Micro-Abrasive Media Selection Guide

SCH Technologies & Vaniman

Purpose

This guide explains how to correctly select micro-abrasive blasting media for controlled removal of conformal coatings and Parylene from printed circuit boards (PCBs). Correct media selection protects solder mask, copper features and component bodies while delivering predictable removal performance.

Why Media Selection Matters

Incorrect abrasive choice can:

- Remove solder mask or copper
- Create latent damage on pads and tracks
- Generate excessive dust and contamination
- Reduce repeatability and operator control
- Increase rework and scrap risk

Correct selection balances removal speed, substrate protection and process stability.

Key Selection Parameters

1. Media Hardness – softer plastics protect substrates; hard oxides remove faster but risk damage.
2. Particle Size – smaller particles give finer control and lower impact energy.
3. Particle Shape – angular cuts aggressively; rounded peens and cleans.
4. Contamination Risk – non-conductive, low residue media preferred for electronics.
5. Static Behaviour – ESD safe handling is critical.

Media Comparison Summary

VanAcrylic Plastic Abrasive

- Hardness: Low–Medium
- Shape: Angular plastic
- Typical Use: Electronics coating removal, Parylene rework
- Advantages: Excellent control, minimal substrate damage, ESD safe
- Limitations: Slower than mineral abrasives

Glass Bead

- Hardness: Medium
- Shape: Spherical
- Typical Use: Light surface cleaning
- Advantages: Smooth finish
- Limitations: Peening effect, limited coating removal capability

Aluminium Oxide

- Hardness: High
- Shape: Sharp angular
- Typical Use: Heavy industrial stripping
- Advantages: Fast removal
- Limitations: High risk of PCB damage – not recommended

Sodium Bicarbonate

- Hardness: Very low
- Shape: Irregular
- Typical Use: Delicate cleaning
- Advantages: Very gentle
- Limitations: Low effectiveness on coatings

Recommended Starting Points (Electronics)

- Media: VanAcrylic
- Particle Size: 50–100 µm
- Pressure: 20–40 psi (1.4–2.8 bar)
- Nozzle Distance: 25–50 mm
- Angle: 30–60 degrees
- Use progressive exposure rather than continuous blasting

Process Controls

- Validate removal on scrap or witness coupons.
- Monitor nozzle wear and media cleanliness.
- Maintain dry, oil-free compressed air.
- Use extraction and dust control.
- Maintain ESD grounding of operator and cabinet.

Risk Management

- Avoid aluminium oxide or aggressive mineral abrasives on PCBs.
- Never exceed minimum pressure required for removal.
- Inspect under magnification after blasting.
- Recoat promptly to prevent corrosion or contamination.
- Record parameters for repeatability.

Equipment & Support

Vaniman Problast systems provide stable air delivery, media control and ESD-safe operation. SCH Technologies supplies equipment, training, media selection support and validated process development across the UK and Europe.