Esthetic Dentistry Technique

Clinical applications of sandblasting using the Miniblaster™ from Deldent Ltd

Suitable for intraoral use, the Miniblaster™ is designed to enhance adhesive dentistry procedures.

Use of the Miniblaster™ is said to significantly increase the micro-retention of bonding surfaces. The increase in surface microroughness that can be achieved by sandblasting can be seen in 3,700X SEM micrographs. Figure 1 shows polished gold, and Figure 2 shows the surface after sandblasting. The resulting retention significantly is greater than that achieved by the grooves produced by roughening with a bur (Figure 3).

The Miniblaster™ can be installed with the installation kit supplied with the unit (Figure 4). For maximum efficiency, the unit should be operated at 80-100 psi. An in-line, high-pressure stopcock is provided to permit the sandblaster to be readily disconnected from its air supply line after installation (Figure 5), facilitating transport from one operatory to another. Additional installation kits are available.

The index-finger-operated control valve on the top of the unit (Figure 6) is ergonomically designed and positioned. The control button makes the sandblaster equally simple to operate by either right or left-handed operators.

The entire unit is autoclavable. Following disconnection of the rear connector and removal of the powder chamber (Figure 7a), all components can be prepared for sterilization packaging in the usual manner (Figure 7b).

The spray head rotates via a unique ratchet system for optimal directional control (Figure 8).

A tungsten carbide extension spray nozzle with 360° that screws over the standard nozzle is available (Figure 9). This extension nozzle is rarely needed, but can offer access to areas not easily reached by the standard nozzle.

The Miniblaster™ can be used for surface preparation prior to bonding to all dental materials including: Precious, semiprecious, and nonprecious metals; porcelain; composite; and resin materials. In principle macro retention such as under-cuts should be employed where possible in conjunction with the microretention produced by the Miniblaster™. Although 50-micron aluminum oxide is the abrasive of choice for routine use, 90-micron can be employed for more aggressive work and cement removal. Figures 10a-d show the intraoral repair of a fractured porcelain facing. Pre-op conditions are illustrated in figure 10a, sandblasting in Figure 10b, and bonding application in Figure 10c. An opaquing material should be applied to mask any exposed metal. Cotton rolls or a rubber dam should be used for area isolation. Figure 10d shows the repair 12 months later.

Figures 11a and 11b show removal of cement from a crown prior to recementation.

Sandblasting of orthodontic bands is said to significantly improve their retention (Figure 12). Sandblasting of detached orthodontic brackets will remove composite and allow rebonding

The stages in preparataion of a simple orthodontic lingual retainer are: Wire adaptation (Figure 13a) followed by sandblasting (Figure 13b). The bonded retainer is shown in Figure 13c.

ABOUT:

Miniblaster™

Clinical SandBlaster

Contains: Unit with abrasive reservoir, additional abrasive reservoir with abrasive sample, air supply "T" connections and instructions.

- Head and body fully autoclavable - Prevents cross infection.
- Index finger controlled valve - Gives maximum ergonomic control.
- Designed for left and right handed operators
- Unique ratchet system - For simplified nozzle rotation and prevents over-rotation.
- Valve and nozzle easily replaceable - Easily serviced and repaired.
- Tungsten carbide nozzle - For wear resistance.
- Simple installation kit included - Can be simply installed without service engineer.
- In-line high pressure stop-cock with built-in quick disconnect included - For simple disconnection for autoclaving and transportation between operatories.
- The scope of use of this versatile unit is limited only by the imagination of the operator.

Fig.1

Fig.2

Fig.3

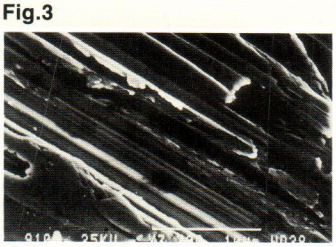


Fig.4

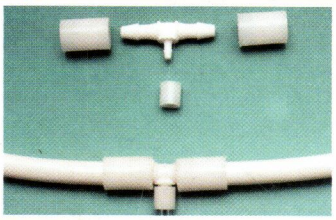


Fig.5

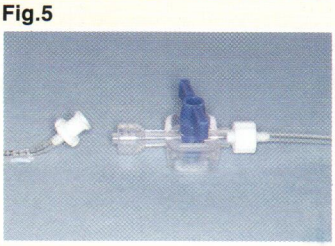


Fig.6

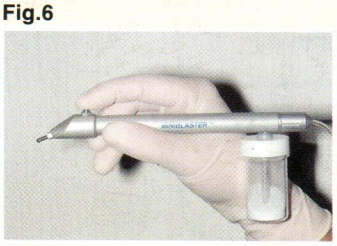


Fig.7a

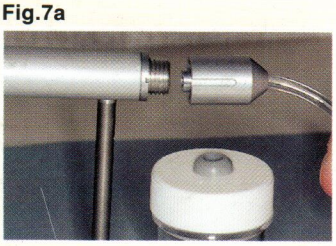
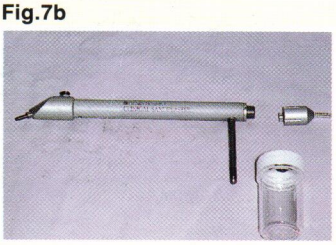


Fig.7b



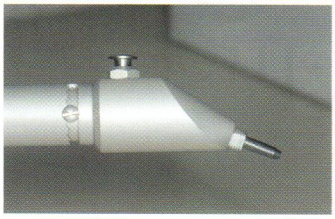


Fig.8

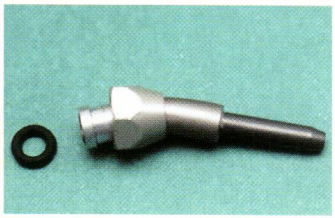


Fig.9


Fig.10a


Fig.10b

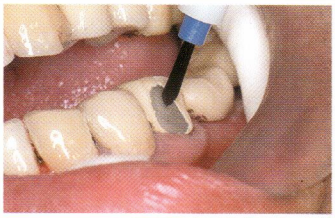


Fig.10c


Fig.10d

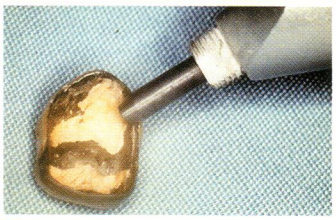


Fig.11a

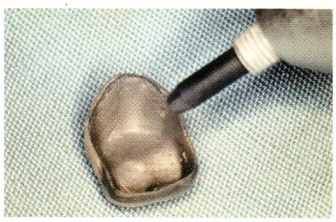


Fig.11b

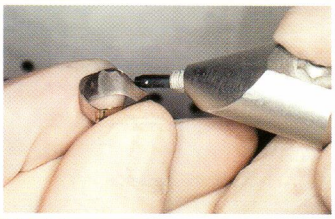


Fig.12

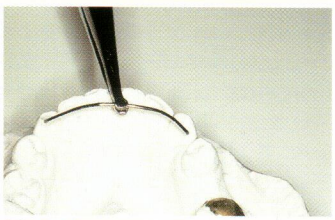


Fig.13a

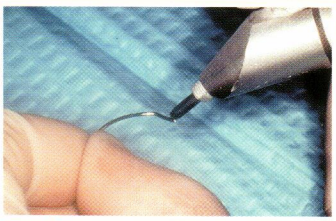


Fig.13b

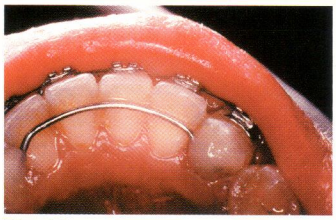


Fig.13c

Sandblasting is said to significantly increase the retention of short endodontic posts. Intraoral sandblasting of existing composites is also possible to facilitate add-on repairs.

Table 1 indicates the recommended procedures for bonding to dental materials

Substrate	Surface prep	Primer	Bonding resin	Restore/lute
Porcelain	Sandblast surface using 50 micron aluminun oxide. Apply SILANE: Leave 1 minute to dry.	Apply primer. Light cure.	Apply bonding resin firmly to surface for 5 seconds. Gently "airthin". Light cure for 15 seconds.	Restore with preferred material to mask metal surface.
Precious metal	Sandblast followed by tin plating using Miniplater™ (Deldent Ltd.)	Apply primer 5 seconds only.	Apply bonding resin firmly to surface for 5 seconds. Gently "airthin". Light cure for 15 seconds.	Luting with preferred material and technique.
Non-precious metal	Sandblast surface	Apply primer 5 seconds only needed.	Apply bonding resin firmly to surface for 5 seconds. Gently "airthin". Light cure for 15 seconds.	Luting with preferred material and technique.
Composite	Sandblast surface	Apply primer 5 seconds only.		Restore with preferred material