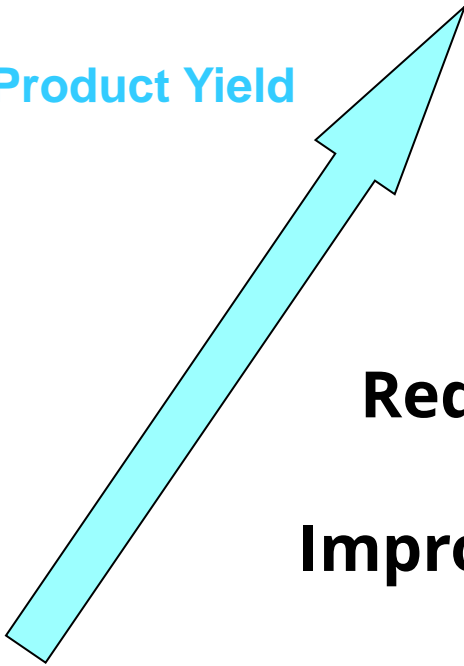




# A Robust solution for process-chamber cleaning

Product Yield



**DSP Diamond Scrub Pad**

**New Generation**

**Reduces particles & ionic contamination**

**Improves Fab Yield & Productivity**



# Diamond Scrub Pad Advantages

- Scrub cleaning fields
  - Processes via vacuum chambers :
    - Ion Implantation
    - Dry Etch
    - CVD PVD
    - ALD
- Fast cleaning on tools & parts such as
  - Aluminum / Anodized Aluminum
  - Stainless Steel
  - Ceramics
  - Glass, Quartz etc...
- Fiber free process : Clean Process
  - Global particle level reduction
  - Reduction of ionic residue
- DIW cleaning
  - Elimination of H<sub>2</sub>O<sub>2</sub> reduces recovery times
  - Eliminate safety hazards using H<sub>2</sub>O<sub>2</sub>



# Diamond Pad New Generation

- Variety of Grit size to suit scrub cleaning process
  - Selection of the grit to the part to be cleaned depending on application
  - From Fine to Coarse scrub

<b>Mesh</b>	<b>3 000</b>	<b>1 600</b>	<b>600</b>	<b>250</b>	<b>250D</b>	<b>235</b>
<b>Grit</b>	2000 1350	1350 800	450 400	360 320	320 280	290 250
<b>µm equiv.</b>	<b>6</b>	<b>12</b>	<b>35</b>	<b>80</b>	<b>80</b>	<b>90</b>

**Gasket**

**Polish**

**Implantation**

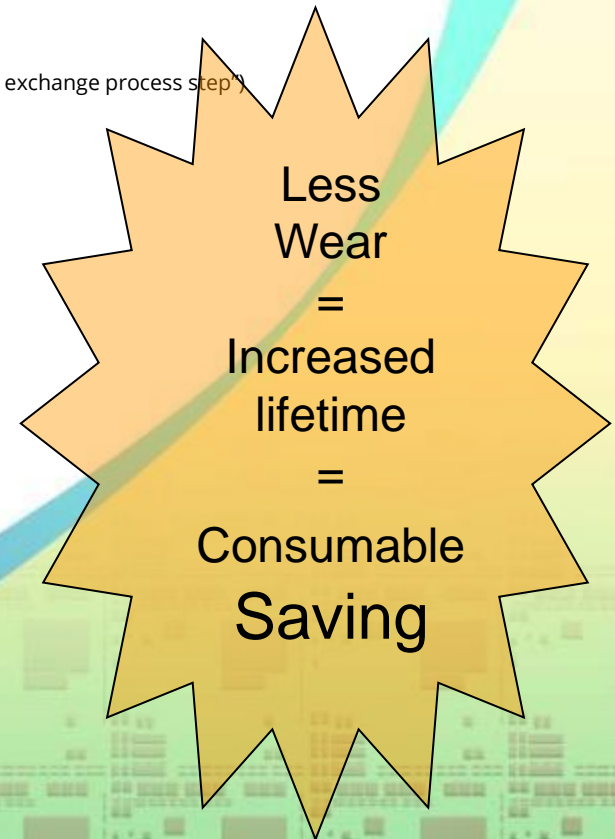
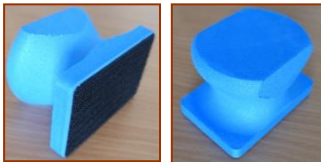
**Etch**

**CVD**



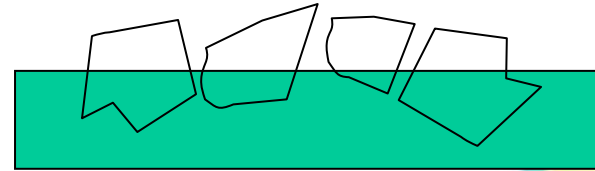
# Diamond Pad New Generation

- EURIS has engineered a variety of Next Generation Diamond Scrub Pads to improve chamber cleanliness
  - Clean design; no fiber compared to conventional method Scotch-Brite® etc...
  - Uniform efficiency : No break-in / burn-in required (Break In =Exple. CMP PAD exchange process step\*)
    - Less scratches
    - Smoother surface
    - Real minimization of tool wear
  - Design creates surface polish effect & reduces scratches
    - Applications on parts in contact up to laser reflection finishing.
    - Do not damage chamber wall
  - Ease of use with ergonomic handle
    - Fit technician hand
    - Prevent technician hand pain during cleaning
    - Durable and re-usable design environment friendly



- DSP pad composition

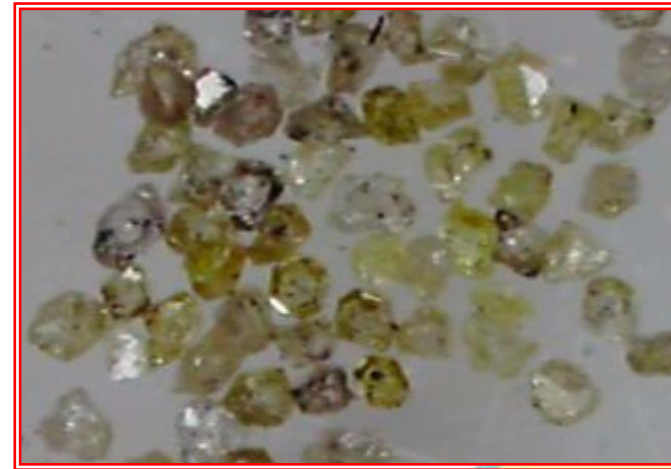
- Mylar plastic film (polyester) : No textile (Our PADS cannot be hand cut during usage)
- Constant manufacturing process
- Improved reproducibility : Control of Roughness
- Abrasive particles strongly attached to backing film : No abrasive loss



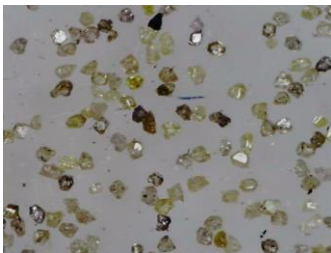


- Diamond size & distribution

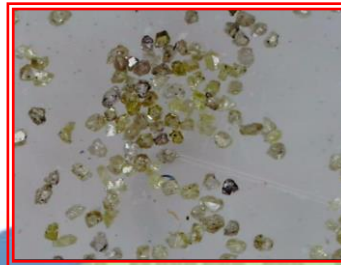
- EURIS Pad Diamond aspect
  - Sharp grains
  - Size sorted
  - Medium Deposition Density



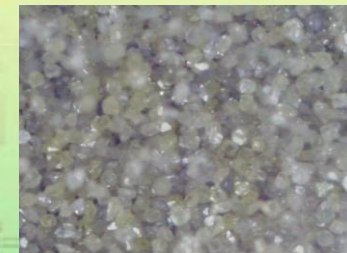
Low Diamond density  
Not used, less efficient



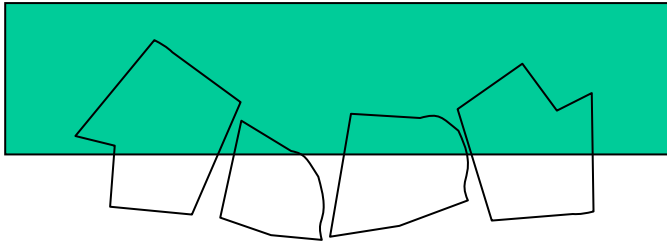
**Medium Density :**  
Optimum, no frequent  
PAD unload required.



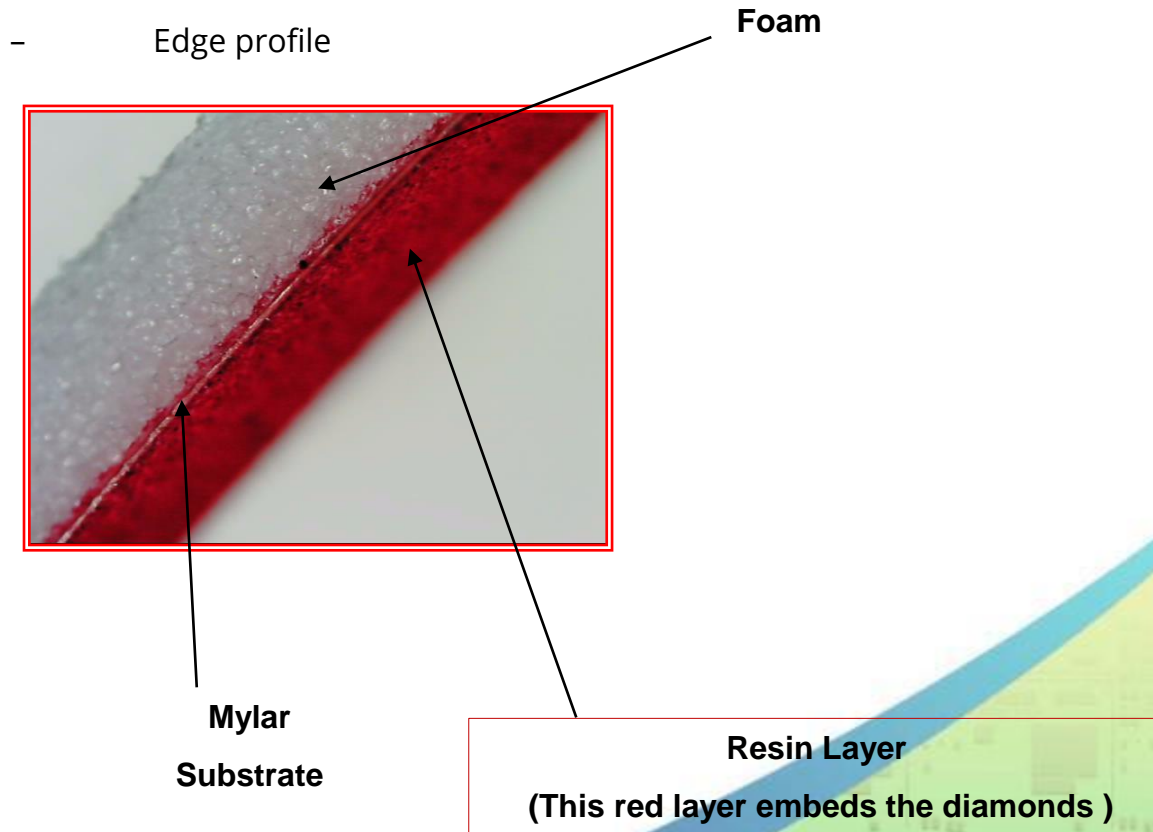
High Density :  
Trap material, need  
frequent PAD unload



- Diamond size effect on bonding process
  - Diamond size Controlled by selection of the diamonds sizes within +/- 25-33 % of the material available grain size dispersion.
  - ✓ Sharpness is controlled



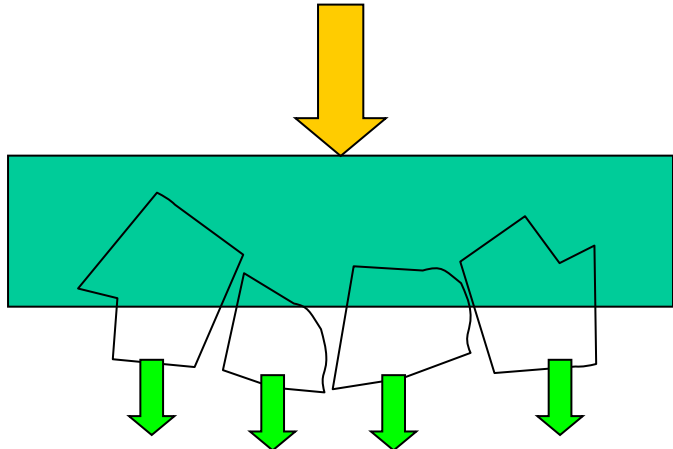
- Example





- Effect on Scrub Pressure

- Operator applies a force  $F$  on the scrub pad with his hand



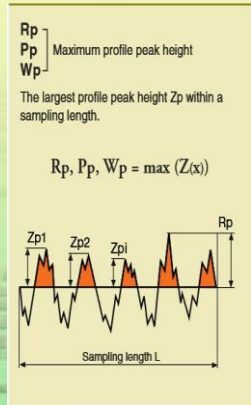
Part to be scrubbed

**A UNIFORM** SCRUBBING PRESSURE

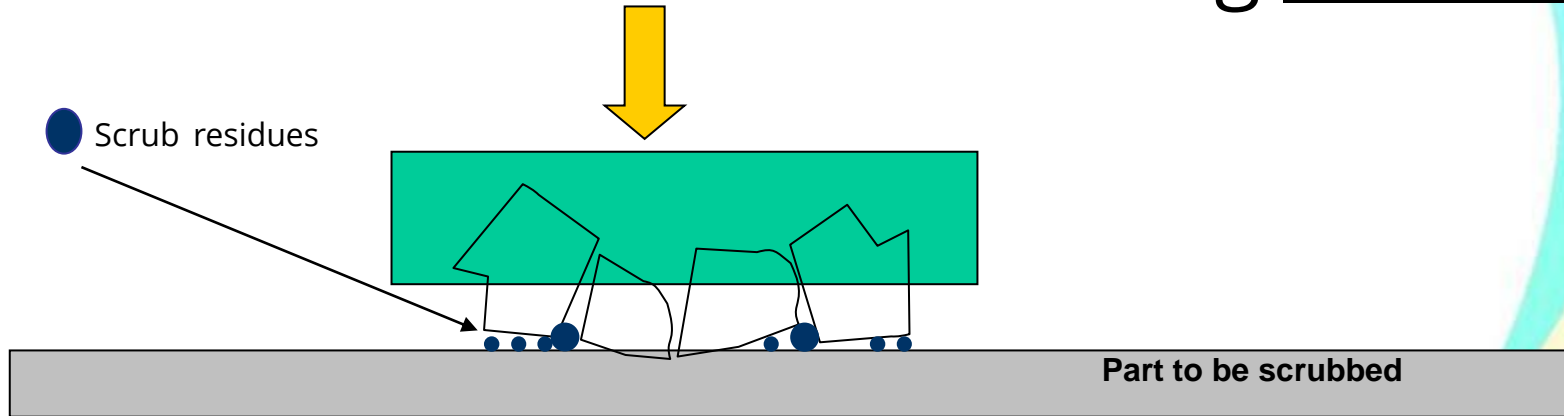
Consistent Pressure Distribution

Global uniform pressure

→ **A SMOOTHER** process: low  $R_p$  ( $R_p$  = Roughness parameter "p")



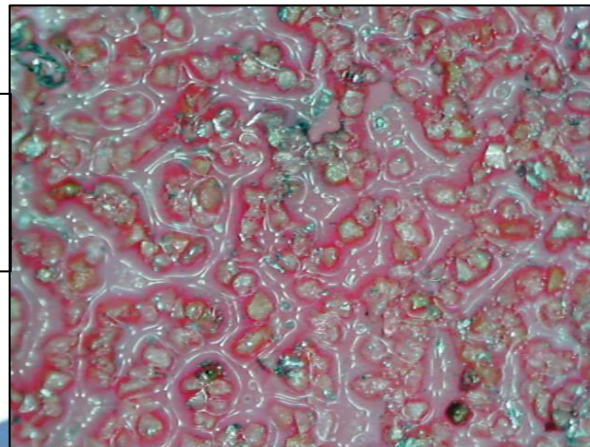
- Effect on scrub residues using DI water



Low loading effect (Medium size diamonds distribution)

→ **No need to unload**

Micro canals allows  
residues **evacuation:**  
Self unloading pad



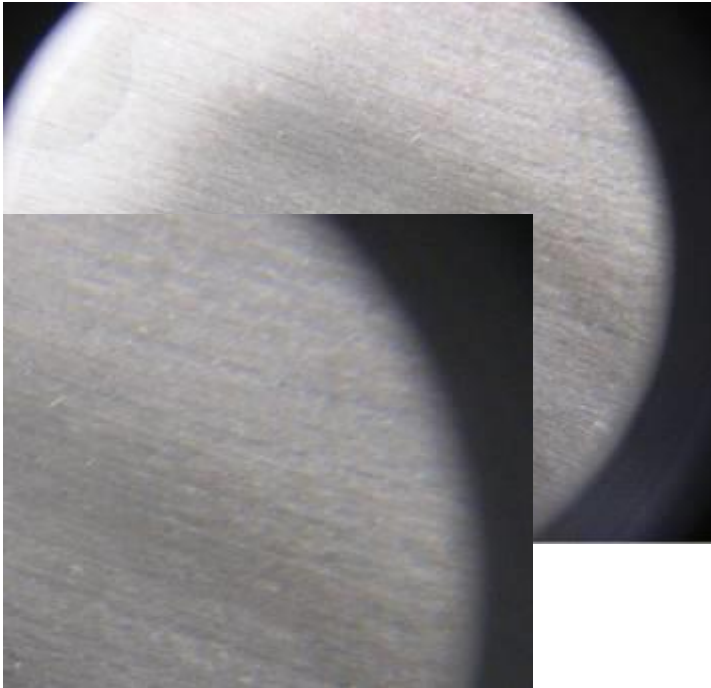


# Technical Aspects

## Results on anodized aluminum

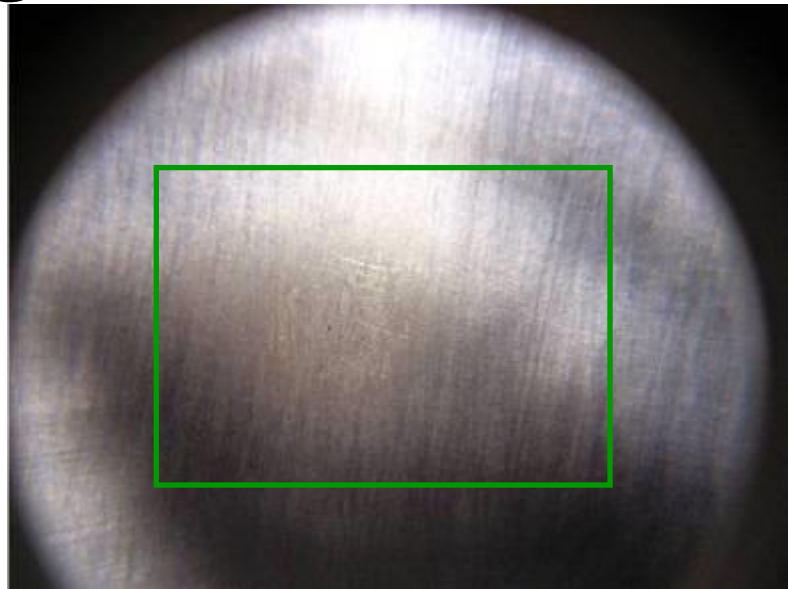
- DSP-250

- Example of a 230mm Anodized Aluminum disc scrubbed until the anodized layer is removed



**Lines are induced by machine shop cutting tool.  
No scrub scratch**

- Scratch done intentionally –  
Break through an anodized aluminum layer



**Scratch is difficult to generate due to global  
area scrubbing  
No indentation of aluminum**



# Technical Aspects

## Results on Ceramics

- Scratch reduction makes Euris DSP the best candidate for Ceramics parts scrubbing
  - Electrostatic Chucks
  - HDP Domes
  - End effectors etc...





# Wide product range

- Clean Room Use products

- Foam backing for hand process
- Loop backing for ergonomic hand tool process
- Double bag packing







- Colored by Grit Clean Room Use products



- Foam backing for hand process
- Loop backing for ergonomic hand tool process
- Pack of 10 packing









# Product Applications

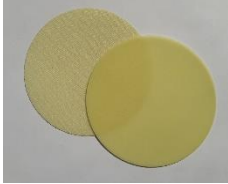

DSP part #	Applications
235-L-1    235-F-1 	<b>Heavy + duty for hard process residue</b> Thick process residues Hard process residues
250D-L-1    250D-F-1 	<b>Heavy duty for hard process residue</b> Hard process residues
250-L-1    250-F-1 	<b>High for hard process residue</b>
600-L-1    600-F-1 	<b>Medium duty for medium process residue</b>

DSP part #	Applications
1600-L-1    1600-F-1 	<b>Medium low duty for low process residue</b>
3000-L-1    3000-F-1 	<b>Low duty for light process residue</b>



# Product Applications

DSP part #	Applications
R235-L-1 	<b>Heavy + duty for hard process residue</b> Thick process residues Hard process residues
R250D-L-1 	<b>Heavy duty for hard process residue</b> Hard process residues
R250-L-1 	<b>High for hard process residue</b>
R600-L-1 	<b>Medium duty for medium process residue</b>

DSP part #	Applications
R1600-L-1 	<b>Medium low duty for low process residue</b>
R3000-L-1 	<b>Low duty for light process residue</b>