

Polishing Cloths

Date: 06/2020, v1.6

Polishing cloths can be used for material removal, intermediate polishing and final polishing. Each cloth has a different use and purpose, so it is important to use the cloth accordingly and maintain it for multiple uses.

Polishing cloths are available with either adhesive backing for use with standard platens, or with rigid (steel) or flexible (rubber) ferromagnetic backing for use with magnetic platens.



Adhesive back cloths are secured to individual, dedicated platens or support discs using its adhesive backing. It is discouraged to remove or reapply adhesive back cloths to different platens because it reduces the effectiveness of the adhesive.

Flexible ferromagnetic (FM) back cloths feature a flexible ferromagnetic backing that adheres to magnetic platens. Multiple discs can be used with one magnetized platen, reducing the number of platens needed for each procedure, machine or lab.

Rigid ferromagnetic (FM) back cloths feature a rigid ferromagnetic backing that adheres to magnetic platens. Multiple discs can be used with one magnetized platen, reducing the number of platens needed for each procedure, machine or lab. The backing offers corrosion resistance, high stiffness and a rounded, burr-free edge for safer handling. Rigid discs are also well suited for applications that utilize alcohol-based suspensions, slurries and lubricants where prolonged polishing times are needed (EBSD), or in high force applications that generate more heat.

Storage

Before Use

Store polishing cloths flat and in their original packaging to avoid damage or contamination.

After Use

Cloths should be stored in a storage cabinet or inserted into a re-closeable bag and placed in a drawer or on a shelf. The bag should be labeled with information such as abrasive type and size used, lubricant used, material polished, date and operator. This can prevent cross-contamination when reused.

Adhesive Backing: Removal of the cloth from a platen may cause the adhesive to become ineffective; therefore, the whole platen should be taken off the machine and stored after use.

Flexible or Rigid Ferromagnetic (FM) Backing: The cloth can be taken off the platen and stored after use.

Instructions for Use

Use with Diamond & Lubricant

Before use, the cloth should be “charged” or “primed” with sufficient quantities of both diamond particles and lubricant. A constant flow for 6–12 seconds should be enough to prime the cloth. The cloth needs to be damp but not overly wet.

Use with Alumina & Silica

Before use, the cloth should be soaked with water while spinning. Prime the cloth with enough solution to evenly distribute a small amount across the cloth. The water should help to spread the solution and not have it sit in one spot on the cloth.

Life Expectancy

A polishing cloth may need to be changed if there is visible breakdown and deterioration of the fabric, or if the established method no longer provides the expected polishing results.

The following factors may influence cloth life:

- Sample hardness
- Sample surface area
- Applied force/load
- Mounting material
- Polishing time
- Number of samples polished at once
- Lubricants used
- Abrasive types and sizes
- Platen and power head rotation speeds
- Storage and maintenance
- Cloth type

Cloth Cleaning

Use with Diamond Compounds, Suspensions & Sprays

No water should be applied to cloths used with diamond abrasives. As most diamond products do not crystalize, cleaning may only be necessary when buildup is excessive on the outer rim of the cloth or when the cloth becomes contaminated. A contaminated cloth may be salvaged by thoroughly rinsing it with soap and water and using a brush or flat object while the cloth is spinning to pull contaminants out of the cloth fibers.

Use with Final Polishing Powders, Slurries & Suspensions

Most suspensions are water based and can evaporate over time, leaving the abrasive to crystalize. Therefore, it is recommended to rinse cloths used with final polishing products with water after use so the abrasive does not crystalize and dry out the cloth.

Sample Cleaning

To remove debris and abrasive particulates, the platen should be wiped with water and spin-dried after each cloth is removed. Samples and fixtures should be cleaned with micro organic soap, rinsed with isopropyl alcohol and then dried using compressed air spray. This reduces the likelihood of scratches on samples due to abrasive contamination.

Table 1: Standard Fluid Dispensing Parameters

Step Type	Intermediate Polishing		Final Polishing
	Diamond	Lubricant	Alumina/Silica
Pulses/Min	4	6	10
Pulse Length	0.5 sec		1 sec
Water Rinse	No		Before & After

Table 2: Intermediate Polishing Cloth Recommendations









Intermediate Polishing Cloth	Abrasive Size (µm)
PLAN-Cloth 	30-6
PLAN-B 	15-3
Gold Label 	15-3
TECH-Cloth 	9-1
White Label 	6-0.25
DiaMat 	6-0.05
Kempad 	9-1
Pan-B 	6-0.25

Table 3: Final Polishing Cloth Recommendations

Final Polishing Cloth	Abrasive Size (µm)
Chem-Pol 	1-0.02
Final A 	1-0.02
Spec-Cloth 	1-0.05
Vel-Cloth 	1-0.05
Final B 	3-0.05
Red Final C 	3-0.02
Final P 	3-0.05
Final-POL 	3-0.05