speed Vise Kit, large



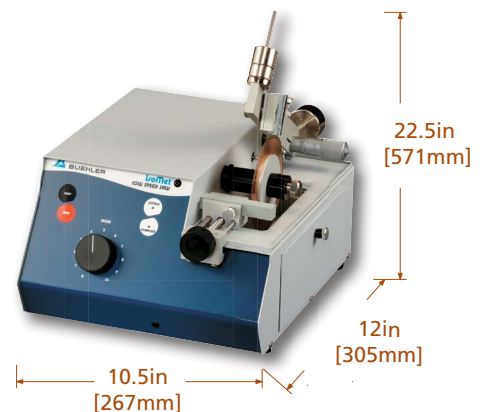
## IsoMet™ Low Speed Cutter

Precision cutters are recommended where smaller or more delicate materials need to be sectioned. Cuts can be made very close to the area of interest with minimal damage, which can greatly reduce grinding and polishing times in subsequent stages.

- Compact cutter uses gravity feed system to provide constant feed rate
- Maximum blade size 5in
- Produces minimum deformation
- $\pm 5\mu\text{m}$  or  $\pm 0.0001\text{in}$  in positioning via manual micrometer
- 0-300rpm

(Includes 4in [102mm] IsoMet Blade for general sectioning, assorted weights, dressing stick, IsoCut™ Fluid, flanges and the following chucks: single saddle, irregular specimen and wafer)

Part Number	Voltage/Frequency	Micrometer Scale
11-1280-160	115VAC, 50/60Hz	in
11-1280-250	230VAC, 50/60Hz	um
11-1280-170	115VAC, 50-60Hz	um



Approx. Weight: 25 lbs [11.3kg]

## IsoMet™ 1000

- Simple to operate, gravity fed membrane panel controls
- Rotating vise for larger samples
- Optional table saw attachment
- 0.17Hp motor
- 100-975rpm

(Includes 6in [152mm] IsoMet Blade for sectioning electronic substrates, assorted weights, dressing stick, Cool 2 Fluid, flanges and the following chucks: single saddle, irregular specimen and wafer)

Part Number	Voltage/Frequency
11-2180	85-264VAC, 50/60Hz



## IsoMet™ 5000

- Simple to operate, automatic precision cutter
- SmartCut™ adjusts feed rate to eliminate damage to system or sample
- Rotating vise for larger samples
- IsoMet 5000 includes cup grinding capabilities, 35 preprogrammed
- and 20 customizable methods
- Compatible with external recirculating system
- Maximum blade size 8in

(Includes 7in [178mm] IsoCut™ Blade for sectioning ferrous alloys and superalloys, 7in abrasive wheels, T-slot table, automatic dressing system, dressing stick, Cool 2 Fluid, 1 set of flanges and the following chucks: irregular specimen, single saddle and 1.25in [32mm] round specimen)



IsoMet 5000	Voltage/Frequency
11-2780 with internal recirculation system	85-264VAC, 50/60Hz
11-2775 with external recirculation system	85-264VAC, 50/60Hz

## PRECISION SECTIONING CONSUMABLES

Precision Sectioning Blades for IsoMet™ Cutters, 0.5in [12.7mm] Arbor (qty 1)

[Part Number / Blade Thickness]

Recommended Use	3in [76mm]	4in [102mm]	5in [127mm]	6in [152mm]	7in [178mm]	8in [203mm]	Dressing Stick*
IsoMet 20LC - Hard tough Materials, Structural Ceramics			11-4225 0.02in [0.5mm]		11-4227 0.025in [0.6mm]	11-4228 0.035in [0.9mm]	11-1190 11-2490
IsoMet 15LC - Hard Brittle Materials, Glass, Al <sub>2</sub> O <sub>3</sub> , Zr <sub>2</sub> O <sub>3</sub> , Concrete	11-4253 0.006in [0.15mm]	11-4254 0.012in [0.3mm]	11-4255 0.015in [0.4mm]	11-4276 0.02in [0.5mm]	11-4277 0.025in [0.6mm]	11-4279 0.045in [1.1mm]	11-1190 11-2490
Cup Grinder for Ceramic & Geological Materials (IsoMet 5000 only)			11-2740				

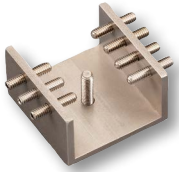
\* All Blades come with a Dressing Stick included. The Part Numbers shown in the table can be used for re-ordering the Dressing Sticks.



## IsoMet™ 5000 Accessories

### Irregular Specimen Chuck

Adjusts to hold irregular shaped specimens up to 1in [25mm] in diameter



11-2686

### Large Bone Chuck

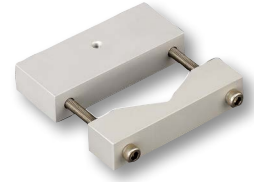
Ideal for clamping bone, plastics, or other semi-rigid specimens up to 2in [50mm] in diameter



11-2494

### Large, Single Saddle Chuck

Holds specimens up to 2in [50mm] from 2 points



11-2285

## IsoMet™ 1000 Accessories

### Glass Slide Chuck

Holds 27 x 46mm, 1 x 2in, or 1 x 3in glass slides



11-2484

### Wafer Chuck

Use mounting wax (40-8150) to glue specimens to wafer chuck



11-2486 1.75 x 2.5in  
[44 x 64mm]

### Glass Slide Chuck

Holds 2 x 3in glass slides



11-2488

## IsoMet™ Low Speed Cutter & Accessories

### Wafer Chuck

Use mounting wax, 40-8150 or 40-8145 to glue specimens to wafer chuck. 1.125 x 2in [29 x 51mm]



11-1186

### Single Saddle Chuck

Holds specimens up to 0.75in [19mm] in diameter



11-1187

### Vacuum Chuck for Glass Slides

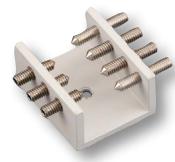
Holds specimens mounted to glass slides to chuck to chuck with vacuum force



11-1188 27 x 46mm

### Irregular Specimen Chuck

Adjusts to hold irregular shaped specimens up to 1in [25mm] in diameter



11-1185

## IsoMet™ Precision Cutter Accessory

### Aluminum Flange Set



11-1192 1.38in [35mm]  
11-1191 1.75in [44mm]  
11-2679 2.5in [64mm]  
11-2282 3in [76mm]  
11-2283 4in [102mm]  
11-2284 5in [127mm]



# Bonding, Impregnations & Encapsulation

## Cast N' Vac 1000 Vacuum System

- Designed to process multiple samples simply and efficiently
- Large Chamber accommodates large samples

### Features

- Large vacuum chamber with space for 11, 1.5in molds
- Built in rotating turn table with unique dispensing mechanism
- The rugged vacuum pump supplies ample vacuum pull down to quickly evacuate trapped air from any porous specimen.
- Patented, high strength plastic chamber maintains vacuum throughout the impregnation period by means of a simple O-ring seal.

(Includes 100 graduated paper cups, 12 SamplKups™, 100 vacuum table liners, Drierite dehydrating agent and vacuum gauge)



Approx. Weight: Vacuum: 11 lbs [5kg]; Pump: 28 lbs [13kg]

### Accessories

- 20-2835 Drierite Dehydrating Agent
- 20-2845 Vacuum Table Liners (qty 100)

Part Number	Voltage/Frequency
20-1382-160	115VAC, 60Hz
20-1382-250	220VAC, 50Hz
20-1382-250E*	220VAC, 50Hz

\*Available only in Europe and Asia

## Mounting Consumables & Accessories

### EpoThin™ 2



	Cure Time	Peak Exotherm	Shrinkage	Viscosity	Pot Life	Shore D Hardness	Reccomended Accessories
Transparent, very low viscosity epoxy for filling pores	9hrs @ room temperature	<86°F [30°C]	Small	Very Low	60min	~78	Cast N' Vac, Disposable Mounting Cups

Material	Small Resin & Hardner		Large Resin & Hardner	
	Resin	Hardener	Resin	Hardener
EpoThin™ 2 mix ratio 2:1 by volume	20-3440-032 32oz [0.95ℓ]	20-3442-016 16oz [0.48ℓ]	20-3440-128 128oz [3.8ℓ]	20-3442-064 64oz [1.9ℓ]

### SamplKup™ (qty 12)

- Best dimensional stability
- Suitable for use with all Buehler castable systems
- Not for use in ovens



- 20-9178 1in
- 20-8180 1.25in
- 20-9181 1.5in
- 20-9184 2in
- 20-9177 25mm
- 20-9179 30mm
- 20-9182 40mm
- 20-9183 50mm

### Paper Cups & Stirring Sticks

- 20-8177-100 5oz Paper Cups, Non-Graduated (qty 100) \*
- 20-8176-100 8oz Plastic Cups, Graduted (qty 100)
- 20-8175 Wooden Stirring Sticks (qty 1000)

\*Use with Cast n' Vac 1000 for pouring



# Grinders-Polishers

## EcoMet™ 250

- Membrane controls
- Manual use or upgrade with AutoMet 250 Power Head for semi-automatic use
- Durable construction, well lit, ergonomic platen removal
- Retractable water hose for washdown

Operation	Base	Power Head	Voltage/Frequency
Manual	49-7200	n/a	85-264VAC, 50/60Hz
Semi-Automatic	49-7250	AutoMet 250	85-264VAC, 50/60Hz



## Accessories for EcoMet™ 250 & 250 Pro Grinder-Polishers

40-4061	8in [203mm] Aluminum Platen	60-9080	Disposable Bowl Liner (qty 5)
40-0500	10in [254mm] Aluminum Platen	49-6111-160	Recirculating Tank [160VAC, 60Hz]
16-2071	8in [203mm] Apex™ MagnoDisc with MagnoFix	49-6111-250	Recirculating Tank [250VAC, 50Hz]
16-2571	10in [254mm] Apex MagnoDisc with MagnoFix	4961-250	Splash Guard for AutoMet 250

## EcoMet™ 300

- Membrane controls
- Manual use or upgrade with AutoMet™ 250 or 300 Power Head
- Durable construction, well lit, ergonomic platen removal
- Retractable water hose for washdown

Operation	Base	Power Head	Voltage/Frequency
Manual	49-7210	n/a	170-264VAC, 50/60Hz
Semi-Automatic	49-7260	AutoMet 300	170-264VAC, 50/60Hz
Semi-Automatic	49-7255	AutoMet 250	170-264VAC, 50/60Hz



## Accessories for EcoMet™ 300 & 3000 Pro Grinder-Polishers


49-1777	12in [305mm] Aluminum Platen	49-6111-160	Recirculating Tank [160VAC, 60Hz]
16-3071	12in [305mm] Apex™ MagnoDisc with MagnoFix	49-6111-250	Recirculating Tank [250VAC, 50Hz]
60-9081	Disposable Bowl Liner (qty 5)		

## Slide Holders & Glass Slides

Glass Slide Size	Slide Holder	Single Force Specimen Holder	Glass Slides
1 x 3in	60-9120 (max 3 per specimen holder)	60-9010 for AutoMet 250 60-9060 for AutoMet 300	40-8002-010 (qty 1440)
2 x 3in	60-9130 (max 2 per specimen holder)	60-9060 for AutoMet 300	
27 x 46mm	60-9100 (max 3 per specimen holder)	60-9010 for AutoMet 250 60-9060 for AutoMet 300	40-8000-001 (qty 144) 40-8000-010 (qty 1440)
27 x 46mm	30-8005 hand-held holder	-	40-8000-001 (qty 144) 40-8000-010 (qty 1440)
28 x 48mm	60-9140 (max 3 per specimen holder)	60-9010 for AutoMet 250 60-9060 for AutoMet 300	19-0501 (qty 100)

## Single Force Specimen Holders

AutoMet™ 250 Power Head  
For use with 60-9005 Drive Adapter.

Part Number	Style	Size	Capacity	Additional Accessories
60-9010 <i>AutoMet 250</i>		1in	6	63-1022 Retaining Rings
60-9060 <i>AutoMet 300</i>				60-9120 1 x 3in Glass Slide Holder 60-9130 2 x 3in Glass Slide Holder 60-9100 27 x 46mm Glass Slide Holder 60-9140 28 x 48mm Glass Slide Holder



## Target Holders

- Designed for precise material removal to specified depths
- Includes one ceramic and one steel stop ring

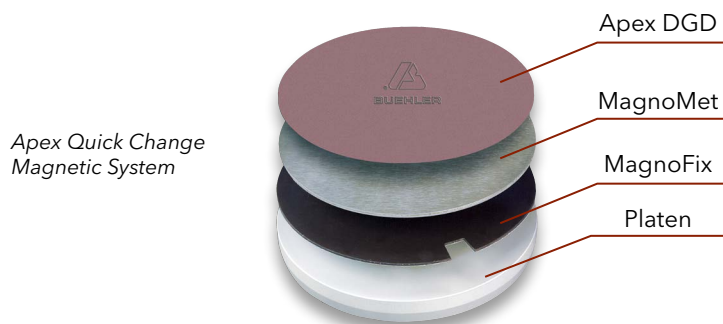
Part Number	Description
60-8100	For 28 x 48mm glass slide (histologic holder)
60-9049	Specimen Holder for Target Holders (Drive Adapter required)



# Grinding & Polishing Consumables

## Apex™ Quick Change Magnetic System

A magnetic based system used in conjunction with either abrasive surfaces or polishing cloths. The first component, MagnoFix, is a long-life magnetic disc with pressure sensitive adhesive (PSA) backing on one side and can be used on any conventional platen. The MagnoMet or MagnoPad can be used between the MagnoFix and any PSA backed abrasive disc, polishing cloth, or other consumable of your choice.



Type	8in [203mm]	10in [254mm]	12in [305mm]
Apex MagnoFix - PSA Backed Magnetic Disc (qty 1)	16-2070	16-2570	16-3070
Apex MagnoMet Metallic Plates (qty 5)	16-2072	16-2572	16-3072
Apex MagnoPad Teflon® Coated Metallic Plates (qty 5)	16-2073	16-2573	16-3073

## Apex™ DGD (Diamond Grinding Discs)

- Excellent for ceramics, glass, TSC and more
- Consumable of choice for Z-axis controlled material removal
- Fixed abrasive surface providing long-wear, high removal rates and superb edge retention and flatness
- Use water only



### Apex DGD (on MagnoMet Carrier) (qty 1)

Micron	8in [203mm]	10in [254mm]	12in [305mm]
165µm	41-5008D	41-5010D	41-5012D
125µm	41-5108D	41-5110D	41-5112D
70µm	41-5208D	41-5210D	41-5212D
45µm	41-5308D	41-5310D	41-5312D
30µm	41-5408D	41-5410D	41-5412D
15µm	41-5508D	41-5510D	41-5512D
9µm	41-5608D	41-5610D	41-5612D
6µm	41-5708D	41-5710D	41-5712D
3µm	41-5808D	41-5810D	41-5812D
0.5µm	41-5908D	41-5910D	41-5912D

## Abrasive Powders

- For fine grinding on cast iron, tin or cloth-covered platens
- Mix with distilled water to desired consistency
- 5 lb [2.3kg] containers



### Silicon Carbide Powder

Grit Size ANSI [FEPA]	Micron	Part Number
120 [P120]	127µm	40-6400-120-080
240 [P280]	52µm	40-6405-240-080
320 [P400]	35µm	40-6407-320-080
400 [P800]	26µm	40-6410-400-080
600 [P1200]	15µm	40-6415-600-080
1000 [P2000]	10µm	40-6418-000-080

### Aluminum Oxide Powder

Grit Size ANSI [FEPA]	Micron	Part Number
400 [P800]	26µm	40-6425-400-080
600 [P1200]	15µm	40-6430-600-080
—	13µm	40-6612-125-080
—	10µm	40-6609-095-080
—	5µm	40-6605-050-080
—	3µm	40-6603-030-080

## Premium Polishing Cloths

- Premium performance cloths for all material applications
- Engineered for long life and superior surface finish
- PSA Backed

Cloth	Quantity	8in [203mm]	10in [254mm]	12in [305mm]
UltraPad™	10	40-7118	40-7120	40-7122
UltraPol™	10	40-7448	40-7450	40-7452
TexMet™ P	5	40-7638	40-7640	40-7642
TexMet C	10	40-1108	40-1110	40-1112
TriDent™	10	40-7518	40-7520	40-7522
VerduTex	10	40-8018	40-8020	40-8022
MicroCloth™	10	40-7218	40-7220	40-7222
MasterTex™	10	40-7738	40-7740	40-7742



# Polishing Suspensions & Pastes

Diamond is routinely used for the preparation of metals, ceramics and minerals due to the high removal rates. The cutting rate is even further enhanced when selecting polycrystalline diamond rather than monocrystalline. The increased number of facets on the polycrystalline structure enables efficient cutting and minimal deformation. When working with water sensitive or soft materials that have a tendency to embed abrasive particles, paste is your best choice. However, if you are interested in a fully automated approach, diamond suspensions are required.

## MetaDi™ Diamond Suspensions and Pastes

### MetaDi Supreme Polycrystalline Diamond Suspension

Color	Diamond Size	8oz [0.24ℓ]	32oz [0.95ℓ]	1gal [3.8ℓ] Refill
Charcoal	0.05µm	40-6627		
Grey	0.25µm	40-6629	40-6629-032	40-6629-128
Blue	1µm	40-6630	40-6630-032	40-6630-128
Blue	1µm Fine	40-6630F	40-6630F-032	40-6630F-128
Green	3µm	40-6631	40-6631-032	40-6631-128
Green	3µm Fine	40-6631F	40-6631F-032	40-6631F-128
Yellow	6µm	40-6632	40-6632-032	40-6632-128
Deep Red	9µm	40-6633	40-6633-032	40-6633-128
Brown	15µm	40-6634	40-6634-032	40-6634-128
Orange	30µm	40-6635	40-6635-032	40-6635-128
Purple	45µm	40-6636	40-6636-032	40-6636-128



### MetaDi Ultra Polycrystalline Diamond Paste, 20g

Color	Diamond Size	Part Number
Blue	1µm	40-1-6301
Green	3µm	40-1-6303
Yellow	6µm	40-1-6305
Deep Red	9µm	40-1-6307
Brown	15µm	40-1-6309



This product is grey in color with color coded packaging MetaDi Fluid is recommended for use with all MetaDi Pastes and most material applications

### MetaDi Fluid

40-6016	MetaDi Fluid, 16oz [0.47ℓ] (water soluble)
40-6032	MetaDi Fluid, 32oz [0.95ℓ] (water soluble)
40-6064-085	MetaDi Fluid, 85oz [2.5ℓ] (water soluble)

## Final Polishing Suspension

Final polish solutions remove the final layer of surface deformation often invisible to the naked eye. Yet the removal of this deformation is essential when evaluating with high magnifications, polarized light, differential interference contrast as well as using EBSD techniques.

Material	Characteristics	Part Number	Size
MasterPrep Alumina	<ul style="list-style-type: none"> <li>Sol-gel alumina suspension</li> <li>~8.5pH</li> <li>Excellent for minerals, ferrous metals, low melting point alloys, carbides, PWB's, precious metals and electronics</li> <li>0.05µm</li> </ul>	63-6377-006	6oz [0.18ℓ]
		40-6377-032	32oz [0.95ℓ]
		40-6377-064	64oz [1.9ℓ]



# Microscopes

## PetroVue™ Thin Section Viewer

- Polarized light allows monitoring of thickness & uniformness of the specimen



Part Number	Voltage/Frequency
30-8050-115	115VAC, 60Hz
30-8050-220	220VAC, 50/60Hz

## Nikon® Eclipse LV100N POL Upright Microscope

- Upright microscope suitable for reflected and transmitted light applications ideal for petrography applications
- Available with Halogen Illumination (12V/50W) for BF, DIC, & POL
- Configured with precision circular stage and attachable XY stage
- Accomplished advanced polarizing microscopy under both reflected and transmitted illumination
- Epi Plan Fluor POL objectives provide superior chromatic aberration performance, high numerical apertures, and long working distance at all magnifications



Part Number	Configuration
8746-01	Nikon LV100N POL Upright Microscope in BF/DIC/POL - with Episcopic (reflected) and diasopic (transmitted) halogen illumination (8746-61 Epi/Dia Dual Kit required for simultaneous use) with 2 lamphouses, 50W bulbs, trinocular body with camera port (requires camera adapter), 10x eyepieces, rotating circular precision stage with attachable XY stage (35 x 25mm travel), 5-position nosepiece with 5x, 10x, 20x, and 50x Epi Plan Fluor POL objectives, flip-out condenser, NB11 and ND4 filters, ¼ wave plate, and dust cover.

## Optional Additional Objectives for Nikon Eclipse LV100N POL Upright Microscope



NIMUE13050 - 5x  
 NIMUE13100 - 10x  
 NIMUE13200 - 20x  
 NIMUE13500 - 50x  
 NIMUE13900 - 100x

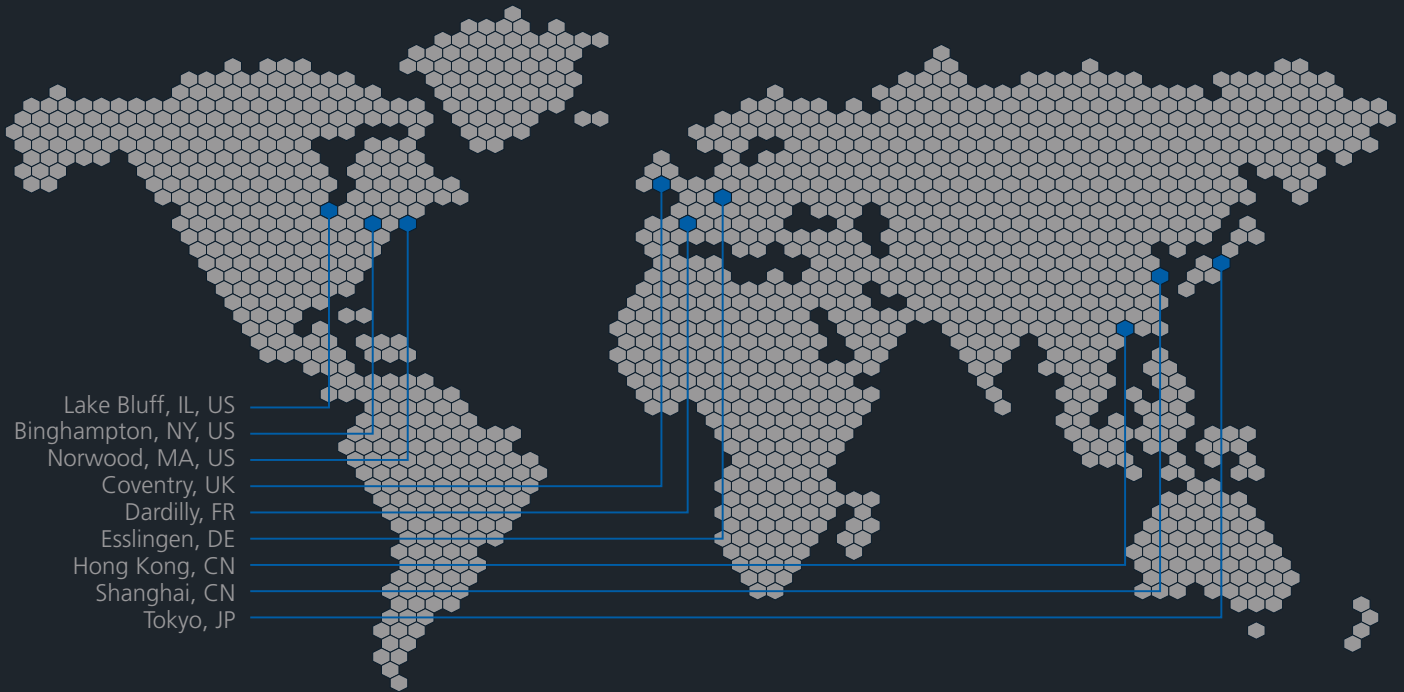
## Optional Additional Objectives for Nikon Eclipse LV100N POL Upright Microscope

8746-61  
 Epi/Dia Dual Kit  
 Enables use of transmitted and reflected illumination simultaneously



Includes:	8749-11	Camera Adapter, C-Mount, 0.55x, LV-TV	8749-12	Camera Adapter, C-Mount, 0.7x, LV-TV	8749-13	Camera Adapter, C-Mount, 1x, LV-TV
<ul style="list-style-type: none"> <li>• 12V/1000W Transformer</li> <li>• Cable &amp; Power Cord</li> </ul>						

## Buehler Worldwide Locations



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