

POLISHING TECHNOLOGY

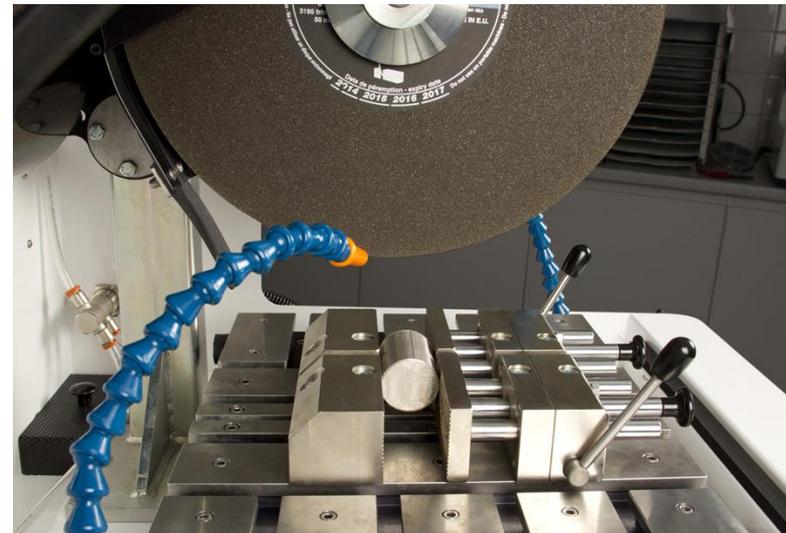


# METALLOGRAPHY

VERSION 2015

# CUTTING

- Machines
- Cutt-of wheels



# CUTTING

## ➤ Machines

CUTLAM Micro 1.1



CUTLAM Micro



# CUTTING

## ➤ Machines

CUTLAM Micro  
3.0



Cutlam 1.1



Cutlam 2.0



# CUTTING

## ➤ Machines

CUTLAM 3.0



Cutlam 4.0



Cutlam 5.0



# CUTTING

## ➤ Cut-off wheels

- 2 parameters:
  - the binder = Bakelite, metal...
  - the abrasive = Al<sub>2</sub>O<sub>3</sub>, SiC, Diamond..

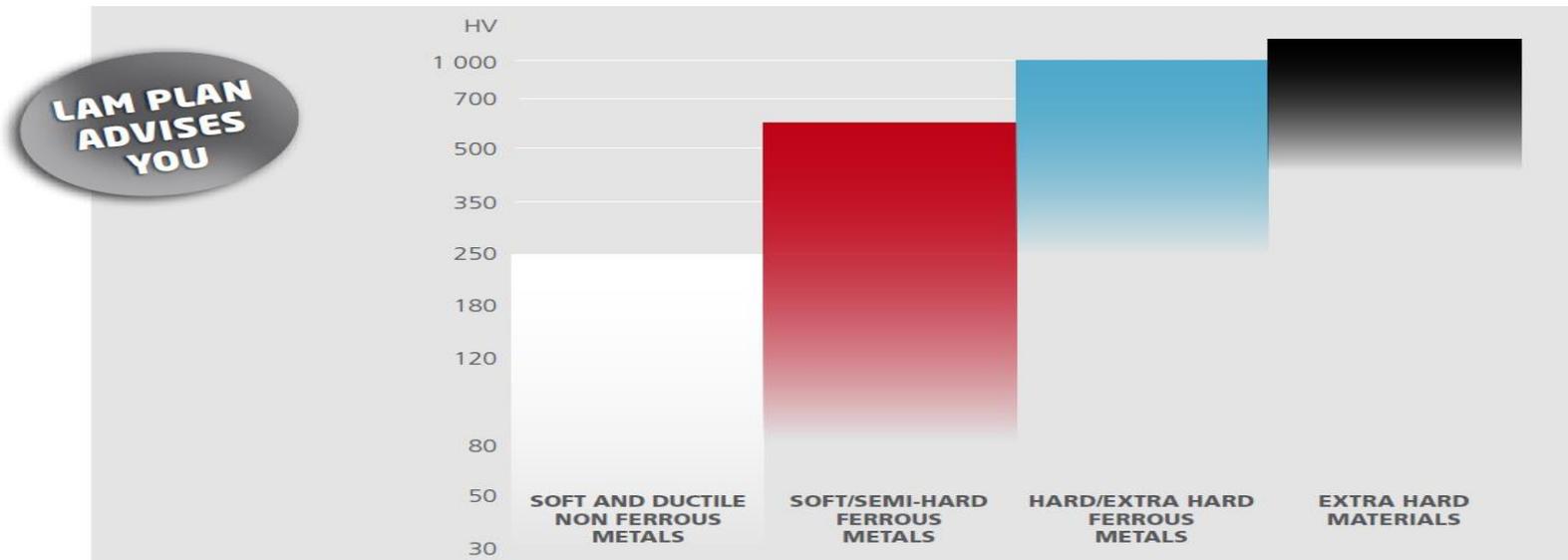


# CUTTING

## ➤ Cut-off wheels

For a precise cut :

- **White** = hard binder, SiC, non ferrous materials (stainless steel)
- **Red** = hard binder, Al<sub>2</sub>O<sub>3</sub>, for materials from 25 to 40 HRC
- **Blue** = soft binder, abrasive Al<sub>2</sub>O<sub>3</sub>, for materials > 40HRC
- **Black** = diamond, ceramic, glass, carbide



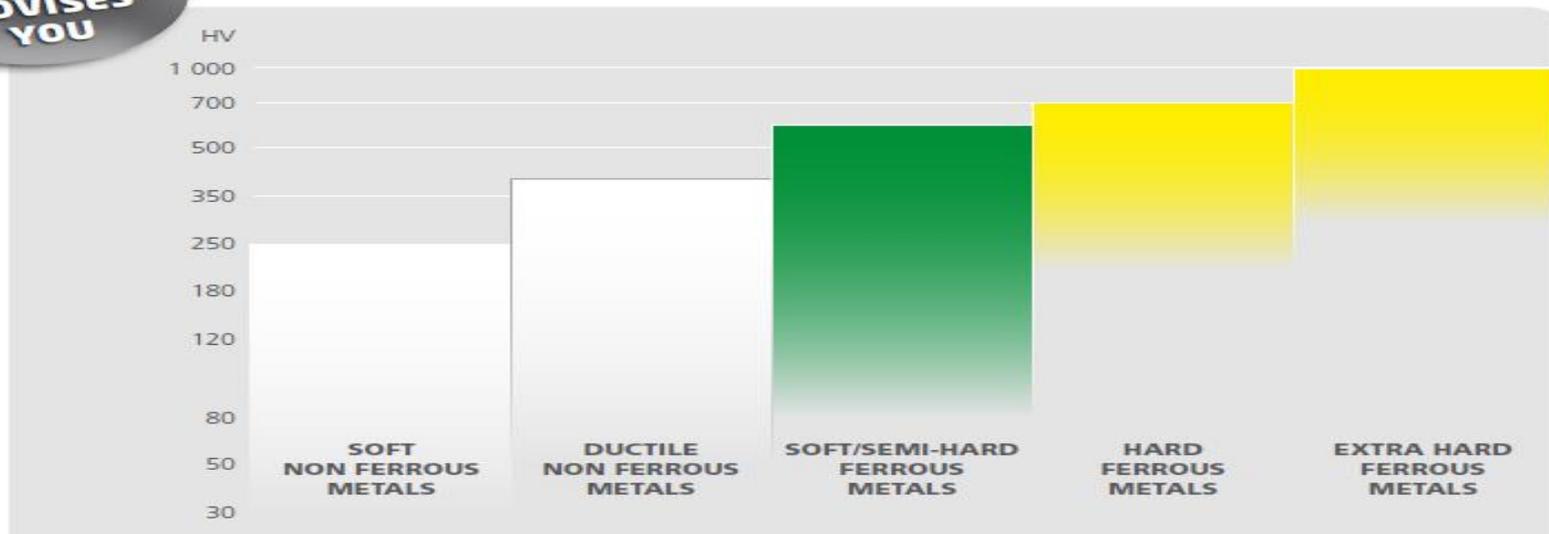
# CUTTING

## ➤ Cut-off wheels

For a quality high return:

- **Green H1** = hard binder, Al<sub>2</sub>O<sub>3</sub>, for materials soft and medium materials (from 25 to 40 HRc)
- **Yellow H2** = soft binder, abrasive Al<sub>2</sub>O<sub>3</sub>, for materials hard ferrous material (> 40HRc)
- **White H4** = hard binder, SiC, Non ferrous materials (stainless steel)

LAM PLAN  
ADVISES  
YOU



# EMBEDDING



A large range of products for every metallographic applications.

- Hot embedding
- Cold embedding

# EMBEDDING

## HOT EMBEDDING

- **Machine:**

PRESSLAM 1.1



# EMBEDDING

## HOT EMBEDDING

### Resins

- **602, 622, 642:** Phenolic resins green, red or black, for all materials, currant control.
- **Phenofree :** New phenol-free and formaldehyde-free resin. For currant control.
- **632:** Phenolic black, charged with fiberglass, for hard and semi-hard materials
- **633:** Black epoxy, charged with fiberglass, for hard and semi-hard materials, absence of shrinking , used for edge checking.



# EMBEDDING

## HOT EMBEDDING

### Resins

- **604.3:** Pure copper base, used for ESM (Electronic Scanning Microscope) and electrolytic polishing.
- **616 and 616.2:** transparent acrylic, all materials, to visualize the evolution of the sample's prepolishing
- **617 :** phenolic resin, charged with graphite. So, this resin can be used for ESM control.



# EMBEDDING

## COLD EMBEDDING

- **Machines:**



**M.M. 806:**  
Improves the performances  
of cold embedding resins.



**M.M. 807:**  
Blue light polymérisator  
for the 601.2 resin

# EMBEDDING

## COLD EMBEDDING

### Resins

- 601.2      Transparent, Polymerizes in 20 min.  
with the M.M. 807.
- 605        Polymerizes in 10 min., easy use
- 607.2     Modify polyester, polymerizes in 10 min.
- 609        Transparent under pressure (M.M.806),  
polymerizes in 15 min.

**Resina Cristal** Economy and transparency, no temperature rise.



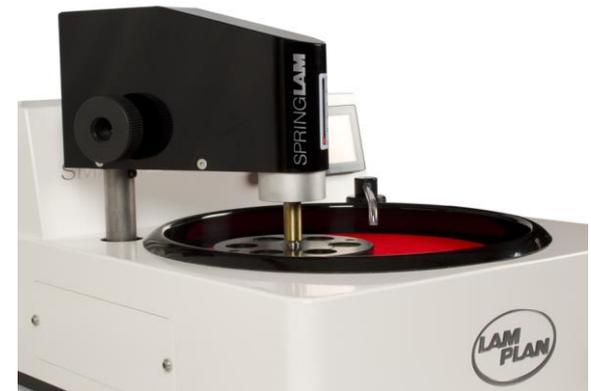
# POLISHING

- **Machines:**

Smartlam 2.0



Springlam



# POLISHING

- Machines:

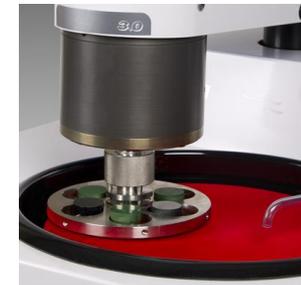
Masterlam 1.0



Masterlam 2.0



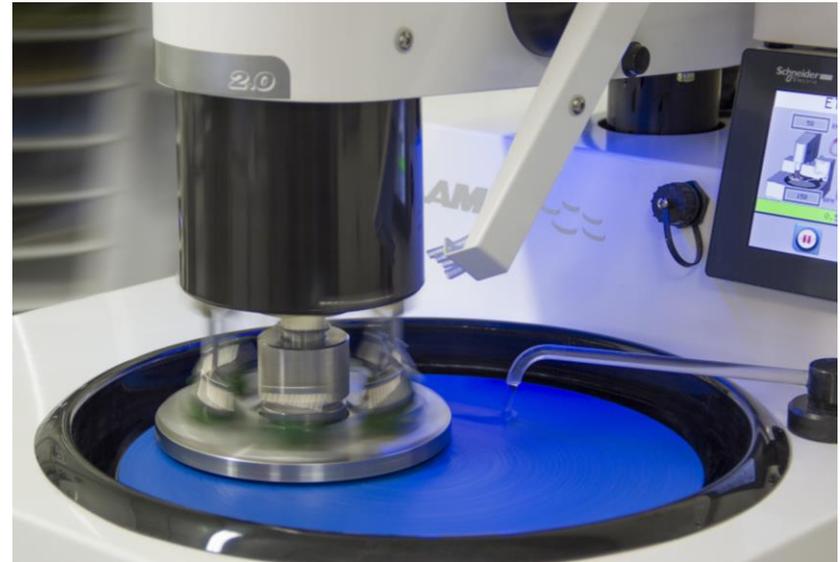
Masterlam 3.0



# PREPOLISHING

➤ **Target** : Fast stock removal, in order to obtain a good flatness and prepare a good polishing

- Abrasive papers
- CAMEO System



# PREPOLISHING

## ➤ Abrasive paper SiC

### Advantage

-A complete range, from P80 to P4000

### Disadvantage

- Life of the paper
- Calibration of the abrasive grit is coarse
- Easy to lose the flatness

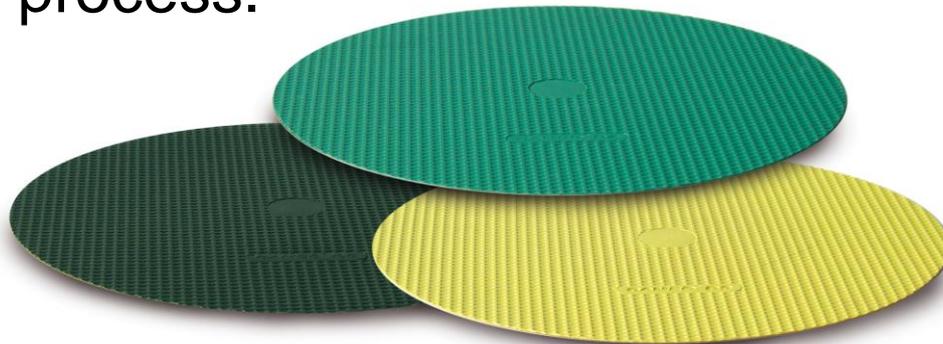


# PREPOLISHING

## ➤ With the CAMEO System

The prepolishing of the part is an important stage in the preparation of a metallographic sample.

The quality of this stage is decisive for the end of the process.



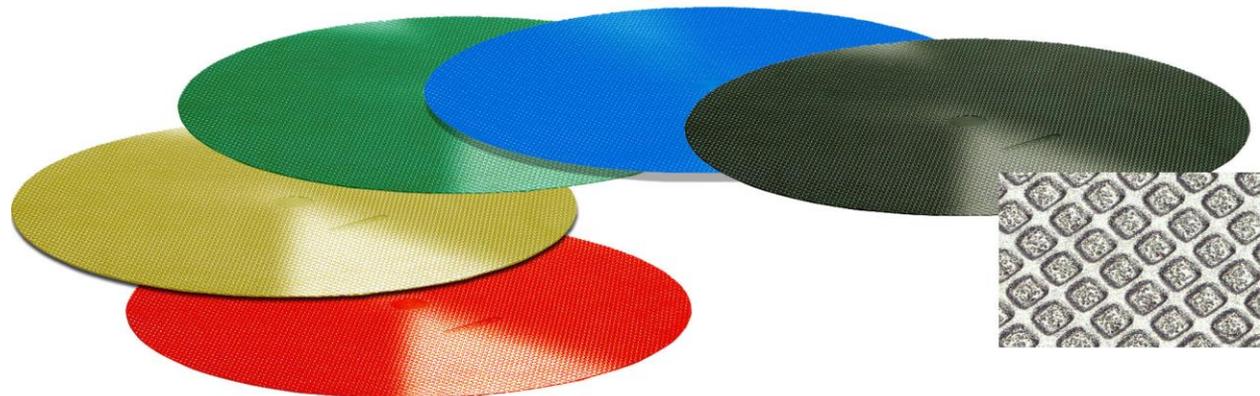
# CAMEO® PREPOLISHING

## ➤ CAMEO DISK

A diamond disc with a patented alveolus structure for a fast prep polishing of metallographic sample.

**Five versions:**

Red, Yellow, Green, Blue, Brown



# **CAMEO**® ***PREPOLISHING***

## ➤ **CAMEO DISK Platinum**

The stock removal performances of the CAMEO DISK Platinum reduce the time of work and insure the flatness of the part.

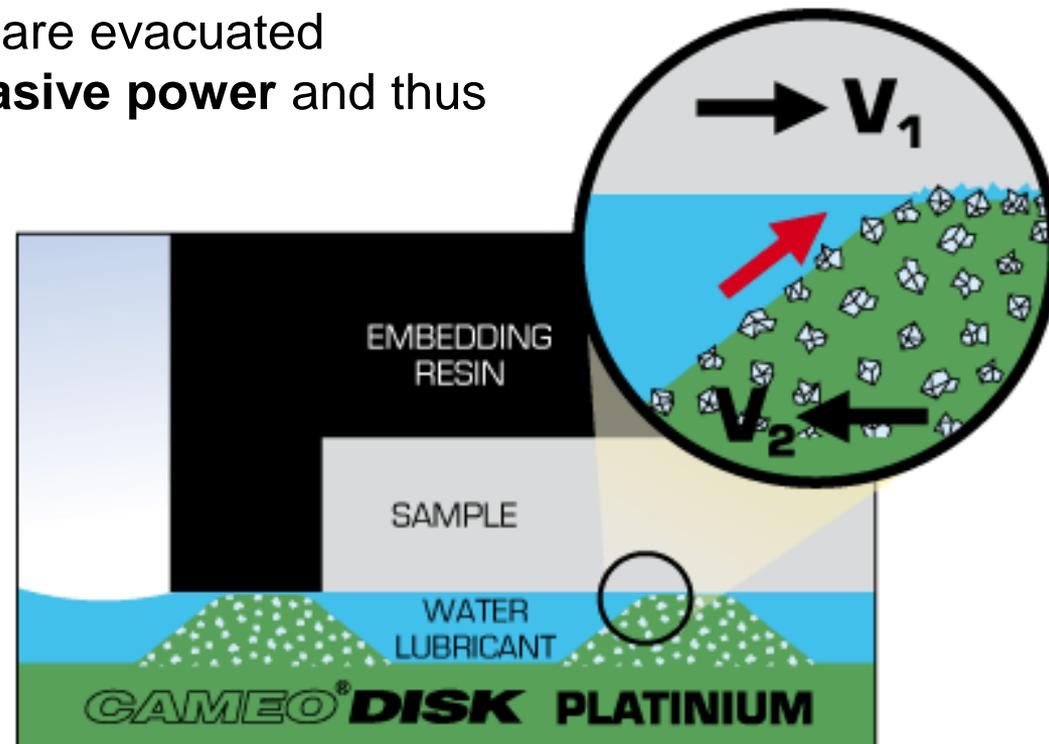
# CAMEO® PREPOLISHING

## ➤ CAMEO DISK Platinum

The circulation of the lubricant is improved:

The residues of abrasion are evacuated ensuring a **constant abrasive power** and thus a **regularity of result**.

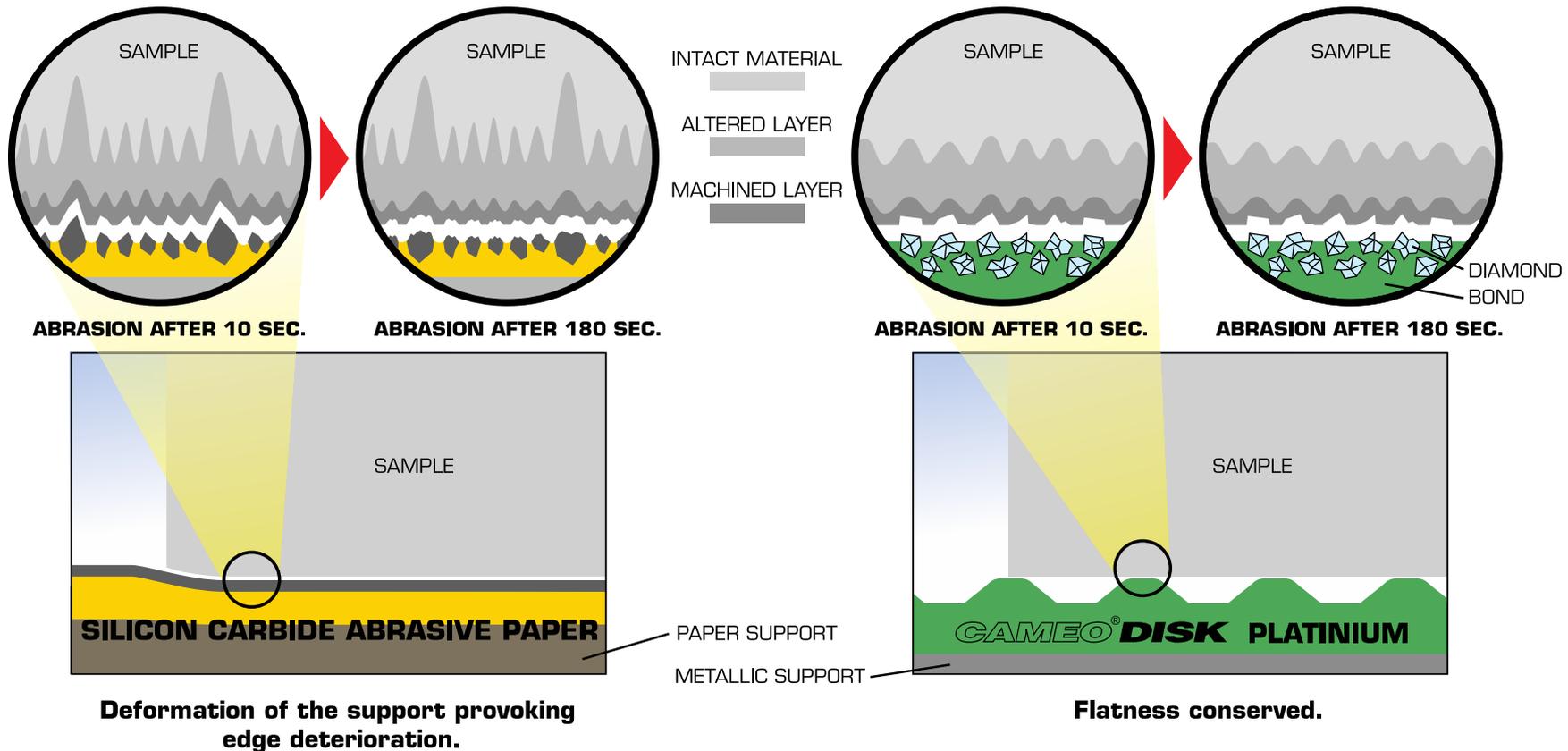
- Optimum work of diamond abrasive
- Optimum flatness.



# CAMEO® PREPOLISHING

## ➤ CAMEO DISK Platinum

Preparation of an optimum surface condition



# **CAMEO**®

- **Rapidity**  
A shorter pre-polishing process
- **Economic process**  
High efficiency, less expensive cause shorter.

# CAMEO® PREPOLISHING

- **Silver and Gold**, non diamond prepolishing disc.
  - **Silver** : semi-hard, hard and extra hard (> 200HV).
  - **Gold** : softer and non-ferrous materials.



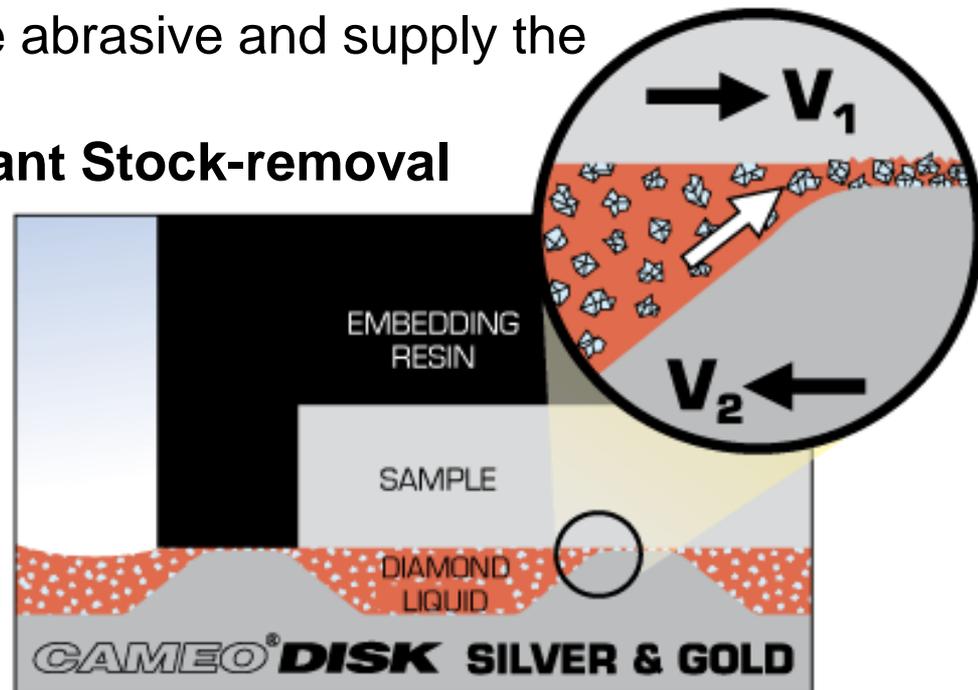
# CAMEO<sup>®</sup> PREPOLISHING

- The alveolus structure allows an uniform and regular distribution of abrasive.
- The circulation of the binder and the lubricant is optimum.
- The residues of the abrasion are evacuated, the micro-tanks stock the free abrasive and supply the cutting area.

=> **Important and constant Stock-removal**

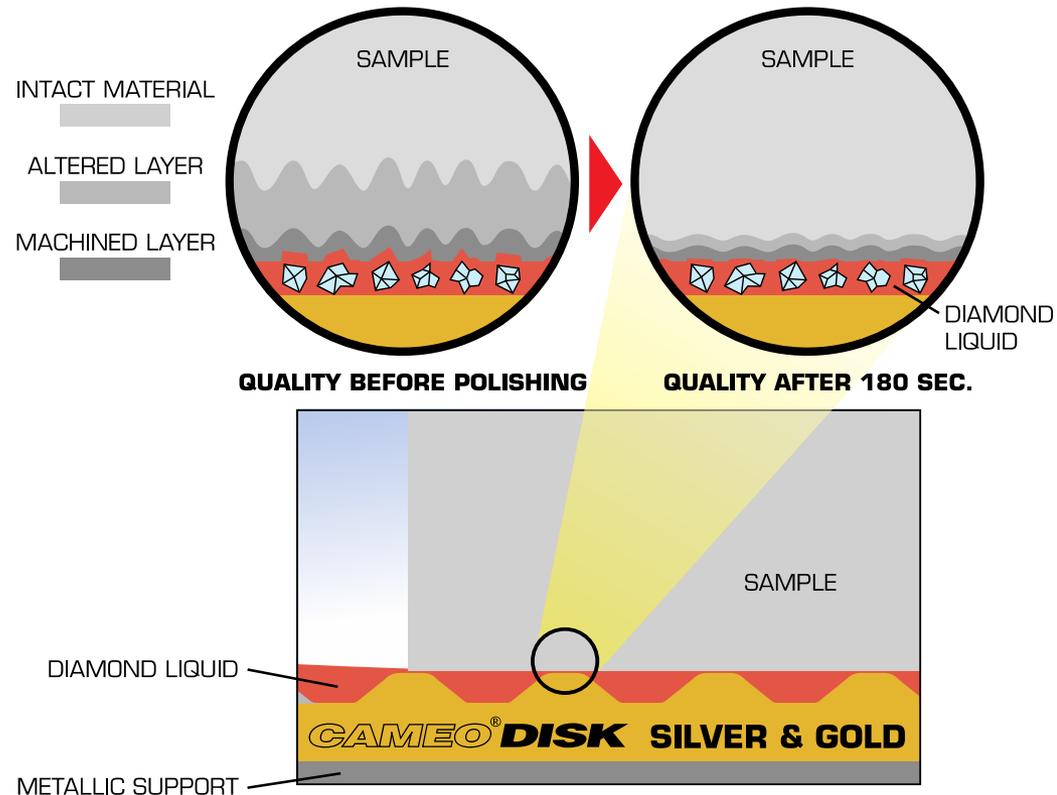
## Optimum use of abrasive

↳ reduction of diamond product.



# CAMEO® PREPOLISHING

## Fast prepolishing and preserved flatness



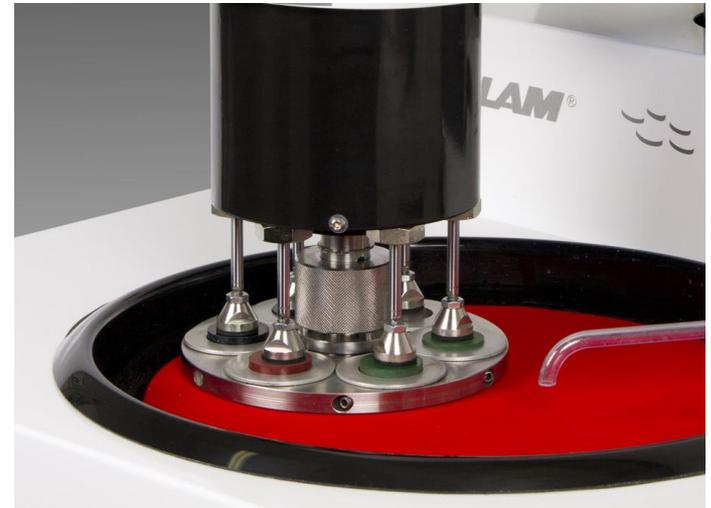
**Optimal flatness, minimal layer perturbation.**

# **CAMEO**<sup>®</sup> *PREPOLISHING*

- Advantages:
  - Fast and constant stock-removal
  - Reproducible process
  - Shorter processes than SiC papers processes
  - Available on the most of materials
  - Reduction of diamond products
  - Easy to clean

# POLISHING

- Polishing Cloths
- Bio DIAMANT® Products
- Final liquids



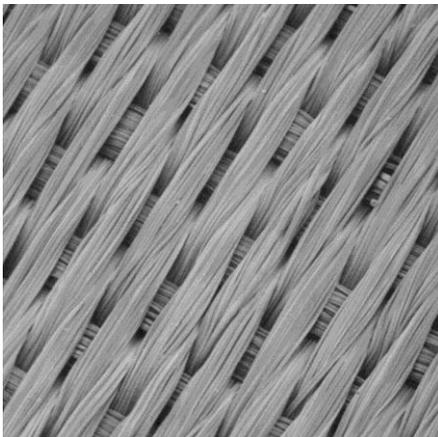
# POLISHING

## ➤ Polishing Cloths

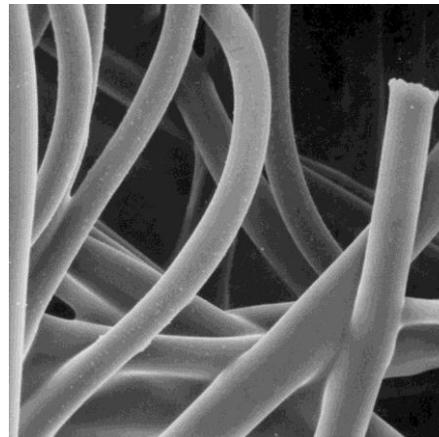
Woven	Flocked	Polyurethane
2FC1	3FV1	4MP1
2TT1	4FV1	4MP2
2TT2		
2TS3		
2TS4		
3SE2		
3TL1		

The structures of the clothes.

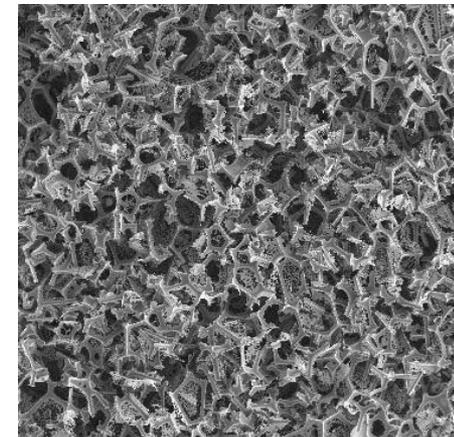
**Woven**



**Flocked**



**Polyuréthane**



# POLISHING

➤ **Bio DIAMANT® products :**  
A complet Range, **biodegradable**

- Bio DIAMANT® Pastes



- Bio DIAMANT®  
Aerosol & pulmatics



- Bio DIAMANT® dosage sticks



- Bio DIAMANT® liquids

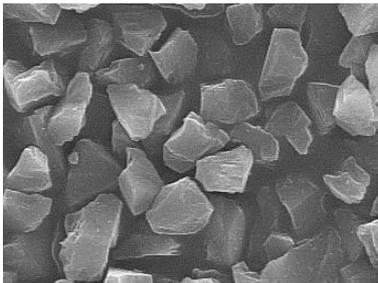


# POLISHING

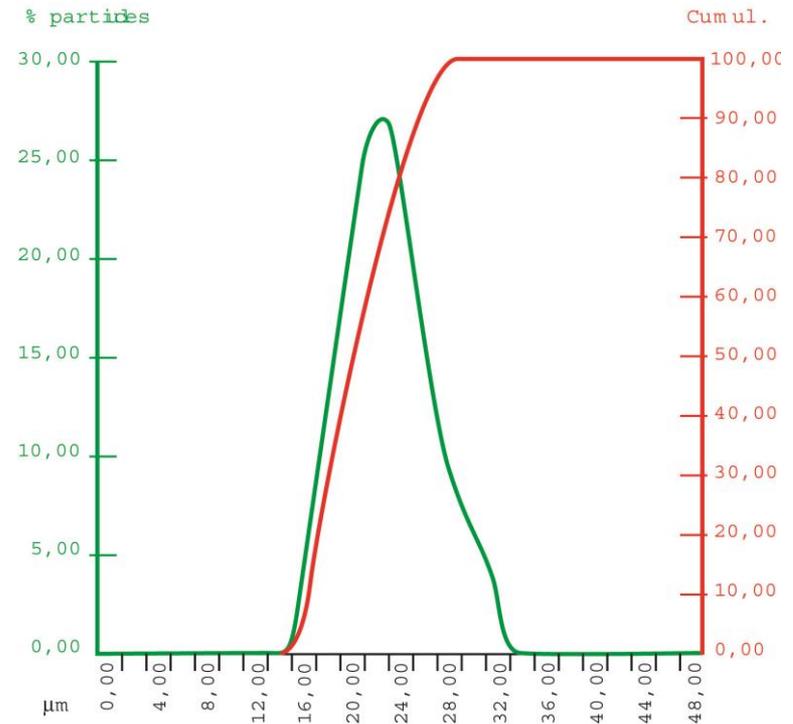
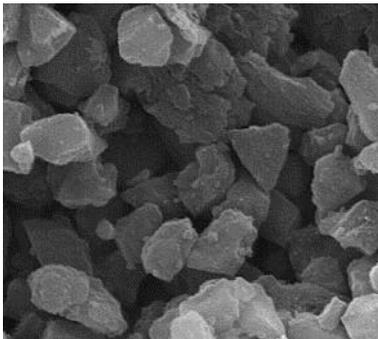
## ➤ The Bio DIAMANT® Liquids

Extremely calibrated diamond particles

*Monocrystallin*



*Polycristalin*



# ACCESSORIES

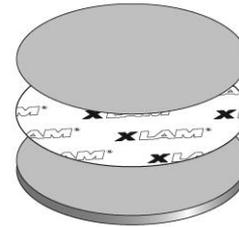
- FAS



- FMS



- X LAM



- BOX LAM



- Technical wipings



- Ultrasonic devices

