

Impression materials supplied in sausage-shaped plastic bags ("polybags") are inserted into a hard plastic cartridge (see picture at right) that is then placed into the machine (seen at lower right). The cartridge holds one polybag each of base and catalyst. Depressing a button on the top of the machine causes a plunger to slowly express the base and catalyst into a mixing tip that spins the two pastes together to produce a homogeneous mix. The mixed impression material is then extruded from the tip. Before each use, a new mixing tip is placed on the cartridge. A variety of impression materials in polybags are available separately from ESPE America and include addition silicones (heavy- and light-body), polyether, and a polyether bite registration material. An innovative addition silicone material called Position Penta that is used as an alginate replacement can also be purchased in polybag form for use in the machine.



The Pentamix 2 has a fill indicator that shows how much impression material is available in the cartridge. The unit, which can be wall mounted or placed on a countertop, is approximately 14 inches long by 6½ inches wide by 8 inches high and weighs 21 pounds. It has a two-year warranty.

Manufacturer:

ESPE America
1710 Romano Drive
P.O. Box 111
Norristown, PA 19404-0111
(800) 782-1571
(610) 277-3800
(800) 458-3987 FAX
www.espeusa.com

Suggested Retail Price:

\$879.00

Government Price:

\$570.00

ADVANTAGES:

- + Simplifies impression mixing and dispensing.
- + Produces and dispenses well-mixed impression materials.
- + One button-operation and ability to be barrier protected enhance infection control.
- + Cartridge and materials are color-coded to prevent confusion.
- + Provides easy access to different types of impression material.
- + Can be wall-mounted or placed on a countertop.
- + Easy to use.
- + Quiet operation.
- + Has indicator level to tell user how much impression material is left.
- + Provided with well-written, complete instructions.

DISADVANTAGES:

- Expensive.
- Evaluators reported that the unit doesn't mix and dispense material fast enough.
- Not practical to use machine to mix both light- and heavy-body materials for same patient.
- Unit is large and takes up valuable operatory space.

SUMMARY AND CONCLUSIONS:

The Pentamix 2 mixes impression materials thoroughly and simplifies the impression making process.



The machine is quiet, easy to use, and simple in design. Its one-button operation and ease of disinfection (or barrier protection) facilitate infection control. Although still expensive, its government price has been reduced by over \$100 since it was originally introduced in 1993. Clinical evaluators found it difficult to use the Pentamix 2 to mix light-body material and then heavy-body material for use in the same impression procedure because it is rather slow at mixing. As a result, one automix gun will probably have to be used to allow the doctor to inject the light-body material while the assistant is using the Pentamix 2 for mixing the heavy-body tray material. The machine provides an effective means of mixing a range of impression materials but its widespread acceptance will probably be limited by its price and slowness of operation. The **Pentamix 2 Automatic Mixing Unit** is rated **Acceptable** for use by the federal dental services.

(Col Charlton)

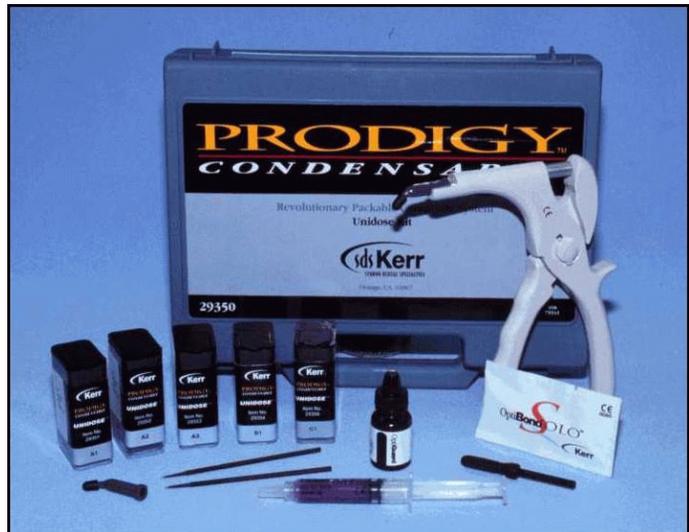
59-16 Prodigy Condensable Restorative System

(Project 99-25)

According to its manufacturer, Prodigy Condensable is a resin composite suitable for use as a directly-placed packable restorative. It is one of several recently-introduced resin composites that are described by their manufacturers as "condensable" or "packable." These products purportedly exhibit resistance to condensation because they are more highly filled than standard resin composites and often have particles that have been modified in shape or texture.

Kerr claims that Prodigy Condensable's composition, which is based on that of Herculite XRV and Prodigy, results in a low polymerization shrinkage of only 1.8%. Because it shrinks so little, Kerr maintains that the product can be placed in a thickness of up to 5 mm before being light activated and still produce a gap-free margin. According to Kerr, Prodigy Condensable is filled to 80% by weight (61.7% by volume) with a blend of fumed silica and barium aluminoborosilicate glasses.

No list of specific clinical indications is provided in either the product's instructions or promotional brochure. Although Prodigy Condensable is available in seven shades indexed to the Vita shade guide (and an Extra Light shade), the kit evaluated by DIS had five shades (A1, A2, A3, B1, C1). The resin is supplied in unit-dose (Unidose) capsules and is provided with Kerr's "one-component" bonding agent, OptiBond Solo. The product and accessories are packaged in the typical Kerr "tackle box" plastic case with a handle for easy portability. Product item numbers for ordering refills are posted on the inside cover of the case. All components in the kit (resin composite, etchant, OptiGuard Sealant) are clearly identified and have expiration dates and lot numbers stamped on them. The OptiBond Solo bonding agent is provided in a separate box. A plastic, graphics-containing instruction card is also included.



Manufacturer:

Kerr Corporation
1717 W. Collins Avenue
Orange, CA 92867-9880
(800) 537-7123
(714) 516-7400
(714) 516-7633 FAX
www.kerrdental.com

Suggested Retail Price:

\$231.00 Prodigy Condensable Restorative System (order number 29350) contains:

- ten Unidose Tips each of shades A1, A2, A3, B1, C1 (three other shades are sold separately)
- 50 pouches of OptiBond Solo
- one 5-mL bottle of OptiGuard Surface Sealant
- two 3-g syringes of 37.5% phosphoric acid etchant
- 20 syringe tips
- 50 plastic applicators
- one Unidose composite gun

Government Price:

\$121.13 Prodigy Condensable Restorative System (contents and order number as listed above)

ADVANTAGES:

- + Has thicker consistency than standard resin composites which makes it easier to achieve acceptable interproximal contacts.
- + Resists slumping after placement.
- + Adequate working time; not overly sensitive to ambient light.
- + Is sufficiently radiopaque to ensure easy detection on a radiograph.
- + One of the less expensive packable composites.
- + Packaged in a compact, plastic case with a handle for easy portability.
- + Supplied with easy-to-use, unit-dose bonding agent (OptiBond Solo).
- + Expiration dates and lot numbers are provided for all items in kit.

DISADVANTAGES:

- Is not adequately polymerized when placed in bulk (i.e., a 5-mm thickness).
- Users may find that resin's thicker consistency makes it difficult to express from the capsules.
- Is somewhat tacky; sticks to placement instruments.
- Overall esthetics slightly less favorable than other resin composites evaluated by DIS.
- Not as hard as some of the packable resin composites tested (eg, P60 [3M], ALERT [Jeneric/Pentron], SureFil [Dentsply]).
- More expensive than several popular, standard resin composites.
- Material Safety Data Sheet (MSDS) not included in kit.

SUMMARY AND CONCLUSIONS:

Prodigy Condensable was somewhat difficult to dispense and place. A majority of users reported that it was tacky and stuck to placement instruments. Some clinicians may find that its higher viscosity makes it difficult to express from the Unidose capsules. The higher viscosity, however, does make it easier for users to achieve acceptable interproximal contacts than with standard resin composites. Clinicians must determine if this particular feature justifies the increased cost of Prodigy Condensable compared to the popular hybrid products Herculite XRV, Prodigy, and Spectrum TPH. Users reported that the overall esthetics of Prodigy Condensable, while acceptable, were not as good as those of other resin composites they had used. Importantly, laboratory testing found that this product **can not** be adequately polymerized by light exposure if placed in a 5-mm thickness as claimed by Kerr. In summary, the product appears to offer few advantages compared to traditional resin composites already available.

Prodigy Condensable is rated **Marginal** for use by the federal dental services.

(Col Charlton)

59-17 Determination of Possible Mercury Contamination of Used Amalgamators (Project 99-06)

Mercury is now a major environmental concern. Established maximum levels and procedures for the

proper disposal of mercury and mercury-containing devices have been provided by the Environmental Protection Agency.¹ During a USAF Dental Investigation Service (DIS) Problem Resolution and Assistance Program (PRAP) action, it was reported to DIS that mercury was visible in the inner mechanical compartment of dental amalgamators.² DIS also has received reports from medical equipment repair personnel that they have noticed mercury in amalgamators during routine equipment maintenance. Possible contamination of amalgamators by mercury has not been reported in the published literature.

To determine if used amalgamators are, in fact, routinely contaminated by mercury, a pilot study was performed which evaluated 11 used amalgamators from a large military dental clinic. The amalgamators were disassembled and visually inspected for signs of mercury. Static mercury vapor levels were then measured two inches inside the housing of each unit using a Jerome Mercury Vapor Analyzer. Readings were made prior to and after each amalgamator was operated.

SUMMARY AND CONCLUSIONS:

Results showed that ten of the eleven amalgamators were visibly contaminated with mercury and had measurable mercury vapor levels. Small droplets were noted, particularly below the capsule mixing area and around the casing of the electric motors. Vapor readings found that one unit exceeded the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit prior to operation, and three amalgamators exceeded the same threshold after two minutes of operation. The relevance of these measurements with regard to exposure limits set by federal regulatory agencies is unknown. Further investigation is required to determine if federally-set exposure limits are exceeded during the use of these units by dental personnel who may not be aware of the mercury contamination (see *Dental Items of Significance* 59-18). Another concern is that contaminated amalgamators will likely constitute hazardous waste when the units need to be disposed of. A review of the literature by DIS and outside agencies³ indicates that no peer-reviewed protocol exists for decontaminating these units. Further investigation is needed to develop a decontamination protocol so the amalgamators can be properly decontaminated prior to disposal.

(Lt Col Roberts)

References:

1. Code of Federal Regulation. Protection of the Environment. Washington DC, US Government Printing Office, 1993. 40 CFR Ch. 1, 262.21, p 47, July 1, 1993.
2. Problem Resolution and Assistance No. 97-3. USAF Dental Investigation Service.
3. Private Communication from Kevin Boyle, Director of PRO-ACT, USAF Center for Environmental Excellence, San Antonio, TX 23 Apr 1999.

59-18 Determination of Possible Mercury Vapor Hazard to Medical Personnel from Mercury-Contaminated Amalgamators (Project 99-19)

During a USAF Dental Investigation Service (DIS) Problem Resolution and Assistance Program action, it was reported to and confirmed by DIS that mercury was visible in the inner mechanical compartment of dental amalgamators.¹ DIS had also received reports from medical equipment repair personnel that they had noticed mercury in amalgamators during routine equipment maintenance. Because of these reports, DIS conducted a study that confirmed that amalgamators were contaminated by mercury.² For some contaminated amalgamators, mercury vapor levels within the housing were found to exceed established Occupational Safety and Health Administration (OSHA) ceiling limits.² The possible health risk to personnel using and/or performing maintenance on these contaminated units was not known. The purpose of this project was to evaluate mercury vapor levels in the breathing space of personnel during the routine use of and servicing of mercury-contaminated amalgamators.

Air sampling for mercury vapor was performed using four amalgamators known to be contaminated by mercury. Sampling was done in the operator's breathing zone as well as at a location three inches

behind the units. Sampling was done individually for each amalgamator over a three-hour period during which the amalgamator was periodically operated without a capsule. To simulate the exposure personnel may be subjected to during maintenance of contaminated amalgamators, the same type of air sampling was done after the housing of each amalgamator had been removed and simulated calibration was performed. For both test conditions, eight-hour time-weighted averages were calculated.

SUMMARY AND CONCLUSIONS:

This project determined that contaminated amalgamators do produce mercury vapor in the breathing spaces of dental and medical maintenance personnel. It is important to note, however, that under the conditions of this study the measured vapor levels were extremely small and did not breach any established time-weighted average mercury vapor thresholds.

The specific source of the mercury that contaminates amalgamators needs to be identified. Work done by DIS during the evaluations of two brands of amalgam revealed that the exterior surfaces of their capsules were contaminated by microscopic droplets of mercury.^{3,4} Other brands from various manufacturers have subsequently been examined and found to be similarly contaminated. This may serve as one source of the amalgamator contamination. Work needs to be done to identify other sources, if they exist. It is reassuring that the use and maintenance of contaminated amalgamators does not produce harmful mercury vapor levels. Regardless, it is prudent that personnel remain vigilant to possible sources of mercury vapor in dentistry and the potential health effects that may result from chronic exposure to high levels.

(Lt Col Roberts)

References:

1. Problem Resolution and Assistance Program, Action No. 97-3. USAF Dental Investigation Service.
2. USAF Dental Investigation Service Project 99-30, 29 September 1999.
3. USAF Dental Investigation Service Project 98-03, Lojic+ (Southern Dental Industries), 28 October 1998.
4. USAF Dental Investigation Service Project 98-04, Permite C (Southern Dental Industries), 18 November 1998.

59-19 Vivastick Placement Instrument

(Project 99-33)



Vivasticks are plastic, disposable, three-inch-long sticks with a drop of soft adhesive on the tip that are made for handling small restorations. Ivoclar claims they are particularly useful for securely holding fragile and/or small restorations during clinical treatment. Suitable restorations include porcelain veneers, metal or ceramic inlays, onlays, and crowns. Each Vivastick has a flexible neck that enables the user to adapt the angle of the adhesive tip for the best intraoral access.



Manufacturer:
Ivoclar/Vivadent
175 Pineview Drive
Amherst, NY 14228
(800) 533-6825

(716) 691-0010
(716) 691-2285 FAX
www.ivoclarna.com

Suggested Retail Price:

\$16.99 Vivastick Standard Kit (item number 556272) contains: 50 Vivasticks

Government Price:

\$9.34 Vivastick Standard Kit (item number and contents as listed above)

ADVANTAGES:

- + Facilitates the handling of fragile and/or small items.
- + Adhesive securely attaches to most surfaces.
- + Applicator tip can be bent to improve intraoral access.
- + Does not require excessive force during application.
- + Durable enough to last for an entire patient visit.
- + Disposable which enhances infection control.
- + Less expensive than a comparable product (Pic-n-Stics).

DISADVANTAGES:

- Adhesive residue occasionally remains on adhered surface after applicator is removed.
- Instructions could be more informative.

SUMMARY AND CONCLUSIONS:

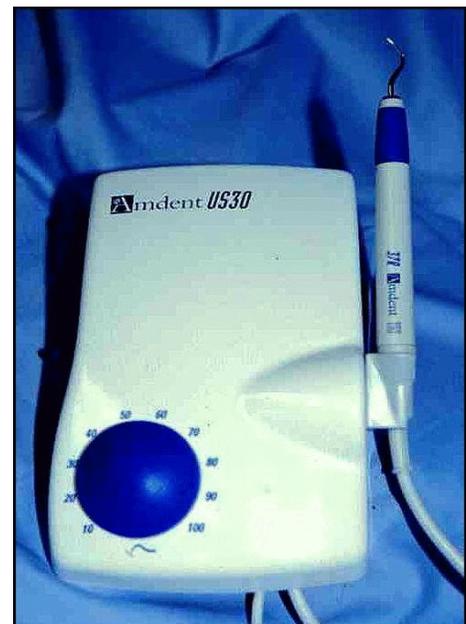
Vivasticks are a simple, effective way of holding small and/or fragile items at chairside and in the laboratory. Users found them particularly helpful for holding veneers, inlays, and cervical matrices. Their adhesive tip holds items securely, they can be applied with relatively light pressure which protects fragile restorations, and they are durable enough to last an entire patient visit. Because they are easily bent, the applicators can be configured for good intraoral access. At 19¢ each (government price), they are appropriately priced and less expensive than a similar product (Pic-n-Stics at 25¢ each). In practices in which veneers, brackets, or other small items are frequently held and placed, Vivasticks are especially useful. **Vivastick Placement Instruments** are rated **Recommended** for use by the federal dental services.

(Col Charlton)

**59-20 Amdent US30 Ultrasonic Scaler
(Project 99-05)**

The Amdent US30 is a new piezoelectric scaler manufactured in Sweden by Amdent AB and marketed in the United States by Biotrol International. The external case of the US30 consists of an upper and lower assembly. The upper assembly is a one-piece, high-density composite material that is smooth and devoid of any openings. This design prevents aerosols or disinfectants from penetrating the inner workings of the unit. The lower assembly is constructed of a polyvinylchloride-coated aluminum frame. Each of the control knobs that protrude from various locations on the external case has a removable and fully autoclavable silicone cover.

Amdent's solution for speeding-up tip changing and enhancing infection control is the Quick-a-Tip handpiece system. The Quick-a-Tip is an integrated tip and removable handle. It is comprised of an autoclavable, high-density, plastic handle and stainless-steel



working end. It is attached by rotating the threaded Quick-a-Tip over the corded handpiece. Near the working end of the Quick-a-Tip is a silicone rubber grip that is said to reduce operator fatigue by acting as a vibration damper and to allow a better purchase on the handle. Three Quick-a-Tips and two sets of autoclavable knob covers are included with each US30. A conventional corded foot switch is used to activate the unit when powered. The US30 is compact. It measures 2 inches high by 5 inches wide by 8 inches deep and weighs just 3.5 pounds. The scaler is configured for 120 volts and is ETL listed and CE marked.

As an option, the unit can be equipped with an endodontic function that reduces the power to it by 50% over the entire range so it can be used during endodontic therapy. Optional Quick-a-Tip fileholders are available in increments of 70-, 90-, and 110-degrees. Also available are Quick-a-Tips for condensing amalgam and cementing crowns and inlays.

Manufacturer:

Amdent AB
Box 1009
SE-149 25 Nynäshamn
Sweden
46-8-520-131-20
46-8-520-185-74 FAX

Distributor:

Biotrol International
650 S Taylor Avenue, Suite 20
Louisville, CO 80027
(800) 822-8550
(303) 673-0341
(303) 673-0346 FAX
www.biotrol.com

VA Contract # V797P-3067K

Suggested Retail Price:

\$1,665.00 Amdent US30 scaler (Item #AMD8371) with three Quick-a-Tip handpieces, corded foot pedal, and instructions.

Government Price:

\$999.00 Amdent US30 scaler (Item #AMD8371, same contents as above).

ADVANTAGES:

- + Full two-year warranty for parts on the Amdent US30; three-month warranty on Quick-A-Tip handpieces.
- + Is easy to use.
- + Provides good calculus removal.
- + Handpiece is autoclavable.
- + Can be used for endodontic procedures when equipped with optional handpieces.
- + Light weight and portable.
- + Simple design and smooth finish facilitate asepsis.
- + Has autoclavable silicone covers for control knobs.
- + Power adjustment controls are well placed.
- + Features indicators for handpiece efficiency.
- + Complete and clear operating, installation, and maintenance instructions.
- + Meets all electrical safety standards as outlined in AFI 41-201 and 41-203.
- + Is ETL listed and CE marked.

DISADVANTAGES:

- Clinicians who routinely use magnetostrictive scalers found the learning curve a bit steep.
- No separate water system for scaler.

SUMMARY AND CONCLUSIONS:

The Amdent US30 is a piezoelectric scaler that is easy to use for dental prophylaxis procedures. The simple, modern design of the unit facilitates established infection control procedures such as disinfection and barrier protection. Operating, installation, and maintenance instructions are complete and easy to follow. The US30 is extremely light and portable. Calculus removal was judged to be good, however the evaluators indicated that they routinely used magnetostrictive scalers and there was a learning curve to overcome with this unit. Laboratory evaluators found that the unit met all electrical safety standards of AFI 41-201 and 41-203. Providers liked the appearance of the unit and found the noise level generated during use to be acceptable. All three clinical evaluators rated the US30 as "Good" or "Excellent." The **Amdent US30** is rated **Recommended** for use by the federal dental services.

(SSgt Martin)

59-21 Spectrum 800 Curing Unit**(Project 99-13)**

Dentsply/Caulk has recently introduced the Spectrum 800 Curing Unit. The company claims that the unit provides flexibility to match modern resin composite curing techniques. The Spectrum 800 features variable intensity settings from 300 to 800 mW/cm² in 50-mW increments and has a built-in, digital radiometer that is said to confirm light unit output. The most commonly-used light intensity may be preset if so desired. Curing time is adjustable in 10-second intervals from 10 to 60 seconds and a continuous curing interval of up to two minutes is also available. Dentsply states that hand fatigue is reduced by Spectrum 800's ergonomic design. This unit accepts a range of light guides from 3 to 13 mm, but an 8-mm curing probe is provided as the standard light probe. The Spectrum 800 has a two-year warranty on the curing unit while the Kevlar[®]-reinforced light cord has a five-year warranty.

Suggested Retail Price:

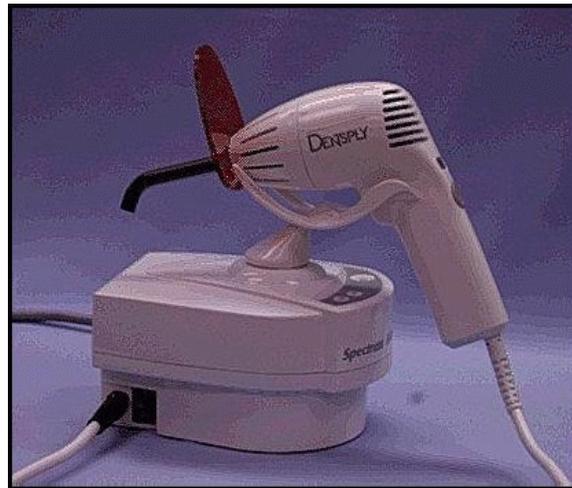
- \$813.85 Spectrum 800 Curing Unit
- 8-mm, 60-degree Curing Tip
 - Eye Protection Shield
 - Wall Mounting Bracket

Government Price:

- \$531.65 Spectrum 800 Curing Unit (with items as listed above)

Manufacturer:

L.D. Caulk Division
 Dentsply International, Inc.
 P.O. Box 359
 Milford, DE 19963-0359
 (800) 532-2855 ext 207
 (302) 422-4511
 www.caulk.com

**ADVANTAGES:**

- + Adjustable irradiance settings from 300 to 800 mW/cm².
- + Wide range of timer settings.
- + LCD exposure time display in 1-second increments.
- + Built-in digital readout radiometer.
- + Ergonomically-designed handpiece.
- + Sterilizable curing tips.

- + Internal voltage regulator.
- + Light shield is easily positioned.
- + Designed for easy bulb change or filter inspection.
- + 360-degree-swiveling curing tips.
- + Cooling fan operation is proportional to bulb usage.
- + Quiet cooling fan.
- + Easily cleaned or barrier protected.
- + Passed all electrical safety standard testing.

DISADVANTAGES:

- Minimally adequate irradiance with 13-mm curing tip at full power.
- Built-in radiometer inaccurate with 13-mm curing tip.
- Features may not justify cost for average clinical use.

SUMMARY AND CONCLUSIONS:

The Spectrum 800 Curing Unit is marketed to provide clinical flexibility to match newer resin composite curing techniques. It is a well-designed, ergonomic unit that is easily positioned to reach all areas of the oral cavity. The light's irradiance values were found to be acceptable with the 8-mm tip, however, use of the 13-mm tip is not recommended because laboratory testing demonstrated only minimally adequate irradiance. The internal radiometer gave accurate readings for the 8-mm tip but produced erroneous findings for the 13-mm tip. Autoclaving the curing tip resulted in no loss of light intensity and did not damage the tip. Five out of six evaluators rated the Spectrum 800 as above average and a majority recommended the unit be purchased for use in their respective clinics. The majority of users, however, thought the additional features of this product do not justify its relatively high cost for routine clinical use.

The Spectrum 800 Curing Unit is rated **Acceptable** for use by the federal dental services.

(Lt Col Roberts)

59-22 Filtek™ P60 Posterior Restorative

(Project 99-17)

According to its manufacturer (3M Dental Products), P60 is an esthetic, light-cured, radiopaque resin composite specifically designed for use as a posterior direct and indirect restorative material. P60 can be considered to be in the category of "packable" resin composites such as SureFil (Dentsply/Caulk), Solitaire (Heraeus Kulzer), Pyramid (Bisco), ALERT (Jeneric/Pentron), and Prodigy Condensable (Kerr). Unlike these other products, however, P60 is not described as an "amalgam alternative." While said to be "packable," the material is not purported to have a condensibility akin to that of amalgam. In addition, unlike the majority of other packable resins, 3M recommends an incremental placement and light curing procedure using a maximum resin thickness of 2.5 mm.



P60 is filled to 61% by volume with zirconia/silica filler particles having a size range of from 0.01 to 3.5 microns. Chemically, the resin consists of Bis-GMA, UDMA (urethane dimethacrylate), and Bis-EMA (bisphenol A polyethylene glycol diether dimethacrylate). The higher molecular weights of UDMA and Bis-EMA (compared to the usual TEGDMA in many other resin composites) increases viscosity, reduces

polymerization shrinkage, and reduce the resin's sensitivity to changes in atmospheric moisture (which can thicken uncured resin).

P60 is recommended by 3M for the following clinical applications: direct posterior restorations, core build-ups, splinting, and indirect restorations (eg, inlays, onlays, veneers). It comes in three shades (A3, B2, C2) and is supplied with the "one-component" bonding agent, Single Bond. The product is only available in syringes.

Manufacturer:

3M
Dental Products Division
3M Health Care
3M Center, Bldg 275-2SE-03
St. Paul, MN 55144-1000
(800) 237-1650
(612) 733-8524
(800) 888-3132 FAX
www.mmm.com/dental

Suggested Retail Price:

\$163.00 Filtek P60 Posterior Restorative System, Introductory Kit (item number 4720) contains:
-three 4-g syringes, one each of shades A3, B2, C2
-one 3-mL bottle of Single Bond Dental Adhesive
-one 3-mL syringe of Scotchbond Etchant
-accessories

Government Price:

\$98.00 Filtek P60 Posterior Restorative System, Introductory Kit (contents and item number as listed above)

ADVANTAGES:

- + Is adequately cured in 2.5-mm layers with only a 20-second light exposure.
- + Is one of the hardest packable resin composites available.
- + Highly radiopaque; is easy to differentiate from tooth structure on radiographs.
- + Expiration date and lot number stamped on product syringes.
- + Packaged with fast, easy-to-apply bonding agent (Single Bond).
- + Provided with a user-friendly instruction card.
- + Handles well; provides resistance to packing that makes it easier to establish acceptable interproximal contacts.
- + Adequate working time; not overly sensitive to ambient light.
- + Polishability and overall esthetics were rated highly by evaluators.

DISADVANTAGES:

- Second most expensive packable resin composite (per gram of refill material).
- Not available in capsule form.
- Box is large for amount of product provided.
- Material Safety Data Sheet (MSDS) is not provided in kit.
- Is slightly tacky.
- Some evaluators found shade range too limited.

SUMMARY AND CONCLUSIONS:

Filtek P60 was judged by the majority of our clinical evaluators to be straightforward to use and it produced esthetic, polishable restorations. Its thicker viscosity and resistance to packing made it easier for clinicians to establish acceptable interproximal contacts than with traditional resin composites, however band burnishing and proper wedging were still important factors. P60 requires less time to cure than most other resin composites and is adequately polymerized in 2.5-mm thicknesses. Although

relatively expensive compared to traditional resin composites, P60's handling characteristics offer some important advantages when it is used as a direct posterior restorative material. **Filtek P60** is rated **Acceptable** for use by the federal dental services.

(Col Charlton)

59-23 Compolute Aplicap

(Project 98-37)

Compolute Aplicap is a powder/liquid resin composite luting agent marketed by ESPE America for permanent cementation of indirect ceramic, composite, and metal restorations. Compolute Aplicap is advertised as being capable of both self- and visible light-curing modes. This cement is the only resin luting agent that is currently available in a capsulated mixing and delivery system. ESPE states that the Aplicap should be activated for two seconds, placed in a high-frequency triturator, and then mixed for ten seconds (eight seconds in ESPE's Rotomix). The mixed cement is then placed into the restoration and the restoration is seated. The product's technical profile lists a two-minute setting time at 36°C. Exposed margins may also be cured with a visible light unit.

Manufacturer:

ESPE America, Inc.
1710 Romano Drive
P.O. Box 2000
Plymouth Meeting, PA 19462
(800) 782-1571
(610) 277-3800
(800) 458-3987 FAX
www.espeusa.com

Suggested Retail Price:

\$280.80 Compolute Aplicap Intro Kit
-Capsule activator
-Capsule applicator
-10 capsules each of shades A2, A3, A3 Opaque, Chameleon/Neutral
-EBS Multi dentin bonding agent
-MiniTip Etching Gel with 50 MiniTips
-50 Primer Brushes
-50 Bond Brushes
-Instructions



Government Price:

\$173.42 Compolute Aplicap Intro Kit (same contents as above)

ADVANTAGES:

- + Capsule delivery system produces consistent mixes of excellent viscosity.
- + Dentin bonding system co-polymerizes with luting cement, which may allow more complete seating of appliances.
- + Low film thickness (i.e., 12 microns).
- + Can be polymerized by both auto- and visible light-cured modes.
- + Clinically adequate working time.
- + Clinically acceptable setting time.
- + Good packaging design.
- + Manufacturer's instructions are complete and readable.

DISADVANTAGES:

- Gel etchant difficult to apply and dries out too quickly.
- Lacks try-in pastes.

SUMMARY AND CONCLUSIONS:

Compolute Aplicap is a general purpose resin composite luting cement that is unique in two aspects. First, it features a precapsulated delivery system that provides consistent, reliable mixing of resin cement. Second, its supplied EBS®-Multi dentin bonding system is simultaneously polymerized by the setting reaction of the luting agent, which should prevent the dentin bonding agent from forming an excessive film thickness that could interfere with the seating of appliances on the preparations. Compolute Aplicap is radiopaque, exhibits acceptable working and setting times, and can be polymerized by both visible light- and autocure methods. DIS testing determined Compolute Aplicap's film thickness to be minimal. Clinical evaluators found it easy to mix and apply, and reported that the delivery system produced consistent mixes of adequate viscosity. Users did report that the gel etchant was difficult to apply due to its dry consistency. **Compolute Aplicap** is rated **Acceptable** for use by the federal dental services.

(Lt Col Roberts)

59-24 Spirit 2005 Dental Chair (Improved Version)**(Project 99-49)**

The Spirit 2005 Dental Chair (Improved Version) is the latest version of the Spirit dental chair series manufactured by Pelton & Crane. **The "Improved" Version of the chair refers to those with a serial number of 1077 or higher.** In a previous evaluation of the Spirit 2005 (DIS 58-22), DIS rated the chair "Marginal." Pelton & Crane has claimed that all deficiencies noted in the original evaluation have been corrected. As a result, DIS agreed to re-evaluate the 2005 to determine its acceptability for use in federal dental facilities. The model evaluated by DIS was integrated with the Spirit 2120 Dental Unit (Improved Version). The chair is hydraulically powered and has synchronous operation of the chair back and seat which reduces the need for patient realignment during positioning. Standard features of the chair include seamless upholstery, an articulating headrest, and lockable sliding armrests that facilitate patient entry and exit from the chair. Patient positioning is adjusted via a five-position foot switch and a touch pad that is included on the control head of the unit. The touch pad is illustrated with icons that indicate the four



positioning functions (e.g., incline, recline, chair-up, and chair-down). Also present on the touch pad are an icon for the light switch and two numerals that represent programmable positions. Designed to accommodate stand-up and sit-down dentistry, the Spirit 2005 (Improved Version) features a modified traverse mechanism that is purported to eliminate patient repositioning when placed in a supine position and to keep the oral cavity in the same relative operating plane. Either the touch pad or the foot switch can be used to bring patients to an upright position for consultation, rinsing, or impression making and then return them to the previous operating position when reactivated. Four strategically located Internal Safety Switches stop the automatic chair-repositioning program if they encounter an obstacle. In addition, the Stop Motion feature allows the user to stop automatic repositioning program cycles by activating any of the keys that control the chair. A thin-profile U-shaped back is purported to support the patient comfortably while increasing provider access. Other standard features include a clear-vinyl toeboard cover, sculptured foam cushioning on the back, seat, and headrest, and a painted finish on exterior metal surfaces. A swivel-brake lever located beneath the seat provides a 30-degree rotation in

either direction for patient access and provider comfort. The chair measures 34 inches high by 87.5 inches long by 28 inches wide and has a shipping weight of 285 pounds. The Spirit 2005 (Improved Version) can be configured in either 110 or 220 volts and is UL, ETL, CSA listed and IEC certified.

Manufacturer:

Pelton & Crane
P.O. Box 7800
Charlotte, NC 28241-7800
(800) 659-3212
(704) 587-7283
(704) 588-6543 FAX

Suggested Retail Price:

\$5,760 Includes seamless upholstery, five-position foot switch, removable articulating headrest, sliding armrests, clear vinyl toeboard cover, and standard swivel base.

Government Price:

\$3,168 Same as above.

ADVANTAGES:

- + Attractive, modern-looking chair.
- + Stable in all operating positions.
- + Armrests are easy to move into and out of position.
- + Upholstery is easy to clean.
- + Touch pad and foot controls are sealed for ease of disinfection.
- + Can be converted from right-handed to left-handed use.
- + Five programmable presets for patient positioning.
- + Adjustable articulating headrest.
- + Burrs and sharp edges of interior framework noted on original evaluation unit were not present on improved model.
- + Headrest has more foam padding for patient comfort.
- + Nylon flange rollers have been redesigned to improve chair positioning angles.
- + Removable tubing cover has been added to confine and protect electrical wires on the undersurface of the chair.
- + Met all requirements of military standard for dental chairs.
- + Operation, installation, and maintenance manuals are well detailed.
- + Is UL, ETL, CSA listed and IEC certified.

DISADVANTAGES:

- Operational positions and foot controls are difficult to adjust.

SUMMARY AND CONCLUSIONS:

The Pelton & Crane Spirit 2005 Dental Chair (Improved Version) supports the patient during normal sit-down or stand-up dental procedures in either the upright or supine position. The sleek modern design of the chair facilitates established infection control procedures such as disinfection and barrier protection. Standard seamless upholstery makes cleaning easy and relatively fast. Providers liked the esthetics, sliding armrests, and the ease of converting from right- to left-handed use. Evaluators found it difficult to use the foot control and to adjust operational positions. Operating, installation, and maintenance instructions were complete. The Spirit 2005 (Improved Version) met all of the requirements of the military standard for dental chairs. DIS evaluators found the headrest padding of the improved model to be adequate. The **Spirit 2005 Dental Chair (“Improved” Version, i.e., those with a serial number of 1077 or higher)** is rated **Acceptable** for use by the federal dental services.

(SSgt Martin, Mr King)

59-25 Pelton & Crane Spirit 2000 Ellipse Dental Unit (Improved Version) (Project 99-50)

The Pelton & Crane Spirit 2000 Ellipse Dental Unit, Model 2120 (Improved Version) is an over-the-patient, chair-mounted, dental operating system that is compatible with the Pelton & Crane Model 2005 chair with ellipse mounting hardware. **The “Improved” Version of the unit refers to those with a serial number of 1077 or higher.** In a

previous evaluation of the Spirit 2000 (DIS 58-21), DIS rated the unit “Marginal.” Pelton & Crane has claimed that the deficiencies noted in the original evaluation have been corrected. As a result, DIS agreed to re-evaluate the 2000 to determine its acceptability for use in federal dental facilities. The control head is capable of supporting up to four air-driven handpieces and has a hinged panel to allow access to handpiece air adjustments, the fiber-optic power supply, and to the control block for maintenance. An optional, sealed, touch pad that mounts on the control head is available for controlling the dental chair and dental light. Other options include: a multi-position die-cast tray holder with stainless tray that provides 360 degrees of positioning, a self-contained water system, and a circulating syringe and water heater. An assistant’s telescoping arm is also available that can include high volume evacuation, saliva ejector and air/water syringe. A fiber-optic handpiece light system is available and can be configured to accommodate up to three handpieces.



The fiber-optic system can be ordered in the standard, swivel quick-connect, or ISO-C light source tubing configurations. Pelton & Crane claims that it is easy to convert the unit from right-hand to left-hand use without tools. The Spirit 2000 is also available with the European-style (i.e., buggy-whip) delivery system as well as a post-mounted utility center that includes a cup filler and a porcelain cuspidor. The unit’s painted finish is powder coated for durability and its smooth surfaces and rounded corners are said to make clean-up easy. It has a 24-volt power supply that can support optional items such as a dental light, curing light, air abrasion device, and an ultrasonic scaler. The Spirit 2000 Ellipse Dental Unit is ETL listed and complies with UL2601-1 and CSA standards. It is available in either 115-volt or 230-volt AC.



Spirit 2000 Unit shown here with the Spirit 2005 chair

Manufacturer:

Pelton & Crane
11727 Fruehauf Drive
P. O. Box 7800
Charlotte, NC 28241-7800

(800) 659-6560
(704) 588-2126
(704) 588-6543 FAX

Suggested Retail Price:

Spirit 2000 Model 2120	\$4,235.00
Factory options:	
Touch pad control	\$425.00
Multi-position tray holder	\$135.00
Multi-tap transformer, 300 watts	\$250.00
Fiber-optic handpiece light system	\$820.00
Additional handpiece control	\$250.00
Ellipse assistant's instrumentation	\$795.00
Assistant's autoclavable syringe	\$130.00
Self-contained water system	\$115.00
Circulating syringe and water system	\$180.00
LFII Ellipse light on curved post	\$1900.00

Government Price:

Spirit 2000 Model 2120 Currently being negotiated

ADVANTAGES:

- + Smooth, rounded, aseptic design.
- + Durable powder-coated finish.
- + Unit and assistant touch pad controls (along with a foot control) are available to control the chair and dental light.
- + Features individual handpiece drive-air and water adjustments.
- + Easy to convert from right-hand to left-hand use.
- + Hinged panel allows easy access for adjusting air pressure and servicing the control block.
- + Can flush one handpiece individually or all the handpieces at the same time.
- + Has a quick-release, twist-lock disconnect for removing the air/water syringe.
- + Eight-conductor accessory wire allows field installation of optional devices.
- + Designed with an opening in the control head for the installation of an optional air abrasion unit

DISADVANTAGES:

- Handpiece holder is fabricated from material that grips handpieces too tightly and makes their removal difficult.
- Adapter for fiber-optic lamp assembly fits loosely in the handpiece connection; may be dislodged when removing high-speed handpiece.
- The handpiece pressure gauge is not visible during normal operation.
- Lamp intensity on fiber optics is not adjustable.

SUMMARY AND CONCLUSIONS:

The Pelton & Crane Spirit 2000 Ellipse Dental Unit (Improved Version) met all of the laboratory testing requirements of ADA Specification #47 and NFPA 99 and met most of the checklist items of the Medical Procurement Item Description #2. The dental unit has been upgraded with over a dozen improvements from a previous version that was evaluated by DIS. The upgraded version has new hardware for mounting the dental unit and dental light to the chair that results in better clearance and overall placement of these components. The unit has a new combination air brake and unit assist handle and a features a twist-lock quick release for removing the air/water syringe. A touch pad for controlling the chair and light was added to the assistant's unit along with 360-degree swiveling tubing connectors for the HVAC and saliva ejector. Pelton & Crane has significantly improved the overall quality of this unit. **The Pelton & Crane Spirit 2000 Ellipse Dental Unit ("Improved" Version, i.e., those with a serial number of 1077 or higher) is rated Acceptable for use by the federal dental services.**

(Mr King, Lt Col Roberts, SSgt Martin)

LABORATORY

59-26 Cascom Computerized Vacuum/Pressure Casting System

(Project 99-24) For UPDATE information, see DIS web site at www.brooks.af.mil/dis

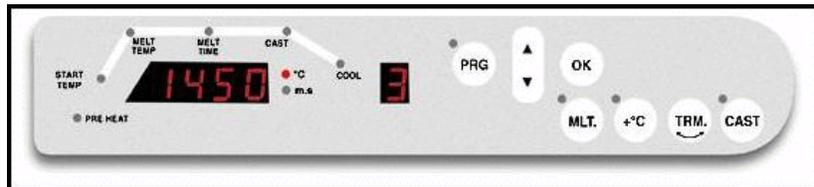


The Cascom is a microprocessor-controlled vacuum/pressure casting machine that heats alloy to 1500°C. It has a motorized inverting chamber and complies with Occupational Safety and Health Administration (OSHA) machine guarding requirements. The digital memory holds up to 16 user-defined programs that specify start temperature, melt temperature, melt time, casting time and cooling time. It also has self-monitoring and diagnostic programs to manage heating element power flow, chamber position, vacuum pressure, and program integrity. Other safety features include a fused power supply to the ceramic resistance-heating element and microprocessor. All controls, vacuum pump and motor are internal. The unit requires 115 VAC and a 50- to 60-psi air supply. The Cascom casting machine is recommended for use with noble-metal and base-metal metal-ceramic

alloys and with Type I to IV gold alloys. It is specifically not to be used to melt chrome-cobalt alloys due to the prolonged high temperatures required. The unit is 15.5 inches wide X 16.5 inches high X 13.5 inches deep and weighs 88 pounds.

Manufacturer/Source:

Microstar Corporation
4220 Steve Reynolds Blvd.,
STE 19
Norcross, GA 30093
(800) 313-6427
(770) 935-4466
(770) 935-4460 FAX
www.microstarcorp.com



Close-up view of Cascom programming keypad

Suggested Retail Price:

\$13,000.00 KDF Cascom Casting System with the standard accessories package which includes 10 carbon crucibles, 10 ceramic crucibles, crucible stand, crucible retort, metal casting rings and formers, tongs, operation and casting manual

\$13.50 CAR Cascom Carbon Crucible
\$13.50 CER Cascom Ceramic Crucible
\$85.00 Retort

Government Price:

\$10,400.00 KDF Cascom Casting System (contents as listed above)

\$8.50 CAR Cascom Carbon Crucible

\$8.50 CER Cascom Ceramic Crucible
\$85.00 Retort

ADVANTAGES:

- + No wasted alloy as compared to conventional torch-air casting.
- + Reduces human error with user-defined casting programs.
- + Melt cycle allows technician to verify alloy has reached liquid state prior to casting.
- + Cost savings; alloy can be reused without adding new alloy to replace burned-out alloy elements.
- + All operations and components are internal which complies with OSHA machine guarding requirements.

DISADVANTAGES:

- Initial cost is high.
- Not suitable for casting chrome-cobalt alloys.

SUMMARY AND CONCLUSIONS:

The Cascom Casting System is a programmable casting machine that reduces miscasts and alloy costs. Evaluators reported it took 15 minutes to learn to operate the machine and to produce acceptable castings. Completely self-contained, it only needs to be connected to a compressed air source and conventional 115V electrical outlet. One area dental laboratory reported that the one-year alloy cost savings justified the price of the system. Evaluators at a smaller dental clinic laboratory expressed the opinion that the high quality of the castings, safety compliance, and the savings in alloy costs justified the price. The **Cascom Computerized Vacuum/Pressure Casting System** is rated **Acceptable** for use by the federal dental services.

(MSgt Ryerson)

INFECTION CONTROL

59-27 Synopsis of Local Anesthetic Safety Syringes

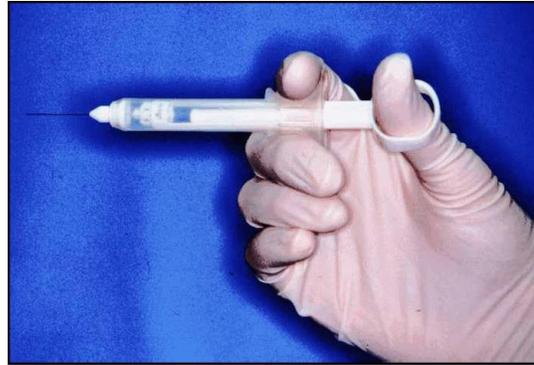
(Project 99-43)

In September 1998, a bill was signed into law in California that requires that state's Occupational Safety and Health Administration (Cal/OSHA) to adopt several changes to the Cal/OSHA Bloodborne Pathogens Standard. As a result of the bill, on 1 July 1999, all healthcare employers in California began providing sharps safety devices to their employees. Among the many safety devices is the local anesthetic safety syringe. These special syringes feature engineered built-in safety mechanisms that are purported to reduce the potential for percutaneous injuries. Currently in California, safety syringes must be used in all cases except for some very limited exceptions. Safety syringes may become more widely mandated in the United States because Federal OSHA is presently reviewing responses from interested parties on this issue, and nineteen states have introduced legislation similar to that of California. The reason that safety syringes and other types of safety devices are being required is because of concern by healthcare workers and the media about occupational HIV and hepatitis B/C among healthcare workers.



Many dental practitioners and organized dental groups like the Academy of General Dentistry (AGD)

have expressed concern over the effects these requirements may have on the practice of dentistry. The AGD has stated that “the risk of disease transmission from needle stick injuries in the dental office is minimal; the benefit of using self-sheathing or other needles is negligible; and the potential downside of using ‘safer’ syringes, which are typically bulky and awkward to use is great.” Also, there is a lack of independent clinical studies validating the safety and efficacy of existing safety syringe devices in dentistry. A study by Cuny, Fredekind, and Budenz was recently published (J Calif Dent Assoc 1999;26:525-530) that clinically evaluated currently-available devices. The authors were unable to identify a clearly superior product because of a small sample size and low percutaneous injury rates.



DIS has evaluated three safety syringe products including the SafetyPlus (*DIS #45-28*), Ultrasafe (*DIS #51-15*), and SafeMate (*DIS #55-29*). Since our evaluations, the Ultrasafe has been discontinued and is presently being redesigned for future production. A new safety syringe from Dentsply (HypoSafety) has been introduced to the market. As the issue of safety syringes grows in the future, industry will be developing more alternatives for the dental community. The following synopsis (Attachment 3) presents a list of selected safety syringes, their manufacturers, and characteristics. This synopsis should assist the reader in selecting a safety syringe that best suits his/her clinical needs.

(Col Bartoloni)

59-28 Harvey DI

(Project 99-42)

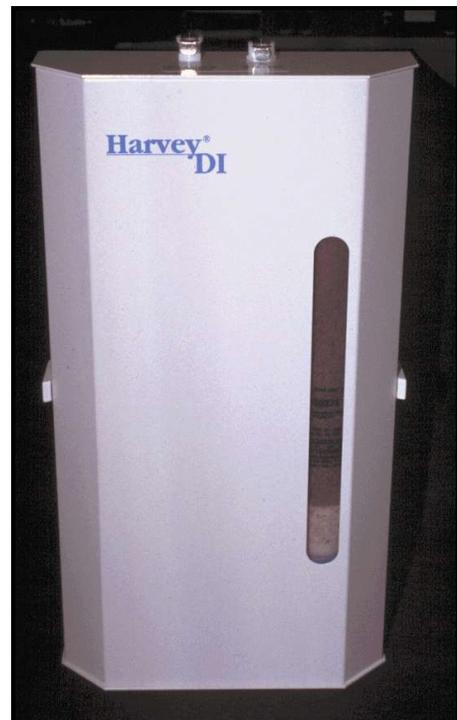
The Harvey DI is a water purification system that produces low-grade deionized water for use in autoclaves that are not directly plumbed to a water source (e.g., tabletop models). The unit uses a high-grade resin enclosed in virgin polypropylene canisters to purify the water at a rate of 0.5 liters per minute. The double resin cartridges remove calcium, magnesium, and other ionic impurities that can harm steam sterilizers. The system is connected directly to a water faucet via an adapter, requires no power or heating elements, and fits on the countertop or can be wall mounted. The product is equipped with quick-release fittings for the dispenser line and faucet line. A four-foot long tube from the dispenser allows for the treated water to be directly dispensed into the tabletop sterilizer. The cartridge resin has a color-indicator dye that changes color when the cartridge is exhausted. The dimensions are 20.5 inches high, 12 inches wide, and 7 inches deep.

Manufacturer:

Barnstead/Thermolyne Corporation
2555 Kerper Blvd.
Dubuque, IA 52001
(800) 446-6060
(319) 556-2241
(319) 589-0516 FAX

Suggested Retail Price:

\$390.00 Harvey DI
\$56.00 Replacement DI Cartridge Kit



Government Price:

\$292.50 Harvey DI

\$42.00 Replacement DI Cartridge Kit

ADVANTAGES:

- + Unit does not need to be left on constantly.
- + Is easy to set up and connect to a standard faucet.
- + Is compact and requires minimal maintenance.
- + Exhausted cartridges are easy to replace.
- + Produces deionized water quickly and on demand.
- + Dispenser tubing has sufficient length.
- + Easy to detect when cartridge requires replacement.
- + The water produced can be used with any steam sterilizer.

DISADVANTAGES:

- Dispenser button cannot be locked which requires the operator to constantly engage it.
- Installation diagram is not included.
- Cost prohibitive if source tap water has a high total dissolved solids level.*

SUMMARY AND CONCLUSIONS:

The Harvey DI is a water system that connects directly to a standard water faucet and provides deionized water that can be used for tabletop autoclaves. The device employs two high-grade resin cartridges enclosed in a polypropylene canister to purify tap water by removing calcium, magnesium, and other impurities. The unit produces 0.5 liters per minute, has a color indicator to show when the cartridge is exhausted, and has a removable cover for easy access. It is compact and easy to set-up with quick-release fittings for simple installation of the dispenser/faucet line. The water produced by the product is suitable for use with any tabletop autoclave. The **Harvey DI** is rated **Acceptable** for use by the federal dental services.

*The volume of water that can be processed before the cartridge needs to be replaced is based on feedwater quality. Feedwater quality is based on location and the total dissolved solids (TDS) level. TDS is reported in parts per million (PPM) of calcium carbonate or sodium chloride (the actual solids material depends on your location). Clinics should contact their local Bioenvironmental Engineering section and determine the TDS level for their particular locality. Before buying the unit, each facility should calculate the amount of water a cartridge can produce prior to replacement. This can be done by referring to a chart provided by the manufacturer.

(Col Bartoloni)



Front panel removed to show dual-cartridge system

59-29 Ultrasonic Cleaner Survey

(Project 99-18)

Ultrasonic cleaners are still used by many clinics to clean soiled dental instruments and appliances. In May of 1999, DIS sent surveys to 559 federal dental facilities to acquire current data on ultrasonic cleaners. This information will be used to identify possible units for future evaluation. The response to this survey was excellent with 350 surveys (63%) returned to DIS. The following information was gathered from the surveys.

Brands, Sizes, Age, and Features

Information was gathered on ultrasonic cleaners made by sixteen different manufacturers. The majority of the cleaners were manufactured by L&R (43%) with Heathsonic (11%), Branson (8%), and Whaledent (8%) being the other main providers. The units varied in tank size from one-quart table-top models to twenty-gallon console units. Their ages ranged from four months to twenty-five years. Fifty-five percent

of the cleaners had a timer control and 45% heating capability. Approximately 15% had a mechanism to control the ultrasonic intensity.

Uses and Types of Cleaning Solutions

The majority of the units were used to clean soiled dental instruments from endodontic, oral surgery, orthodontic, periodontic, prosthodontic, and restorative procedures. A smaller percentage of ultrasonic cleaners were used to clean prostheses, removable partial dentures, full dentures and dental laboratory items. Ultrasonic cleaning solutions were used by 85% of the facilities to increase the cleaning ability of the ultrasonic cleaners. The majority of the operators filled their cleaners from half- to three-quarters-full with cleaning fluid and water, and operated the ultrasonic cleaner for 10 to 15 minutes. Forty-six different brands of ultrasonic cleaning products were listed; the majority of the operators changed their cleaning solutions daily or when soiled.



Satisfaction Levels

Fifty-six percent of the reporting facilities were "Mostly Satisfied" and 42% were "Very Satisfied" with the overall cleaning ability of their ultrasonic cleaners; only four facilities reporting being "Dissatisfied" or "Very Dissatisfied" with their cleaners' performance. Seventy-five percent of the operators felt that their ultrasonic cleaner cleaned uniformly at all locations in its tank. Users reported that dried blood was the most common material not consistently cleaned well by the ultrasonic cleaner. Problems were also reported in removing bonding agents, cements, and hard calculus. Most of the facilities reported that their ultrasonic cleaners were very reliable and seldom required maintenance or repairs. The majority of the comments provided by respondents regarding the performance of their cleaners were positive. The comments indicated that ultrasonic cleaners are rather frequently being used as backups to a thermal disinfectant or washer sterilizer.

(Mr King, Lt Col Roberts)

Synopsis of Triturators

	OPTIMIX	PROMIX	ROTOMIX	SILAMAT S5	ULTRAMAT 2	ZENITH SINGLE SPEED	ZENITH VARIABLE SPEED	ZENITH SPEEDSTIR DIGITAL
Manufacturer	Kerr/Sybron Dental	Dentsply/Caulk	ESPE America	Ivoclar North America	Southern Dental Industries	Foremost Dental	Foremost Dental	Foremost Dental
Dimensions: H x W x L (inches)	5 x 10 x 7 ⁵ / ₈	5 ¹ / ₄ x 10 x 9 ⁷ / ₈	8 x 9 x 7	4 x 8 ¹ / ₂ x 9	7 ¹ / ₈ x 8 ¹ / ₂ x 6 ³ / ₄	4 x 9 ¹ / ₂ x 7 ¹ / ₂	4 x 9 ¹ / ₂ x 7 ¹ / ₂	5 ¹ / ₄ x 7 ¹ / ₂ x 7 ³ / ₄
Retail Price	\$935.00	\$695.00	\$675.00	\$569.00	\$459.00	\$355.00	\$390.00	\$462.25
Gov't Price	\$541.88	\$430.49	\$440.00	\$335.00	\$220.32	\$208.75	\$231.00	\$273.50
Electrical Certification	CSA	UL, CSA	NA	UL, CSA, IEC, EN	UL, CSA	ETL	ETL	ETL
Power Compatibility	115-120V, 50/60HZ	120V, 60Hz	120V, 60Hz	110-120V, 220-230V, 50/60Hz	110-120V, 60Hz	120V, 60Hz	120V, 60Hz	120V, 60Hz
Hospital Grade Plug?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Microprocessor controlled?	Yes	Yes	Yes	No	Yes	No	No	Yes
Calibration Schedule	Self-calibrating	Self-calibrating	Self-calibrating	NA	Self-calibrating	Yearly	Yearly	Yearly
Controls	Touchpad	Touchpad	Touchpad	Touchpad	Touchpad	Mechanical	Mechanical	Touchpad
Preprogrammed	Yes	Yes	Yes	No	No	No	No	Yes
Number of Programs	31	2	6	NA	NA	NA	NA	1
Programs Changeable?	Yes	Yes	Yes	NA	NA	NA	NA	No
Speed Range	3000-4800 cpm	3700-4200 cpm	2850 rpm	4500 cpm	4600 cpm	4350 cpm	3600-4800 cpm	4350 cpm
Time Settings: range/increments (in seconds)	5-30/0.5	0-30/1	1-39/1	1-30/1	0-16/NA	0-30/2	0-30/2	0-30/1
ReadoNuts	LCD/LED	LCD/LED	LCD/LED	LCD/LED	LCD/LED	None	None	LCD/LED
Surface Disinfectant?	Yes (Cavicide)	Yes (Procide)	Yes	Yes (aldehyde-free)	Yes	Yes	Yes	Yes
DIS Rating	Being evaluated	Acceptable	Acceptable	Acceptable	Not evaluated	Not evaluated	Unacceptable	Not evaluated

All information supplied by manufacturers; NA = not available

Triturator Manufacturer Information

MANUFACTURER	ADDRESS	TELEPHONE NUMBERS	WEB ADDRESS/ E-MAIL ADDRESS
Dentsply/Caulk	P.O. Box 359 Milford, DE 19963	(800) 532-2855 (302) 422-4511 FAX (800) 788-4110 FAX (302) 422-3480	www.caulk.com dbryant@caulk.com
ESPE America, Inc.	1710 Romano Drive P.O. Box 2000 Plymouth Meeting, PA 19462	(800) 344-8235 (610) 277-3800 FAX (800) 458-3987	www.espeusa.com
Ivoclar North America, Inc.	175 Pineview Drive Amherst, NY 14228	(800) 533-6825 (716) 691-0010 FAX (716) 691-2285	www.ivoclarna.com mail@ivoclarna.com
Southern Dental Industries, Inc.	246 First Street, Suite 204 San Francisco, CA 94105	(800) 228-5166 (415) 975-8060 FAX (415) 975-8065	www.sdi.com.au usa.canada@sdi.com.au
Sybron Dental Specialites Kerr Corporation	1717 W. Collins Ave Orange, CA 92867-9880	(800) 537-7127 ext 7024 (800) 537-7187 ext 7664 (714) 516-7400 FAX (714) 516-7635	www.kerrdental.com www.sybrondental.com
Zenith Brands Division Foremost Dental	242 South Dean Street Englewood, NJ 07631	(800) 662-6383 ext 142 FAX (201) 894-0213	NA

NA = not available

Synopsis of Local Anesthetic Safety Syringes

Brand	Hypo® Safety Syringe	SafetyPlus	SafeMate
Manufacturer Address	Dentsply MPL Technologies 9400 King Street Franklin Park, IL 60131	Septodent, Inc. 245C Quigley Blvd New Castle, DE 19720	Septodent, Inc. 245C Quigley Blvd New Castle, DE 19720
Phone Numbers	800-621-6421 847-678-7585 (FAX)	800-872-8305 302-328-5653 (FAX)	800-872-8305 302-328-5653 (FAX)
Government Representative	Mel Fitzhenry	Paul Mondock (ext 200)	Paul Mondock (ext 200)
Capable of using more than one cartridge?	No	Yes	Yes
Resheathed between uses?	No	Yes	Yes
Disposable or reusable	Disposable	Reusable	Reusable
One-hand activation?	Yes	Yes	Yes
Needle sizes	28L	25L, 27S, 27L, 30S, 30XS	25L, 27S, 27L, 30S, 30XS
Capable of aspiration?	Yes	Yes	Yes
Possible types of injections	Most	Not PDL injection	Not PDL injection
Operating instructions provided?	Yes	Yes	Yes
Prices: Retail Government	\$42.40/box \$29.70/box	\$25.35/box \$15.16/box	\$17.55/box \$12.27/box
Package contents	50 individually packaged syringes/needles	100 SafetyPlus injectors and 1 autoclavable syringe	50 SafeMate needles