+ Easy to dispense from syringes.
+ Contains fluoride.
+ Written instructions and graphics are easy to understand and contain adequate detail.
+ Sealant syringes have expiration date and lot number printed on them.
+ Packaged in a small, compact box that requires little storage space.

DISADVANTAGES:
- Not available in unit-dose form.

SUMMARY AND CONCLUSIONS:
Clinpro is a visible-light cured, fluoride-containing pit and fissure sealant that uses color-changes to enhance visualization during placement. Users rated this color-change feature highly because it made the sealant easy to see during placement and confirmed that they had light activated it. Clinpro is packaged in syringes that come with very small applicator tips. The evaluators gave high ratings to the tips because they reduced waste and made it easy to precisely place the material. Other features that received favorable comments were the sealant s viscosity and the quality of the manufacturer s instructions. This product received no significant negative comments from the users, which is unusual in a DIS evaluation. In fact, all eight rated it as Excellent and seven of them recommended it be used as the sole sealant in their clinics. **Clinpro Pit and Fissure Sealant** is rated **Recommended** for use by the federal dental services.

(Col Charlton)

65-14 Helioseal Clear Chroma Sealant (Project 01-59)

Helioseal Clear Chroma is a new product described by its manufacturer as a transparent fissure sealant with reversible color change. The unfilled sealant uses a photochromic dye that produces a reversible color change to enhance visualization during recall appointments. After being placed and light cured for 20 seconds, the sealant is reported to appear colorless and transparent. This is claimed to produce an esthetic, invisible result that permits clinicians to detect changes that might be occurring under the sealant. When exposed for a few seconds to the curing light at recall appointments, the sealant temporarily turns dark green to facilitate visual and tactile examination for assessing retention and coverage. After a few minutes, it once again becomes colorless and transparent.

Helioseal Clear Chroma is packaged in a small paper box that contains five syringes of the sealant, one bottle of 37% phosphoric acid etchant, disposable syringe tips, and disposable cannulas for dispensing the acid etchant from its bottle. Written instructions are included as well as a small card that pictorially shows product use.

Manufacturer:
Ivoclar Vivadent, Inc.
175 Pineview Drive
Amherst, NY 14228
(800) 533-6825
(716) 691-0010
(716) 691-2285 FAX
www.ivoclarvivadent.us.com

Suggested Retail Price:
$83.72 Helioseal Clear Chroma Assortment (item number 560486) contains:

-five 1.25-g syringes of sealant
-one 6-g bottle of Email Preparator (37% phosphoric acid etchant)
-20 sealant syringe tips
-24 etchant cannula tips

Government Price:
$30.25 Helioseal Clear Chroma Assortment (item number and contents as described above)

ADVANTAGES:
+ Post-placement colorless translucency makes the sealant inconspicuous.
+ Color change (from green to colorless) following light re-exposure occurs in an acceptably short period of time.
+ The included acid etchant has excellent viscosity and is easy to place.
+ Has useful graphics-containing summary instruction card.
+ Competitively priced.
+ Lot number and expiration date are stamped on each individual component in kit.
+ Recommended storage temperature is listed on box.
+ Box is compact and easy to store.
+ Comes with Material Safety Data Sheet (MSDS).

DISADVANTAGES:
- Most evaluators felt that the color-change feature was not especially beneficial.
- Viscosity was too low (i.e., sealant was too runny) for most evaluators.
- Lack of opacity during placement make assessment of sealant location very difficult.
- Post-placement voids noted by some evaluators.
- Is unfilled and contains no fluoride.
- Not available in unit-dose form.

SUMMARY AND CONCLUSIONS:
Helioseal Clear Chroma is a new unfilled sealant that uses a photochromic dye to produce a reversible color change which makes it easier to see during recall appointments. Although clinical users felt that its normal post-exposure colorless translucency made it inconspicuous, they did not find its color-change feature particularly beneficial. They particularly disliked Helioseal Clear Chroma s low viscosity which caused it to run into areas to which they had not intended to apply it. Its lack of opacity made assessing its location very difficult during placement. Some users also noted voids in the sealant they did not see with their usual sealant. In general, despite its innovative color-change feature, the sealant was not particularly well received by the users as indicated by the fact that 6 of the 7 recommended against purchasing it for use as their clinic s sole sealant. **Helioseal Clear Chroma** is rated **Marginal** for use by the federal dental services.

(Col Charlton)

65-15 Unifast LC Temporary Crown and Bridge Material (Project 01-44)

Unifast LC is a visible-light-activated resin recommended by GC America for the fabrication of provisional (i.e., temporary) restorations. It is supplied as a powder and liquid which are hand mixed at the time of use. The product is available in five Vita shades and a translucent shade. To use the material, it is mixed and placed in an impression or stent which is then seated over the prepared teeth or model. After approximately 2 to 3 minutes, the material enters a rubbery stage. At that point, the provisional can be removed from the stent and the excess Unifast material trimmed with scissors or a scalpel blade. The provisional is then re-seated onto the preparation(s) and the patient instructed to gently bite into occlusion. The restoration is partially light-cured with a standard hand-held light-curing until it becomes firm. It is then removed and final curing is done for 20 to 60 seconds, depending on the shade and thickness. Unifast LC is packaged in a small paper box with an instruction sheet.

Manufacturer:
GC America Inc.
3737 W. 127th Street
Alsip, IL 60803
(800) 323-7063

(708) 597-0900
(708) 371-5103 FAX
www.gcamerica.com

Suggested Retail Price:
$204.75 Unifast LC Introductory Package (item number 338006) contains:
-six 30-g bottles of powder (one each of shades A2, A3, B2, B3, C2, Translucent)
-two 15-mL bottles of liquid
-two rubber mixing cups
-powder and liquid measuring vials
-brush and spatula

Government Price:
$74.45 Unifast LC Introductory Package (contents and item number as listed above)

ADVANTAGES:
+ Can be light cured, which reduces chair time.
+ Shades were sufficient for most clinical cases treated during the evaluation.
+ Adequately-long working time.
+ Works well as a reline/add-on material to correct voids and deficient margins of existing provisionals.
+ Exhibited a very low fracture rate during evaluation.
+ One of the harder provisional materials tested by DIS.
+ From 30% to 50% less expensive per gram than several other popular provisional materials.
+ Compact packaging facilitates storage.

DISADVANTAGES:
- Difficult to polish to a high luster.
- Finished provisionals exhibited porosity.
- Instructions do not specify the length of light exposure to be used for initial curing of material.
- Not sufficiently radiopaque.
- Must be hand mixed; not available in automix cartridge form.
- As provided, the expiration dates and lot numbers information is confusing.
- Not shipped with a Material Safety Data Sheet (is readily available, however, at GC America web site).

SUMMARY AND CONCLUSIONS:
Clinical users reported that Unifast LC was easy to use, had an appropriate viscosity, and came with an adequate number of shades. They appreciated the materials ability to be light cured and found it to be an excellent material with which to reline existing provisionals, correct voids, and repair deficient margins. Unifast LC also is sold at a very attractive price. Evaluators were less impressed with the materials polishability, degree of porosity, and overall esthetics. Another drawback of Unifast LC is that it must be hand-mixed. Interestingly, as is the case for several other well-known provisional materials, the product lacks adequate radiopacity for easy radiographic detection. **Unifast LC Temporary Crown and Bridge Material** is rated **Acceptable** for use by the federal dental services.

(Col Charlton)

65-16 Extraoral Adjuster (Project 01-50)

The Extraoral Adjuster is a device designed to allow the adjustment of proximal and occlusal contacts of fixed prostheses to be made extraorally rather than intraorally at the time of insertion. Making the proximal and occlusal adjustments are advertised as being quicker and easier. Other purported advantages are complete seating of the prosthesis, excellent contacts, and elimination of possible dentin sensitivity during insertion. The Extraoral Adjuster is composed of a base with two thumbscrews, two removable upright posts with cross arms, a set of 20 disposable inserts for registering proximal adjustments, and a separate set of posts with a crossbar for registering occlusal adjustments. To use the adjuster, registrations must first be accomplished in three stages, followed by the adjustment of the

completed crown in the fourth stage. In the first stage, a light-cured coping is made on the master die that the crown was fabricated on. This coping must not have any contact with the adjacent or opposing teeth. Also, in the first stage, the master die is positioned in the Extraoral Adjuster s base using dental stone. In the second stage, the dentist places the light-cured coping in the patient s mouth and registers the proximal and occlusal functional contacts by adding additional light-cured material. For the third stage, the coping (with registrations) is placed on the master die (which is in the base of the Adjuster) and light-cured material is used to model an index of the proximal surfaces and opposing teeth to the Adjuster crossbars. In the fourth stage, the Extraoral Adjuster is then used to adjust each of the prosthesis s proximal contacts individually, followed by the occlusal contacts. The Extraoral Adjuster can be used with single units as well as fixed partial dentures. For fixed partial dentures, each abutment must be treated as if it were a single unit. The occlusion on fixed partial dentures can purportedly be adjusted with a centric bite or can be done intraorally. PerfectFit L.P. has a trial offer that enables customers to use the Extraoral Adjuster for one month at no cost. Users are required to pay $7.50 shipping and handling, plus a $75.00 security deposit to participate in the program.

Manufacturer:
PerfectFit L.P.
10306 Kings Grant Dr.
San Antonio, TX 78230
(888) 785-4700
(713) 627-0750
www.perfectfitlp.com

Suggested Retail Price: $325.00 plus $7.50 shipping and handling

Government Price: same as retail

ADVANTAGES:
+ Reduces intraoral adjustments during prosthesis insertion.
+ Manufacturer instructions for use are clear and complete.

DISADVANTAGES:
- Required procedures must be performed with meticulous attention to detail.
- Adds technician steps compared to conventional prosthesis insertion method.
- May have limited military use due to dedicated laboratory support.

SUMMARY AND CONCLUSIONS:
The Extraoral Adjuster is a device that enables users to make the proximal and occlusal adjustments of fixed prostheses extraorally rather than intraorally. The Adjuster can be used with single units as well as fixed partial dentures. Using it, however, it is a multi-step process, however, that is technique sensitive and must be done meticulously to achieve acceptable results. The Adjuster is well made and its instructions for use are complete. During the DIS evaluation the Adjuster performed well, reducing the number of intraoral adjustments made by the clinician at the insertion appointment. It may best be utilized in facilities that have no local dental laboratory support or in cases where a temporary prosthesis is lost or broken and there is a need for more time-consuming adjustments prior to insertion. The **Extraoral Adjuster** is rated **Acceptable** for use by the federal dental services.

(MSgt Osborn)

65-17 Portable HDX Intraoral Radiographic Unit (Project 01-37)

The portable HDX Intraoral Radiographic Unit is a high-frequency, direct-current, dental x-ray system (rated at 65 kVDC, 7 mA) designed specifically for field use. The system consists of two separate components: (1) a control panel and (2) a tubehead, both of which are packaged in a rigid, reinforced, high-impact, military-approved (Military Specification MIL-D42048) carrying case that facilitates

transportation. The tubehead can be handheld or mounted on a tripod. The x-ray beam is produced with Constant Emission Power technology that the manufacturer claims emits exposure radiation continuously rather than in bursts (as in alternate current systems). This is touted to reduce radiation dose by up to 30 percent. The HDX is said to be fully compatible with all imaging systems, including digital. The system is designed for use with both 120 and 240 line voltages using a 50/60-Hertz power source. Other features include: a self-diagnostic control panel with a digital readout display, up and down arrows to change the time settings between 0.01 and 2.00 seconds in 0.01 increments, and a 20-centimeter (approximately 8-inch) cone. The unit can be activated at the tubehead with the yoke exposure switch, or with the remote cord switch if using the separately-available tripod. The 12-pound, handheld tubehead is equipped with a backscatter shield. The entire system fully packaged weighs 48 pounds and can be conveniently carried in its carrying case. The system has a one-year warranty. DIS evaluated the unit without the optional tripod.

Manufacturer:
DentalEZ Group
StarDental
1816 Colonial Village Lane
Lancaster, PA 17601
(800) 293-5206
(717) 291-1161
(717) 291-3249 FAX
www.dentalez.com

Source:
Dent-X
250 Clearbrook Road
Elmsford, NY 10523
(800) 225-1702
(914) 592-6100
(914) 592-6148 FAX
www.dent-x.com

Suggested Retail Price:
$7,838.00 HDX Unit, including carrying case

Government Price:
$7,126.00 HDX Unit, including carrying case (NSN: 6525-01-425-5216)

ADVANTAGES:
+ Easy to set up and use.
+ Tubehead is easy to position.
+ Control panel is easy to read and operate.
+ Has a full range of time settings.
+ Exposure switch on tubehead is in a convenient location.
+ Cone length is satisfactory.
+ Relatively lightweight.
+ Is easily transported due to its excellent portability.
+ Durable carrying case.
+ Sleek design facilitates infection control.
+ Is capable of accommodating 120 and 240 volts.
+ Produced radiographs of acceptable quality.

DISADVANTAGES:
- Tripod is not included as a standard item.
- Does not have a handle on the tubehead.

SUMMARY AND CONCLUSIONS:
The portable HDX Intraoral Radiographic Unit is specifically designed for field use. It is an advanced high-frequency system that is packaged in a case that meets military specifications. The HDX consists of a control panel and a separate tubehead equipped with a backscatter shield. The tubehead can be handheld or mounted on an optional, separately-available tripod. The system is easy to set up and operate, has a wide range of time settings, and produces radiographs of acceptable quality. The carrying case is relatively lightweight and easy to transport. The main disadvantages noted were the lack of a handgrip on the tubehead and the fact that the optional tripod was not included as a standard item. The **Portable HDX Intraoral Radiographic Unit** is rated **Acceptable** for use by the federal dental services.

(Col Bartoloni)

65-18 Synopsis of Dental Headlamps (Project 01-31)

Headlamps are used during dental procedures to increase the amount of illumination directed at the treatment site. As with any type of equipment, users should be informed about the features of headlamps and their purpose prior to buying them. The purpose of this synopsis is to provide information about the features of 9 headlamps.

Perhaps the easiest way to classify headlamps is according to their light source. The two main types are halogen and fiberoptic. Both provide adequate illumination, so the most useful factors to consider prior to purchase are probably your intended clinical use for the light and the specific features you view as important. For example, the chief advantage of the halogen-based system is portability, which is made possible by the fact that they are battery powered. Portability would be important for a dentist who is a clinical instructor or who works in a multi-operatory office. One thing to be aware of is that although the purchase price of halogen systems tend to be lower than for fiberoptic systems, the cost of replacement batteries can add up over the lifetime of the system. Also, battery-powered systems are usually heavy and the halogen lamp can get hot during long procedures, both of which can make the halogen headlamps less comfortable to wear. In contrast, fiberoptic headlamps provide a more intense light, weigh less, and generate very little heat compared to halogen systems. They are less portable and cost more, however. Fiberoptic headlamps would be a good choice for clinicians who tend to use the same operatory every day (where portability is not an issue) and/or those who treat more time-consuming cases (where comfort with the headlamp is important).

One caveat for potential buyers: since illumination is, for most providers, an important property of a headlamp, manufacturers usually provide illumination values for their products. It should be noted, however, that manufacturers often use different focal lengths (i.e., working distances) when reporting illumination levels because there is currently no industry standard for measuring this property. One manufacturer may report an illumination value at a focal distance of 14 inches, while another provides it for a focal distance of 8 inches.

This synopsis gives information about various features of headlamp systems, from retail price to battery type (if applicable). Two features warrant a bit of explaining. You will see that the synopsis contains an entry for filters. This is because some systems have built-in filters that are useful when placing light-activated products, since they can help prevent the headlamp light from prematurely polymerizing the material. We also report how the headlamps can be worn. Some headlamp systems will attach to dental magnifying loupes or prescription glasses; others are used with a headband. A few products can be worn either way. As a general rule, however, halogen headlamps are worn with loupes or glasses, while fiberoptic systems provide both options. An additional note of caution. If purchasing a system for use with magnifying loupes, you should specifically ask the light manufacturer if their product is compatible with your brand of loupe. Some company s headlamps will only fit their loupes. Lastly, please note that the information in the synopsis tables has been provided by the products manufacturers. It has not been verified by DIS laboratory or clinical-user testing.

(MSgt Belde)

65-19 Synopsis of Electrosurgery Units (Project 02-04)

Electrosurgery (ES) has been used in dentistry for over 50 years. ES units are able to cut or coagulate soft tissues by passing high-frequency waveforms or currents through them. ES is used in a wide range of applications in dentistry including gingivectomies, gingivoplasties, frenectomies, operculectomies, crown lengthening, and sulcular troughing for impression making. ES is also used to produce hemostasis. In general, ES is valued because it can produce pressure-less incisions, control hemorrhage, increase operative efficiency, and help maintain a clear view of the operative site.

Most ES units consist of four components: a current generator, active electrode, passive electrode, and an on-off switch. The current generator produces the high-frequency waveform, which usually ranges from 1 to 4 MHz depending on the power (e.g., 70 to 100 W). Higher frequency units produce less lateral heat at the operative site. The active electrode allows the current to enter the soft tissues. Electrode tips for the active electrode are available in various shapes and sizes for a variety of clinical procedures. There are three basic types of electrodes: wire, loop, and ball. Each is suited for a particular type of procedure. Wire electrodes are usually used for incising or excising, while loop electrodes are used for tissue planning. Ball electrodes are used for coagulation. The passive electrode, also known as the dispersive electrode or ground plate, is a flat, broad plate that contacts the patient's body. It allows the current that has entered the surgical site from the active electrode to return to the unit, thereby completing the circuit. The on-off switch activates and deactivates the unit and can be operated via a foot control or handpiece switch.

There are two basic types of ES units available today based on how the current flows from the active to the passive electrode. They are monopolar and bipolar. Both monopolar and bipolar ES units can be used to cut and coagulate tissues. Monopolar ES units are distinguished by the fact that they use a handpiece with a single electrode tip, and the current produced by the tip is drawn to a ground plate beneath the patient. When the tip is brought into contact with the soft tissues at the surgical site, a spark jumps between the electrode tip and the patient's soft tissue. The heat produced diffuses into 1 to 2-centimeter region peripheral to the surgical site. Because the heat is not confined to the immediate surgical area, a larger area of tissue can be affected. Bipolar ES units, on the other hand, use an asynchronous waveform, which causes cutting to occur without creating general tissue resonance. As a result, the heat that is produced does not extend outward from the surgical site. Bipolar ES units use a handpiece with two electrodes, one that acts as the active electrode and the other as the passive electrode. No grounding plate, therefore, is necessary. Current flow occurs only between the two electrodes and does not spread outwards into adjacent tissues. As a result, manufacturers of bipolar units claim they can be safely used near vital structures such as bone and tooth structure.

ES units have varying power, frequency, and waveform options. The type of waveform(s) the unit produces is an important characteristic because it determines the clinical application for which the unit can best be used. Four different waveforms are commonly encountered: fully rectified filtered (which cuts), fully rectified unfiltered (which cuts and coagulates), partially rectified (which coagulates), and fulguration (which causes surface destruction of soft tissues). The fully rectified filtered waveform can be used for all soft tissue surgery procedures. The fully rectified unfiltered waveform produces less effective cutting but causes superficial coagulation. It can be used for most minor surgical procedures (e.g., gingivectomy, gingivoplasty, excising hyperplastic tissue, gingival troughing). The partially rectified waveform is inefficient at cutting but produces good coagulation. Finally, fulguration causes superficial destruction by carbonizing soft tissues and is ideal for removing the remnants of cysts following enucleation.

This synopsis of electrosurgery units consists of a table listing eight units, their manufacturers, and basic features. Please note this information has been provided by the manufacturers and has not been verified by DIS testing. The information should assist dental supply personnel in selecting a unit best suited to their clinic's needs. For those interested in learning more about electrosurgery, information is available at the following sites:

http://www.valleylab.com/static/pofe/pofes1.htm
http://www.eddesign.com/electrosafety/section2.htm

65-20 Gendex 765DC Intraoral X-ray Unit (Project 00-25)

The Gendex 765DC is a high-frequency, direct-current intraoral radiographic unit with a fixed output of 65 kV and 7 mA. This output, according to the manufacturer, provides excellent image contrast and gray scale, and reduces patient exposure to radiation. The unit's control panel has five preset time settings identified by pictograms of anatomical areas of the mouth and single-button selections for patient size (adult or child) and for recording method (standard x-ray film or a digital receptor). The unit can be programmed for use with D, E, or F speed film. While the unit has preset time settings as noted earlier, it has a total of 21 time settings ranging from 0.02 to 2 seconds. The time that is selected is digitally displayed on the control panel. The panel itself can be removed and mounted outside of the x-ray exposure area. Some of the same features that appear on the control panel are also located on the tubehead. The cone has an 8-inch focal length with a 0.4-mm focal spot. The Gendex 765DC is available in 115V/50Hz or 230V/60Hz line voltages, and can be supplied with a 65- or 75-inch-long arm reach. The system has a two-year limited warranty.

Manufacturer:
Gendex
901 West Oakton Street
Des Plaines, IL 60018
(800) 800-2888
(847) 640-4800
(847) 640-4891 FAX
www.gendexxray.com

Suggested Retail Price: $4,910.00

Government Price: $2,649.00

ADVANTAGES:
+ Control panel is easy to read and user-friendly.
+ Range of time settings is satisfactory.
+ Is compatible with digital technology.
+ Preset settings were accurate.
+ Having settings located on tubehead increased efficiency.
+ Tubehead is lightweight.
+ The seamless design of the tubehead simplified infection control.
+ The control panel can be mounted at a remote location (i.e., out of the exposure area).
+ The unit produced radiographs of acceptable quality.

DISADVANTAGES:
- Unit tended to overheat which required turning it off and then on to return it to operation.
- The extension arm was difficult to maneuver which made it hard to properly position the tubehead.

SUMMARY AND CONCLUSIONS:
The Gendex 765DC is a user-friendly unit because its control panel has an easy-to-read, digital timer display with five preset timer settings that are selected by pushing pictograms of the area of the mouth you wish to examine. Other settings are minimal and easy to choose. Many of the settings on the control panel are also located on the tubehead; users appreciated this feature because it improved their efficiency. The evaluators also enjoyed the sleek design of the tubehead and accurate time settings. The radiographs were of good quality and diagnostically acceptable. The major shortcomings of the Gendex 765DC are its difficult-to-maneuver extension arm and its tendency to overheat. Overheating occurred

one to two times per week during the evaluation. The unit was nonfunctional after overheating and had to be turned off and then on. The **Gendex 765DC Intraoral X-ray Unit** is rated **Marginal** for use by the federal dental services.

(Col Bartoloni)

Update: Gendex has informed DIS that the 765's overheating problem was due to an electrical malfunction from a defective circuit board. This caused the cooling light to go on, which indicated to the operator that the unit needed to be shut down. The cause of the problem was identified by Gendex and corrected by installing a new version of the circuit board. According to the company, units purchased after June 2001 have the new board and should not exhibit this problem.

65-21 Systemp.desensitizer (Project 01-63)

Systemp.desensitizer is a one-bottle liquid that is recommended for the chairside treatment of sensitive, exposed dentin. Ivoclar Vivadent indicates that it is appropriate for use under most direct restorations as well as before cementing temporary or permanent restorations. The product, an aqueous solution of 35% polyethylene glycol dimethacrylate and 5% glutaraldehyde, is purported to reduce sensitivity by sealing dentin tubules. Systemp.desensitizer is applied by brushing it onto tooth structure for 10 seconds. Excess liquid is then gently dispersed into a thin layer using compressed air. It is available in bottle form or in unit-dose capsules that have an attached disposable applicator. The Dental Investigation Service evaluated the unit-dose form.

Manufacturer:
Ivoclar Vivadent
175 Pineview Drive
Amherst, NY 14228
(800) 533-6825
(716) 691-0010
(716) 691-2285 FAX
www.ivoclarvivadent.us.com

Suggested Retail Price:
$85.00 Systemp.desensitizer Soft Touch Single Dose (item number 561386) contains:
-50 0.1-g unit-dose capsules
-laminated instruction card
-Material Safety Data Sheet

Government Price:
$28.40 Systemp.desensitizer Soft Touch Single Dose (item number and contents as listed above)

ADVANTAGES:
+ Appeared to be effective at reducing sensitivity under certain clinical conditions.
+ Available in unit-dose capsules which enhances infection control.
+ Easy and fast to apply.
+ Does not require light activation.
+ Considerably less expensive than two popular desensitizers.
+ Comes with helpful graphics-containing instruction card.
+ Lot number and expiration date are on each unit-dose package.
+ Recommended storage temperature range is listed on box.
+ Provided with a Material Safety Data Sheet (MSDS).

DISADVANTAGES:
- Indications do not include using the product for desensitizing exposed cervical tooth structure.
- Instructions are vague and contradictory with regard to compatibility of the product with common dental materials.

- Instructions do not specifically address how to apply the product when doing bonding procedures.

SUMMARY AND CONCLUSIONS:
Systemp.desensitizer was generally found to be effective at reducing sensitivity by the clinical users. They found it fast and easy to apply, and particularly appreciated its unit-dose packaging. Product instructions are vague about how to use it during adhesive bonding procedures and do not specifically state how Systemp.desensitizer may affect a range of dental materials, including impression materials. The contradictions and omissions of the instructions are a significant problem with this product. In fact, they leave the user without clear guidance as to the specific materials with which the product can and can not be used. Another major disadvantage of Systemp.desensitizer is the fact that its instructions do not state that it can be used to treat teeth with hypersensitive exposed cervical dentin, which is perhaps the most common reason for purchasing and using a desensitizer. Although apparently effective in certain cases, because of these important shortcomings, **Systemp.desensitizer** is rated **Marginal** for use by the federal dental services.

(Col Charlton)

65-22 Revotek LC (Project 01-60)

Revotek LC is a visible-light-activated, single-component, sculptable resin composite marketed by GC America for the fabrication of provisional (i.e., temporary) restorations. Revotek LC differs from other provisional materials in its packaging and use. It is supplied in a Putty Stick form in a lightproof plastic tray. Since it is a one-component material, no mixing of powders and liquids is required. To make a provisional restoration, a small portion of the material is cut from the stick and adapted to the preparation directly in the mouth. It is then sculpted using hand instruments after which the patient is instructed to occlude into it to establish a functionally-generated occlusal scheme. The Revotek LC provisional is then light-activated for 10 seconds in the mouth, removed, and given a final 20-second light exposure. After finishing and polishing, the restoration is cemented with a temporary cement. GC America claims that Revotek LC is less messy than other types of provisional materials, handles without tackiness, and can be used quickly and easily to fabricate all types of provisional restorations.

Manufacturer:
GC America Inc.
3737 W. 127th Street
Alsip, IL 60803
(800) 323-7063
(708) 597-0900
(708) 371-5103 FAX
www.gcamerica.com

Suggested Retail Price:
$39.95 Revotek LC Introductory Set (item number 001842) contains:
-1 putty stick of Revotek LC
-1 lightproof plastic storage case
-1 GC Spatula No 2

Government Price:
$26.00 Revotek LC Introductory set (contents and item number as listed above)

ADVANTAGES:
+ Does not require proportioning or mixing.
+ Users have the convenience of command set.
+ Has an adequately-long working time prior to light activation.
+ Can be used when teeth are prepared on the same day the case is evaluated.
+ Can be repaired with additional Revotek LC or a standard resin composite.
+ Its sole shade was adequate for most cases treated during the evaluation.

+ Gives off less heat during setting than standard acrylics.
+ Exhibits little, if any odor.
+ Is one of the harder provisional materials tested by DIS.
+ Material does not stick to the placement instrument provided in the kit.

DISADVANTAGES:
- Marginal adaptation is a challenge to maintain during fabrication process.
- Some users may find the material to be too thick for easy use.
- Difficult to use with a stent because it distorts the stent during seating.
- Not sufficiently radiopaque.
- More expensive per gram than several other provisional materials.
- Provisionals made with product were not rated highly by the users for their overall esthetics.
- The quality of the instructions received lower ratings than normally seen during evaluations of other provisional materials.
- None of the seven evaluators recommended this product be their clinic s sole provisional material.

SUMMARY AND CONCLUSIONS:
In general, clinical users received Revotek LC unenthusiastically because it takes time to learn to use and requires, at least initially, more time than standard techniques used for making provisionals. It is also difficult to use with a stent because it causes the stent to distort during seating. Acceptable marginal adaptation of Revotek LC during fabrication is challenging to obtain. A small percentage (less than 2%) of the provisionals made during the evaluation fractured during use. Revotek LC is not adequately radiopaque for radiographic detection, but this is a characteristic found in other provisional products. Despite these shortcomings, the product has some definite advantages compared to standard acrylic provisional materials such as greater hardness, minimal odor, and only minor heat production. Users also appreciated its command-set light cure. Revotek LC serves best as an adjunctive or second provisional material in a dental clinic. Under those conditions, **Revotek LC** is rated **Acceptable** for use by the federal dental services.

(Col Charlton)

65-23 Elipar FreeLight (Project 01-75)

The Elipar FreeLight is a light unit that uses focused Light-Emitting Diode (LED) technology to polymerize visible-light-activated materials. Compared to standard halogen bulbs, LED units use semiconductors, usually gallium nitride, to produce a more narrow spectral range that is closer to the absorption spectrum of the camphorquinone (450 to 490 nm) that initiates resin polymerization. Due to the combination of this more specific spectral range and the LED's superior energy conversion rate when compared to halogen lamps, the Elipar FreeLight is purported to generate sufficient intensity for polymerization using rechargeable Nickel-Metal-Hydride batteries rather than line voltage. Because it does not have a bulky power unit and cords, 3M ESPE claims that the light is portable, lightweight, and very convenient to use. A new, fully-charged battery is reported to typically provide 45 minutes of exposure time and requires two hours to recharge when completely discharged. The timer controls and on/off control are located on the handpiece. Four curing times can be selected (10, 20, 30, or 40 seconds) and audible beeps alert the user to the length of exposure (i.e., one beep at 10 seconds, 2 beeps at 20 seconds, etc.) The Elipar FreeLight is shipped with an 8-mm-diameter, autoclavable, Turbo light guide. Other light guides that are separately available include the "maxi fiber rod," a 13-mm-diameter light guide, and the "proxi fiber rod" which has a point-shaped tip for interproximal areas. An intensity tester is built-in to the charging stand and indicates the relative intensity of the light s output (i.e., 20%, 40%, 60%, 80%, or 100%). The Elipar FreeLight handpiece is 11.2 inches long X 1.2 inches in diameter and weighs 11.3 ounces. The charging unit is available in 120V and 220V models.

Manufacturer:
3M ESPE Dental Products Division
3M ESPE Health Care
3M ESPE Center, Bldg 275-2SE-03

St. Paul, MN 55144-1000
(800) 237-1650
(612) 733-8524
(800) 888-3132 FAX
www.3m.com/espe/

Suggested Retail Price:
$999.99 Elipar FreeLight, includes:
-handpiece
-autoclavable 8-mm-diameter Turbo light guide
-battery charger stand with built-in intensity tester
-instruction manual

Government Price:
$600.00 Includes: same as above

ADVANTAGES:
+ Offers the conveniences of portability and light weight.
+ Adequately polymerizes hybrid resin composite in 30 seconds.
+ Maintains constant irradiance as its batteries discharge.
+ Generates very little heat from tip during use.
+ Curing tip swivels 360 degrees to facilitate intraoral access.
+ Curing tips are autoclavable.
+ Very quiet.
+ Requires little counter space for storage.
+ CE marked.

DISADVANTAGES:
- Does not adequately cure microfill resin composites using the composite manufacturer's recommended exposure times.
- Required more time than the control halogen light unit to adequately polymerize resin composites.
- More expensive than most halogen curing lights.
- No blue-light eye protective devices were provided.
- Unit became warm with repeated use.
- Some evaluators disliked the balance and length of the handpiece.
- Easy to accidentally knock handpiece from charging base.

SUMMARY AND CONCLUSIONS:
The EliparFreeLight is a lightweight, portable curing light that uses the latest Light-Emitting Diode (LED) technology. Clinical evaluators appreciated its portability and convenience, however the length and balance of the handpiece were less than ideal. The positioning of the timer controls and activation button was appropriate but still less ergonomic than that seen with gun-style curing lights. DIS testing found that the Elipar FreeLight adequately polymerized the hybrid resin composite but not the microfill used in the evaluation (in the amount of time recommended by the resin composites' manufacturer). However, previous DIS testing has found that most halogen lights also inadequately polymerize microfill resin composites using the same exposure time. Only high-intensity halogen lights (i.e., >1000 mW/cm^2) can predictably polymerize microfills in 40 seconds or less. When using an average-intensity halogen light (i.e., 300 to 600 mW/cm^2), 40 seconds are required for a hybrid resin composite and 60 seconds for a microfill resin composite to adequately cure a 2-mm-thick increment. DIS testing found that the Elipar FreeLight required 30 seconds and 56 seconds to polymerize the same materials. The **Elipar FreeLight** is rated **Acceptable** for use by the federal dental services.

(Col Leonard)

65-24 Dental Field Treatment and Operating System (DEFTOS)

(Project 01-32)

The **D**ental **F**ield **T**reatment and **O**perating **S**ystem (DEFTOS) is described as a state-of-the-art field dental unit that uses the most current technology available to meet the demanding needs of the military dentist in an operational environment. The product was developed by the US Army Dental Research Detachment in a cooperative research project with the Bell Dental Company. The system is used to operate electric handpieces and is designed to support a range of dental procedures including oral prophylaxis, restorative procedures, and surgery. The DEFTOS is reported to be totally self contained and lightweight. The base unit includes an oil-less air compressor that stores compressed air in a unique, external, air-storage bladder. Also included in the unit is a dedicated suction system that does not depend on a compressed air source to function. The DEFTOS requires 120 VAC power supply, is 13.25" H x 13.25" L x 15.5" W, and occupies a volume of 1.5 cubic feet. The system supports a variety of standard electric motors and all E-type connected handpieces. The entire system is said to be quickly assembled/disassembled and packs into one molded, water-tight shipping container for transport and storage. The DEFTOS weighs 85 pounds in its shipping container.

Manufacturer:
Bell Dental Products
3003 Arapahoe Street 101B
Denver, CO 80205
(800) 920-4478
(303) 292-2137
(303) 292-4411 FAX
ddbell@belldental.com
www.belldental.com

Suggested Retail Price:
$10,995 PortaBell Fiber Optic System (the name of the civilian version of the DEFTOS) includes:

- -base unit
- -storage pouches
- -electric motor with fiber optics
- -motor cable
- -1:4 increaser contra-angle handpiece with fiber optics
- -three-way syringe
- -high-volume evacuator
- -saliva ejector
- -variable-speed foot switch
- -waste reservoir
- -water reservoir
- -instrument tray
- -hand piece holders
- -tray support tubes and extension tubes
- -power cord
- -associated cords, cables, hoses, and plumbing
- -polyethylene-molded shipping and storage case

Government Price:
Price is based on the buyer s requested delivery time:

- $10,445.25 (for delivery within 72 hours)
- $10,115.40 (for delivery within 5-7 days)
- $ 9,895.50 (for extended delivery time)

ADVANTAGES:
+ Easy to set up and operate.
+ Unit functioned reliably during the evaluation.
+ Unit allows clinicians to provide adequate dental care under field conditions.

+ Is small and relatively lightweight.
+ All clinical evaluators were comfortable with the unit to the extent that they would deploy with it.
+ Electrical system meets all safety requirements.
+ Vacuum system meets MPID (Medical Procurement Item Description) requirements.
+ Air storage is provided by a unique, impact-resistant bladder.
+ Compressed air system functioned well by providing adequate pressure.
+ Self-contained water system is easy to set up, use, and maintain.
+ Vacuum system is easy to set up, use, and clean.
+ Vacuum waste container is autoclavable.
+ Instructions are complete and easy to understand.
+ Instruction manual contains helpful schematic diagrams and illustrations.
+ Shipping/storage case meets MILSPEC (Military Specification) requirements.
+ Flexible government pricing is available based on desired delivery time.
+ National Stock Number already has been awarded for DSCP (Defense Supply Center, Philadelphia) purchases.

DISADVANTAGES:
- Electric handpiece may require learning curve.
- Bracket tray assembly is difficult to adjust.
- More specific guidelines for disinfecting the unit s waterlines are needed.

SUMMARY AND CONCLUSION:
The DEFTOS is more compact and lighter than previous mobile/field dental units evaluated by DIS. It was easy to assemble and met all electrical safety requirements. The unit functioned well and enabled dentists to provide adequate care in the field environment. Most notably, the unit s vacuum system easily met all MPID requirements, a problem that plagued earlier mobile dental units evaluated by DIS. Clinical evaluators thought the electric handpieces functioned well, although they required a short learning curve for clinicians who were accustomed to air-turbine handpieces. All ten of the users expressed satisfaction with the unit and said they would enjoy using it during deployments. The **DEFTOS** is rated **Recommended** for use by the federal dental services.

(Lt Col Roberts)

65-25 Bistite II SC (Project 01-18)

Tokuyama Corp/J. Morita USA markets Bistite II SC, a resin cement based on a proprietary MAC-10 adhesive monomer. The auto-cure cement is reported to be filled 77 percent (by weight) with silica and zirconium filler particles. Similar to the Panavia resin luting cements, Bistite II SC's polymerization reaction is oxygen inhibited and the supplied Air Barrier gel should be placed on exposed margins so the cement can adequately cure. The manufacturer recommends Bistite II SC for the cementation of: noble, semi-precious, and base-metal crowns, inlays, and onlays; porcelain-fused-to-metal castings; and resin-bonded fixed partial dentures. It is also advertised as being able to cement all-ceramic and resin restorations as well as cast post and cores. Bistite II SC is said to be all-inclusive, containing a phosphoric acid-based porcelain primer to allow the intraoral repair of porcelain restorations. In addition, the standard kit includes Metaltite, a noble-metal primer based on the MTU-6 adhesive monomer. Metaltite is purported to produce a suitable bonding interface that is as effective as tin-plating for noble metals. The standard kit also includes an acetone- and HEMA-based, self-etching bonding system that requires no rinsing or visible light curing. Bistite II SC is available in three shades (Translucent, Dentin, and Opaque) but additional shades can be purchased separately. Along with a multi-language, instruction pamphlet, a seven-page Clinical Procedure Guide booklet is provided.

Manufacturer/Distributor:
Toyukama Corp/J Morita USA
9 Mason
Irvine, CA 92618
(888) 566-7428

(949) 581-9600
(949) 465-1095 FAX
www.jmoritausa.com

Suggested Retail Price:

$170.00 Bistite II SC Clear Standard Kit (Item Number 26-41110)
Bistite II SC Brown Standard Kit (Item Number 26-41210)
Bistite II SC Ivory Standard Kit (Item Number 26-41310)
Contains:
-resin cement (one 3.5-g bottle Base, one 3.5-g bottle Catalyst)
-tooth primers (one 5-mL bottle Primer 1A, one 5-mL bottle Primer 1B, one 5-mL bottle Primer 2
-1 5-mL bottle Metaltite Precious Metal Primer
-Ceramic Primer (one 5-mL bottle Primer A, one 5-mL bottle Primer B)
-Air Barrier
-instructions
-accessories (mixing well, mixing pad, brushes, handles, and dispensing tips)

Government Price:

$119.00 Bistite II SC Standard Kit (item numbers and contents as listed above)

ADVANTAGES:

+ Is easy to use and kit contains all components for its advertised uses.
+ Lowest film thickness of any resin cement evaluated by DIS to date.
+ Includes a self-etching dentin bonding agent that is easy to use.
+ Supplied with a porcelain primer that is easy to apply and can be used for intraoral repairs.
+ Has a metal primer that may replace tin-plating for the luting of noble-metal castings.
+ Working time is long enough that users can mix and use cement without rushing.
+ Setting time is adequate for the cleaning of excess cement.
+ No post-treatment sensitivity reported.
+ Adequately radiopaque for easy detection on radiographs.
+ Users found the Translucent shade adequate for most clinical cases they treated.
+ Expiration dates and lot numbers are provided for all items in kit.
+ Recommended storage conditions listed on box.
+ Written instructions are detailed and describe product use very well.
+ Packaged in compact box with all components intelligently arranged.
+ Material Safety Data Sheet (MSDS) is included in kit.

DISADVANTAGES:

- Additional shades must be purchased separately.
- Dispensing syringe tended to clog in a small number of cases.

SUMMARY AND CONCLUSIONS:

Bistite II SC was very well-received by the clinical evaluators. Users found the instructions complete and the product user-friendly. Importantly, the kit contained all the components necessary for the cements advertised uses, including both porcelain and a noble-metal primers. The provided self-etching primer was reported to be easy to use. Evaluators also appreciated Bistite II SCs compact packaging. The product performed well in the laboratory: it had the lowest film thickness found by DIS evaluations to date, appropriate working and setting times, and adequate radiopacity. Esthetically, the cement performed well and there were no reported incidences of post-operative sensitivity. Bistite II SC is competitively priced. All of the clinical users recommended that this cement replace the current resin cement system they use at their facilities. **Bistite II SC** is rated **Recommended** for use by the federal dental services.

(Lt Col Roberts)

65-26 DIAGNOdent (Project 00-30)

The Diagnodent is a laser-probe handpiece that uses 1-milliwatt, 655-nanometer wavelength light for the detection of caries. The device, which is intended as an adjunct to the clinical and radiographic detection of caries, works by shining pulsed light of a known wavelength onto the tooth surface via specially-designed tips. After a baseline measurement of the patient s healthy tooth structure is made, the tip is placed on questionable areas of the tooth and slowly rotated or rocked with a pendulum-like motion. The unit s internal processor interprets changes in the level of fluorescence of the light emitted back by the tooth as indicative of caries. A numerical reading is displayed on the front of the Diagnodent and an audible signal is sounded. KaVo America claims that the device works through non-cavitated tooth structure and can be used, over time, to monitor changes in the degree of decalcification of a suspect area. The DIAGNOdent is 150mm W x 110mm D x 120mm H, and weighs 1.3 pounds. The handpiece attaches to the back of the base unit via a four-foot long cord.

Manufacturer:
KaVo America Corporation
340 East Main Street
Lake Zurich IL 60047
(888) 528-6872
(847) 550-6800
FAX (847) 550-6825
www.kavousa.com

Suggested Retail Price:
$2600.00 KaVo DIAGNOdent 2095 (Order Number 574 0500)
- -DIAGNOdent
- -battery pack
- -5 AA batteries
- -handpiece tubing
- -handpiece gripping sleeve
- -light tip cassette
- -2 light tip A
- -1 light tip B
- -operating instructions

$85.00 Additional Light Tip A (order number 574 1311)
$85.00 Additional Light Tip B (order number 574 1321)

Government Price:
$1685.00 KaVo DIAGNOdent 2095 (order number and contents as listed above)

$54.00 Additional Light Tip A
$54.00 Additional Light Tip B

ADVANTAGES:
+ Non-invasive means to assist in caries diagnosis.
+ Is diagnostically accurate.
+ Particularly helpful in determining the status of questionable lesions.
+ Short learning curve.
+ Compact design.
+ Small diagnostic tips permit assessment of small lesions.
+ Instructions are complete and easy to read.

DISADVANTAGES:
- Comes with limited number of diagnostic tips.
- Calibration process requires additional time for use.

- Is of limited use when assessing secondary caries associated with existing restorations.

SUMMARY AND CONCLUSIONS:
The Diagnodent is a laser-probe handpiece that uses 1-milliwatt, 655-nanometer wavelength light for the detection of caries. Clinical evaluators reported that the DIAGNOdent has a short learning curve, is accurate, and appreciated a non-invasive means diagnosing questionable lesions. Although the DIAGNOdent requires additional time to use, most users felt that this is justified because it ensured an accurate clinical diagnosis. Evaluators felt, however, that the time requirement and lack of additional tips precludes the DIAGNOdent s use for Annual Type 2 dental exams. The manufacturer is implicit in stating that this device should be considered as part of a clinician s diagnostic armamentarium the DIAGNOdent is not marketed as a stand-alone device for caries diagnosis. The **DIAGNOdent** is rated **Acceptable** for use by the federal dental services.

(Lt Col Roberts)

LABORATORY

65-27 Synopsis of Laboratory Handpieces (Project 01-40)

Dental laboratory handpieces are used on a daily basis for the production of nearly all types of prostheses. The two primary components of the handpiece are its control unit and the micromotor.

Micromotors can be categorized into two groups: those with brushes and those without brushes. Micromotors with brushes have been used in the dental laboratory for many years. These motors contain carbon brushes that require periodic maintenance to assess them for wear and possible replacement. In addition, micromotors with brushes are vented and require routine cleaning of the motor and the chuck to prolong the motor s operational life. The newest micromotors are brushless ones. Because these motors are sealed and do not require vents for cooling, most manufacturers claim that they are virtually maintenance free. The only maintenance that is required is routine cleaning of the chuck.

An important aspect of micromotor performance is its torque rating. While all of the handpieces included in this synopsis have sufficient torque for routine laboratory work, micromotors with higher torque ratings enable the user to apply more pressure during use without affecting the motor s speed. Higher torque ratings are particularly advantageous when the handpiece is used on acrylic prostheses or those made of base-metal alloys.

The controls for laboratory handpieces come in three different styles: benchtop-, kneepad-, and foot-controlled. Personal preference by the technician usually dictates the type that is purchased. Benchtop control units offer the advantage of easy access to the controls because they are in front of the user. Foot-controlled and kneepad types have the advantage of saving workspace on the benchtop because the control units are positioned below the benchtop. Manufacturers with more than one style of control unit will usually offer the same features on all types of their control units.

The synopsis consists of a table shown as Attachment XX, which is a list of selected laboratory handpieces, their manufacturers, and various features that enhance the performance of the handpiece. This information should assist the reader in selecting a laboratory handpiece that will best suit his/her needs. (MSgt Osborn)

INFECTION CONTROL

65-28 Aquasafe Water Filter (Project 01-45)

The Aquasafe Water Filter (model AQF1S) is a plastic, disc-shaped device used to filter bacteria, protozoa, and particles from ordinary tap water. The unit contains a 0.2-micron nylon membrane that the manufacturer claims produces water that is safe to use for infection control and patient care. The Aquasafe Water Filter attaches to an adapter (provided by manufacturer) that fits most standard water taps (i.e., faucets) via a push-fit connector located on the top of the filter. The filter provides a barrier against microbial contamination in the water supply, and therefore can be used to provide source water for use in the separate water reservoir of dental units. The filtered water is not intended for use for injection or infusion, nor is it claimed to meet any standard pertaining to pharmaceutically-pure water. The manufacturer claims that the device does not alter the chemical composition of the source water. The Aquasafe Water Filter is sterilized before packaging, and the manufacturer recommends that it be changed no later than 96 hours after being attached, regardless of the amount of water processed through it.

Manufacturer:
Pall Medical
600 South Wagner Road
Ann Arbor, MI 48103
(888) 675-7255, ext 6131
(734) 913-6131
(734) 913-6475 FAX
www.pall.com

Suggested Retail Price:
$28.50 Aquasafe Water Filter (model AQF1S)

Government Price:
$21.75 same as above

ADVANTAGES:
+ Very effective.
+ Simple to use.
+ Convenient.
+ Reliable.
+ Easy to attach and remove from water taps.
+ Does not reduce water flow.
+ Excellent alternative for source water for separate water systems of dental units.

DISADVANTAGES:
- Adapter provided with the filter may not fit all water taps.
- Unit must be replaced after 96 hours.

SUMMARY AND CONCLUSIONS:
The Aquasafe Water Filter contains a 0.2-micron membrane that can be used to process tap water for medical/dental applications. In dentistry, the filtered water can be used as the source water for clinics that use separate water systems to provide improved-quality dental treatment water. The filter is attached to most standard water taps by using an adapter provided by the manufacturer, however DIS found it would not fit on several types of water taps. The manufacturers limited 96-hour service life is also a drawback of the unit. The unit itself was easy to install and remove and was found to be highly effective in providing water of acceptable microbiological quality. Limited testing by DIS showed that the filter reduced bacteria levels from approximately 500 colony-forming units per milliliter (cfu/mL) to 10 cfu/mL. The product is an

excellent way of improving the quality of source water for separate water systems. No filter, however, can remove existing biofilm in the dental units waterlines, so dental clinics must use some other treatment protocol (i.e., chemical germicides) to control or prevent biofilm contamination. The **Aquasafe Water Filter** is rated **Acceptable** for use by the federal dental services.

(Col Bartoloni)

65-29 Seal Tight Disposable Air/Water Syringe Tip System (Project 01-53)

The Seal Tight Disposable Air/Water Syringe Tip System consists of a disposable, plastic air/water syringe tip and a dental unit-specific metal adapter. A 5/32-inch Allen wrench supplied with each adapter is used for removing the units existing syringe receptacle so that the Seal Tight adapter can be installed. The adapter contains a unique, plastic, yellow auto-locking ring in its distal end that is designed to allow the tip to be easily inserted and removed without requiring adjustment of the thumbnut. All that is required is to depress the auto-locking ring for tip insertion and removal. The manufacturer claims that the pre-bent plastic tip can be further bent or curved up to 90 degrees for improved intraoral access without impeding the flow of water or air. The manufacturer also claims that the tip provides on-demand dry air because its inner seal functions as an O-ring. The tips are designed to enhance infection control due to their disposability. The manufacturer makes four different types of metal adapters to fit DentalEZ, Engle-Marco, Press Ring, A-dec, and A-dec style dental units. The adapters are supplied free to customers with each order and are also replaced if they become damaged or defective. Potential customers must specify the type/brand of dental unit and 3-way syringe system they are using to insure they receive the correct adapter kit.

Manufacturer:
Pinnacle Products, Inc.
21401 Hemlock Ave
Lakeville, MN 55044-8489
(800) 878-3902
(952) 469-5482 FAX
www.kerrdental.com/pinnacle

Suggested Retail Price:
Bag of 200 $34.00
Bag of 1500 $225.00
Bag of 3000 $450.00

Government Price:
Bag of 200 $24.48
Bag of 1500 $157.50
Bag of 3000 $270.00

ADVANTAGES:
+ Tips are well-designed and constructed of high-quality plastic.
+ Easy to use.
+ Instructions are concise, and easy to read and follow.
+ Adapters are supplied at no charge with purchase and defective adaptors are replaced at no charge.
+ Adapters are pre-assembled and easy to install with the included Allen wrench. No thumbnut adjustment is required.
+ Yellow, auto-locking ring allows quick and easy insertion and/or removal of syringe tips.
+ Tips swivel 360 degrees and the auto-locking ring prevents rotational slippage.
+ Contour of tip allows for good visualization of intraoral area.
+ Tips can be bent up to 90 degrees without negatively affecting function.
+ Disposability enhances infection control.

+ Seal Tight is the least expensive of three popular brands of disposable tips.

DISADVANTAGES:
- In some situations, adapters may not function properly and will allow water contamination during air delivery.
- On older models, auto-locking ring was reported to dislodge.
- Not adequately radiopaque.
- Adapters are presently available only for certain brands of dental units/three-way syringes.

SUMMARY AND CONCLUSIONS:
In general, clinical users were pleased with the performance of the Seal-Tight Tips. They reported that the instructions were easy to read and follow, and that the tips contour allowed for good intraoral visualization. Also, the tip was easy to swivel and could be bent to a 90-degree angle without adversely affecting its function. The adapter was easy to install and made it simple to insert and remove tips without requiring thumbnut adjustment. A majority of the users rated the Seal-Tight as Good or Excellent. The system is not with some shortcomings, however. The tip is not radiopaque, which would make it difficult to locate radiographically if it were accidentally ingested or aspirated. In addition, a minority of users reported that the tip did not provide dry air as claimed. DIS testing indicated that this was due to a faulty adapter, which the manufacturer quickly replaced under the product warrantee. **The Seal Tight Air/Water Syringe Tip System** is rated **Acceptable** for use by the federal dental services.

(TSgt Sutter)

DENTAL HEADLAMP SYNOPSIS (1 OF 3)

Product/Model	Zeon Illuminator	Zeon Walkabout	PeriLUX II Portable Light Source
Type	Fiberoptic	Halogen	Halogen
Manufacturer or Distributor	Orascoptic Research 3225 Deming Way Middleton, WI 53562 (800) 369-3688 (608) 831-2004 FAX www.orascoptic.com	Orascoptic Research 3225 Deming Way Middleton, WI 53562 (800) 369-3688 (608) 831-2004 FAX www.orascoptic.com	PeriOptix 27281 Las Ramblas Suite 200 Mission Viejo, CA 92691 (949) 366-3333 (949) 366-0033 FAX www.perioptix.com
Retail Price	$995.00	$695.00	$695.00
Government Price	$895.00	$645.00	$525.00
Light Source	Separate unit	Clip-on battery pack	Clip-on battery pack
Bulb Price	$25.00	N/A	$25.00
Bulb Usage Rating	40 hours	N/A	30 hours
Bulb Voltage/Wattage	150 watts	3.6 volts	3.6 volts
Dimensions (inches)	6½ x 7¾ (footprint)	N/A	2¾ x 8 x 5
Warranty	5 years	N/A	1year
Weight	6 lbs	N/A	2½ ounces
Safety Features	Auto shut-off	N/A	N/A
Light Intensity (foot candles)	4,400	2,000	3,000
Headband Available	Yes	Yes	No
Attaches to Loupes	Yes	Yes	Yes
Cable Length (feet)	7	6	4
Warranty	1 year	N/A	1 year
Rechargeable Battery	N/A	Yes	Yes
Battery Life	N/A	Approx 2½ years	6 hours
Battery Recharge Time	N/A	10 hours	10 hours
Battery Type	N/A	NiCd	NiMh
Battery Voltage	N/A	3.6 VDC	N/A
Filters	Yes	No	No

Information supplied by product manufacturers.

DENTAL HEADLAMP SYNOPSIS (2 OF 3)

Product/Model	Nova Plus Altair SA	Centauri Portable	Vega Portable
Type	Fiberoptic	Halogen	Halogen
Manufacturer or Distributor	High Q 6302 East Aster Drive Scottsdale, AZ 85254 (800) 775-3433 (480) 905-0794 FAX www.highqdental.com	High Q 6302 East Aster Drive Scottsdale, AZ 85254 (800) 775-3433 (480) 905-0794 FAX www.highqdental.com	High Q 6302 East Aster Drive Scottsdale, AZ 85254 (800) 775-3433 (480) 905-0794 FAX www.highqdental.com
Retail Price	$1,025.00	$575.00	$385.00
Government Price	Call for quote	Call for quote	Call for quote
Light Source	Separate unit	Wall transformer or battery pack	Wall transformer or battery pack
Bulb Price	$28.00	$15.00	$15.00
Bulb Usage Rating	50 to 100 hours	100 hours	70 hours
Bulb Voltage/Wattage	200 watts/24 volts	Specify need	7 watts
Dimensions (inches)	7 x 5 x 4½	N/A	N/A
Warranty	3 years (cable not included)	3 years (battery not included)	3 years (battery and bulb not included)
Weight	7 lbs	Headlight: 7 ounces	Headlight: 5 ounces
Safety Features	Auto off if too hot	N/A	N/A
Light Intensity (foot candles)	3,200	1,100	600
Headband Available	Yes	Yes	Yes
Attaches to Loupes	Yes (with specific loupes)	No	Yes
Cable Length (feet)	6½ or 10	3 or 7	3 or 7
Warranty	1 year	3 year	3 year
Rechargeable Battery	N/A	Yes	Yes
Battery Life	N/A	2 hours of continuous use	2 hours of continuous use
Battery Recharge Time	N/A	6 hours	6 hours
Battery Type	N/A	NiCd	NiCd
Battery Voltage	N/A	Specify need	Specify need
Universal Voltage	Yes	Yes (specify need)	Yes (specify need)
Filters	Yes	No	No

Information supplied by product manufacturers.

DENTAL HEADLAMP SYNOPSIS (3 OF 3)

Product/Model	DentaLite	Quadrilite 6000	Keeler Fibrelite Illuminator with UV Filter
Type	Fiberoptic	Fiberoptic	Fiberoptic
Manufacturer or Distributor	Designs for Vision, Inc. 760 Koehler Avenue Ronkonkoma, NY 11779 (800) 345-4009 (631) 585-3434 FAX www.designsforvision.com	Designs for Vision 760 Koehler Avenue Ronkonkoma, NY 11779 (800) 345-4009 (631) 585-3434 FAX www.designsforvision.com	Keeler 456 Parkway Broomall, PA 19008 (800) 523-5620 (610) 353-7814 www.Keelerusa.com
Retail Price	$915.00	$1,660.00	$1,045.00 ($995 without UV filter)
Government Price	$915.00	$1,660.00	$788.00 ($749 without UV filter)
Light Source	Separate unit	Separate unit	Separate unit
Bulb Price	$15.00	$24.00	$12.86
Bulb Usage Rating	N/A	40 hours	N/A
Bulb Voltage/Watts	N/A	N/A	200 watts
Dimensions (inches)	5¼ x 12 x 7	13 x 6 x 6	6 x 4 x 8
Warranty	5 years	Lifetime	1 year
Weight	6 lbs	12 lbs	6.6 lbs
Safety Features	Auto shut-off	Auto shut-off	N/A
Light Intensity (foot candles)	3,200	6,000	3,344
Headband Available	Yes	Yes	Yes
Attaches to Loupes	Yes	Yes	Yes, but only to Keeler's
Cable Length (feet)	6½ or 10	5½, 10, or 16	7½
Warranty	1 year	Lifetime	1 year
Rechargeable Battery	N/A	N/A	N/A
Battery Life	N/A	N/A	N/A
Battery Recharge Time	N/A	N/A	N/A
Battery Type	N/A	N/A	N/A
Battery Voltage	N/A	N/A	N/A
Filters	No	No	No

Information supplied by product manufacturers.

SYNOPSIS OF ELECTROSURGERY UNITS (1 of 3)

	Hyfrecator 2000	DentoSurg 90	MC-4
Manufacturer	ConMed Corporation 525 French Rd Utica, NY 13502 (800) 448-6506 (315) 797-8375 (800) 438-3051 FAX www.conmed.com	Ellman International 1135 Railroad Ave Hewlett, NY 11557 (800) 835-5355 (516) 569-1482 (516) 569-0054 FAX www.ellman.com	Macan Eng & Mfg Co 1564 N. Damen Ave Chicago, IL 60622 (773) 772-2000 (773) 772-2003 FAX www.macanengineering.com
Type	Monopolar	Monopolar	Monopolar
Retail Price	$1,200.00	$1,495.00	$875.00
Government Price	$694.50	$1,345.50	$656.25
Operating Modes Available	High Low	Cut Cut/Coagulate Coagulate	Cut/Coagulate Coagulate
Number of Electrodes Included	50 disposable-sharp 50 disposable-blunt	6	5
Activation Method	Foot switch Handpiece switch	Foot switch	Foot switch
Dimensions (inches) H x D x W	4 x 7½ x 8¾	5 x 5 x 8	3½ x 5¼ x 8½
Weight (lbs)	6	7	8
Handpiece/Cord Sterilizable	No	Yes	Yes
Warranty on unit	5 years	1 year	2 years

Information provided by the manufacturers

SYNOPSIS OF ELECTROSURGERY UNITS (2 of 3)

	MC-6	Sensimatic 600SE	Servotome ST Classic
Manufacturer	Macan Eng & Mfg Co 1564 N. Damen Ave Chicago, IL 60622 (773) 772-2000 (773) 772-2003 FAX www.macanengineering.com	Parkell Inc 155 Schmitt Blvd Farmingdale, NY 11735 (800) 243-7446 (631) 249-1134 (631) 249-1242 FAX www.parkell.com	Satelec Inc 130 Gaither Dr Mt Laurel, NJ 08054 (800) 289-6367 (856) 222-9988 (856) 222-4726 FAX www.satelecusa.com
Type	Monopolar	Monopolar	Monopolar
Retail Price	$1,095.00	$595.00	$700.00
Government Price	$821.25	$595.00	$500.00
Operating Modes Available	Cut Cut/Coagulate Coagulate Fulguration	Cut Cut/Coagulate Coagulate	Cut Cut/Coagulate Coagulate
Number of Electrodes Included	6	6	10
Activation Method	Foot switch	Foot switch	Foot switch
Dimensions (inches) H x D x W	2¾ x 11½ x 6½	3 x 6½ x 11	2¾ x 9 x 5½
Weight (lbs)	8	8	2.2
Handpiece/Cord Sterilizable	Yes	Yes	Yes
Warranty on unit	2 years	5 years	2 years

Information provided by the manufacturers

SYNOPSIS OF ELECTROSURGERY UNITS (3 of 3)

	Bident 3001	Odontosurge 3
Manufacturer	Valley Forge Scientific 136 Green Tree Rd Oaks, PA 19456 (610) 666-7500 (610) 666-7565 FAX www.bident.com	XO Care A/S Handvaerkersvinget 6 P.O. Box 380 DK-2970 Horsholm, Denmark (800) 368-5776 (949) 376-4228 (888) 368-4787 FAX U.S. Distributor: Odonto~*Wave* 1136 East Stuart, #4203 Fort Collins, CO 80525 www.odonto-wave.com Government representative can be contacted at: (949) 376-4228 (949) 376-8268 FAX
Type	Biopolar	Bipolar
Retail Price	$6,250.00	$2,495.00
Government Price	$4,895.00	$2,250.00
Operating Modes Available	Cut Coagulate	Cut Coagulate
Number of Electrodes Included	6	6
Activation Method	Foot switch	Handpiece switch
Dimensions (inches) H x D x W	4½ x 10½ x 10½	2 x 9½ x 6¾
Weight (lbs)	11	6
Handpiece/Cord Sterilizable	Handpiece-No Cord-Yes	Yes
Warranty on unit	1 year	1 year

Information provided by the manufacturers

SYNOPSIS OF LABORATORY HANDPIECES (1 OF 4)

Product/Model	K12 Handpiece & Control Unit (4970, 4965, or 4960)	K-9 Handpiece & Control Unit (4953)	K5 Handpiece & Control Unit (4970, 4965, or 4960)	K-4 Handpiece & Control Unit (4974, 4964, 4954)
Manufacturer or Distributor	KaVo America Corp 340 E. Main St Lake Zurich, IL 60047 (800) 323-8029 (847) 550-6800 (847) 550-6825 FAX www.kavo.com	KaVo America Corp 340 E. Main St Lake Zurich, IL 60047 (800) 323-8029 (847) 550-6800 (847) 550-6825 FAX www.kavo.com	KaVo America Corp 340 E. Main St Lake Zurich, IL 60047 (800) 323-8029 (847) 550-6800 (847) 550-6825 FAX www.kavo.com	KaVo America Corp 340 E. Main St Lake Zurich, IL 60047 (800) 323-8029 (847) 550-6800 (847) 550-6825 FAX www.kavo.com
Voltage (volts)	120	120	120	120
Torque (Newton-centimeter)	6.5	3.5	4.5	4.0
RPMs	1,000 - 50,000	1,000 - 25,000	1,000 - 35,000	1,000 - 30,000
Forward/Reverse	Both (Reverse 5000 rpm)	Forward only	Both (Reverse 5000 rpm)	Both
Chuck Release Type	Twist	Twist	Twist	Twist
Chuck Size(s) (mm)	2.35, 3.0, 3.175	2.35, 3.0, 3.175	2.35, 3.0, 3.175	2.35, 3.0, 3.175
Micromotor Type (Brush/Brushless)	Brushless	Brush	Brushless	Brushless
Type of Control Unit	4970 – Foot Control 4965 – Benchtop 4960 – Kneepad	Benchtop	4970 – Foot Control 4965 – Benchtop 4960 – Kneepad	4974 – Foot Control 4964 – Kneepad 4954 – Benchtop
Type of Foot Control	4970 – Side-Way Foot 4965 – On/Off Foot Switch	On/Off Foot Switch	4970 – Side-Way Foot 4965 – On/Off Foot Switch	4974 – Side-Way 4954 – On/Off Foot Switch
Overload Protection	Yes	Yes	Yes	Yes
Constant Power Output	Yes	Yes	Yes	Yes
Handpiece Weight	240g (8.5oz)	227g (8oz)	220g (7.8oz)	220g (7.8oz)
Handpiece Dimensions (Length x Diameter)	163 mm x 28.83 mm (6.4 inches x 1.1 inches)	178 mm x 31.71 mm (7 inches x 1.2 inches)	149 mm x 27.88 mm (5.9 inches x 1.1 inches)	149 mm x 27.88 mm (5.9 inches x 1.1 inches)
Warranty	1 year	1 year	1 year	1 year
Retail Price for Control Unit, Handpiece, and Foot Control	$1917.00 – 4970 Control $2039.00 – 4965 Control $1965.00 – 4960 Control	$789.00	$1603.00 – 4970 Control $1727.00 – 4965 Control $1650.00 – 4960 Control	$1308.00 – 4974 Control $1356.00 – 4964 Control $1114.00 – 4954 Control
Government Price	$1226.88 – 4970 Control $1304.96 – 4965 Control $1277.25 – 4960 Control	$504.96	$1025.92 – 4970 Control $1105.28 – 4965 Control $1056.00 – 4960 Control	$837.12 – 4974 Control $867.84 – 4964 Control $712.96 – 4954 Control

SYNOPSIS OF LABORATORY HANDPIECES (2 OF 4)

Product/Model	Virtuoso - Jelenko	Dynamo Plus – Jelenko	XL-030	EXL-40R
Manufacturer or Distributor	Heraeus Kulzer Inc. 99 Business Park Drive Armonk, NY 10504 (800) 431-1785 (914) 273-8600 (914) 273-9379 FAX www.jelenko.com	Heraeus Kulzer Inc. 99 Business Park Drive Armonk, NY 10504 (800) 431-1785 (914) 273-8600 (914) 273-9379 FAX www.jelenko.com	Osada Inc. 8436 West Third St., #695 Los Angeles, CA 90048 (800) 426-7232 (323) 651-0711 (323) 651-4691 FAX www.osadausa.com	Osada Inc. 8436 West Third St., #695 Los Angeles, CA 90048 (800) 426-7232 (323) 651-0711 (323) 651-4691 FAX www.osadausa.com
Voltage (volts)	115/230	115/230	120/220	120
Torque (Newton-centimeter)	5.4	3.9	4.4	5.0
RPMs	1,000 - 40,000	1,500 - 35,000	900 - 30,000	2,000 - 40,000
Forward/Reverse	Yes	Yes	Yes	Yes
Chuck Release Type	Twist	Twist	Lever	Lever
Chuck Size(s) (mm)	2.35	2.35 Optional -3.0, 3.175, 1.6	2.35 Optional – 3.0, 1.6	2.35 Optional – 3.0, 1.6
Micromotor Type (Brush/Brushless)	Brushless	Brush	Brush	Brushless
Type of Control Unit	Benchtop	Benchtop	Benchtop	Benchtop
Type of Foot Control	On/Off or Variable Speed	Variable Speed	On/Off or Variable Speed (push or side-way type)	Variable Speed (push or side-way type)
Overload Protection	Yes	Yes	Yes	Yes
Constant Power Output	Yes	Yes	Yes	Yes
Handpiece Weight	312g (11oz.)	184g (6.5oz)	167g (5.9oz)	175g (6.2oz)
Handpiece Dimensions (Length x Diameter)	25.4 mm x 1.6 mm (6.5 inches x 1 inch)	159 mm x 16 mm (6.25 inches x 0.62 inch)	147 mm x 16 mm (5.8 inches x 0.62 inch)	151 mm x 16 mm (6 inches x 0.62 inch)
Warranty	1 year	1 year	Power Console – 1 year Handpiece – 6 months	Power Console – 1 year Handpiece – 6 months
Retail Price for Control Unit, Handpiece, and Foot Control	$1053.00	$753.00	$1255.00 (contact dealer for best price)	$1490.00 (contact dealer for best price)
Government Price	$810.00	$580.00	$1255.00 (contact dealer for best price)	$1490.00 (contact dealer for best price)

SYNOPSIS OF LABORATORY HANDPIECES (3 OF 4)

cProduct/Model	Z500 Series Control Units & UM50T or UM50C Handpiece	VOLVERE GX Control Unit & GX35C Handpiece	Upower 210 Control Unit & UG33 Micro Motor
Manufacturer or Distributor	NSK America Corp. 700 Cooper Court Schaumburg, IL 60173 (888) 675-1675 (847) 843-7664 (847) 843-7622 FAX www.nskamerica.com	NSK America Corp. 700 Cooper Court Schaumburg, IL 60173 (888) 675-1675 (847) 843-7664 (847) 843-7622 FAX www.nskamerica.com	Manufacturer: Urawa Corp. Distributor: Kupa Inc. 6980 Aragon Circle, Suite 6 Buena Park, CA 90620 (800) 974-5872 (714) 739-2081 (714) 739-2084 FAX
Voltage (volts)	120	120	120
Torque (Newton-centimeter)	UM50T- 8.7 UM50C- 6.0	4.2	N/A
RPMs	1,000 - 50,000	1,000 - 35,000	35,000 maximum
Forward/Reverse	Yes	Yes	Yes
Chuck Release Type	Twist	Lever	Twist
Chuck Size(s) (mm)	2.35 Optional – 1.6, 3.0	2.35 Optional – 1.6, 3.0	2.35 Optional – 3.0, 3.175
Micromotor Type (Brush/Brushless)	Brushless	Brush	Brush
Type of Control Unit	Z500 - Benchtop Z500D - Vertical Benchtop Z500K - Kneepad Z500F – Foot Control	Bench Top	Bench Top
Type of Foot Control	Z500 and Z500D - Variable Speed with Auto-cruise	Variable Speed	On/Off or Variable Speed
Overload Protection	Yes	Yes	Yes, functions 3 - 5 seconds after the micromotor is locked
Constant Power Output	Yes	Yes	Yes
Handpiece Weight	UM50T - 230g (8.1oz) UM50C - 185g (6.5oz)	235gm (8.3oz)	190g (6.7oz)
Handpiece Dimensions (Length x Diameter)	UM50T-164mm x 29 mm (6.45 inches x 1.14 inches) UM50C-148 mm x 28 mm (5.8 inches x 1.1 inches)	135 mm x 24.5 mm (5.3 inches x 1 inch)	162 mm x 28.8 mm (6.4 inches x 1.2 inches)
Warranty	1 year	1 year	Control Unit – 1 year Handpiece – 6 months
Retail Price for Control Unit, Handpiece, and Foot Control	Z500 - $1100.00 Z500D - $1200.00 Z500K - $1200.00 Z500F - $1200.00	$830.00	$785.00
Government Price	Z500 - $880.00 Z500D - $960.00 Z500K - $960.00 Z500F - $960.00	$664.00	Call distributor for information

SYNOPSIS OF LABORATORY HANDPIECES (4 OF 4)

Product/Model	MF-Tectorque	MF-Perfecta	DLT 50K Series 2
Manufacturer or Distributor	Manufacturer: W&H Distributor: A-dec USA 2601 Crestview Drive Newberg, OR 97132 (800) 547-1883 (503) 538-0276 FAX www.wnhdent.com	Manufacturer: W&H Distributor: A-dec USA 2601 Crestview Drive Newberg, OR 97132 (800) 547-1883 (503) 538-0276 FAX www.wnhdent.com	Brasseler USA One Brasseler Blvd. Savannah, GA 314419 (800) 841-4522 (912) 927-8671 FAX www.brasselerusa.com
Voltage (volts)`	110 or 220	110 or 220	120 or 230
Torque (Newton-centimeter)	7.5	5.5	8.7
RPMs	1,500 - 50,000	2,000 - 35,000	0 - 50,000
Forward/Reverse	Yes	Yes	Yes
Chuck Release Type	Twist	Twist	Twist
Chuck Size(s) (mm)	2.35 or 3.0	2.35 or 3.0	2.35 Optional – 3.175, 3.0, 1.6
Micromotor Type (Brush/Brushless)	Brushless	Brushless	Brushless
Type of Control Unit	Benchtop or Kneepad	Benchtop, Kneepad, or Foot Control	Benchtop
Type of Foot Control	Variable Speed	On/Off	Variable Speed
Overload Protection	Yes	Yes	Yes
Constant Power Output	Yes	Yes	Yes
Handpiece Weight	220g (7.8oz)	220g (7.8oz)	260g (9.2oz)
Handpiece Dimensions (Length x Diameter)	150 mm x 27 mm (5.9 inches x 1.1 inches)	150 mm x 27 mm (5.9 inches x 1.1 inches)	164 mm x 29 mm (6.5 inches x 1.2 inches)
Warranty	1 year	1 year	1 year
Retail Cost for Control Unit, Handpiece, and Foot Control	$1775.00	$1475.00	$1100.00
Government Cost	$917.27	$762.24	$850.00