



## Impression Materials: Need More Speed?

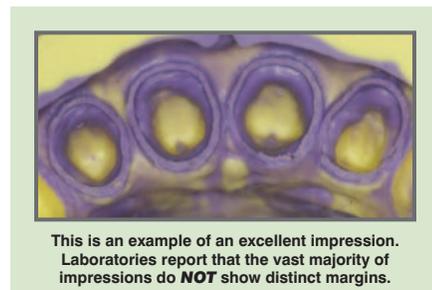
**Gordon's Clinical Bottom Line:** Almost all dentists use vinyl polysiloxane (VPS) impression materials because of their excellent long-term accuracy; ease of use; lack of taste and smell; fast set time; and ability to be re-poured if necessary. While most brands appear more similar than different, costs vary up to 500%. *This report compares 15 brands and will help you to select the best setting time and value for your practice.*

Advances in impression materials have led to faster setting times which improve patient comfort and reduce wait time. A recent CR survey showed that a slight majority of clinicians surveyed preferred fast set or super fast set (54%) over regular set materials (46%) on single-unit crowns. Which VPS material is most appropriate for your patients?

**Fast set:** Preferred for single-unit crowns, in order to minimize chair time and maximize patient comfort.

**Regular set:** Preferred for multiple units and difficult cases, or when dentist and staff prefer extra time to ensure proper placement.

**This report evaluates and compares representative current fast set VPS impression materials and provides useful clinical tips to help you make the best impressions and avoid costly re-makes.**



This is an example of an excellent impression. Laboratories report that the vast majority of impressions do NOT show distinct margins.

CR tested 14 **fast set** VPS materials and one popular polyether and compared various clinical and material properties. All materials tested are available in a variety of viscosities and colors. CR tested all properties using a heavy, medium, and light viscosity where applicable.

Brand, Company <i>(automix fast set version tested)</i>	Cost/ml	Approx. Cost* of Double Arch Impression	CR Tested (at 35°C)		Material Properties and Clinical Rating <i>(see summary of table)</i>	Dimensional Stability <i>(at 1 week)</i>	Unique Features
			Working Time (min.)	Setting Time (min.)			
Vaccusil, Ho Dental Company	\$0.14†	\$2.80	1:30	2:25	Excellent-Good	Excellent: -0.13%	Low cost; Unidose (BFC) cartridges available
VPS Impression Material, SmartPractice	\$0.16†	\$3.25	0:50	1:50	Excellent-Good	Excellent: -0.23%	Low cost
VP Mix HP, Henry Schein	\$0.18†	\$3.60	0:40	1:35	Excellent-Good	Excellent: -0.15%	Low cost; 3 flavors available; Fast set
Quick Cinch, Parkell	\$0.19	\$3.90	1:00	2:05	Excellent-Good	Excellent: -0.14%	‡, Low cost
Paradigm VPS, 3M ESPE	\$0.33†	\$6.65	1:10	1:45	Excellent-Good	Excellent: -0.18%	Value product from well-known company
EXAFAST NDS, GC America	\$0.36	\$7.15	1:00	1:35	Excellent	Excellent: -0.08%	‡; Fast set
Splash, Denmat	\$0.38	\$7.55	0:55	1:40	Excellent	Excellent: -0.28%	‡; Pleasant taste (berry)
Genie, Sultan Healthcare	\$0.39	\$7.85	1:05	2:40	Excellent-Good	Excellent: -0.26%	‡; Pleasant taste (berry)
SplashMax, Denmat	\$0.40	\$8.00	0:50	1:35	Excellent-Good	Excellent: -0.21%	‡; Excellent hydrophilicity; Fast set; Pleasant taste (berry)
First Quarter, Danville Materials	\$0.44	\$8.80	0:40	1:30	Excellent-Good	Excellent: -0.12%	Fast set
Virtual XD, Ivoclar Vivadent	\$0.56	\$11.20	1:25	2:30	Excellent-Good	Excellent: -0.15%	‡; Pleasant taste (mint)
Take 1 Advanced, Kerr	\$0.61	\$12.30	1:05**	2:20**	Excellent	Excellent: -0.21%	‡; Unidose cartridge available
Imprint 4, 3M ESPE	\$0.62	\$12.40	1:00	1:40	Excellent	Excellent: -0.35%	‡; Excellent hydrophilicity
Aquasil Ultra, Dentsply Caulk	\$0.63	\$12.60	1:15**	2:40**	Excellent	Excellent: -0.32%	‡; Popular product; Manual and automated Unidose cartridges available
Impregum (polyether), 3M ESPE	\$0.67	\$13.35	1:50	3:15	Excellent	Excellent: -0.40%§	‡; Popular product; Excellent hydrophilicity

\* Approximate cost based on refill; Premier Sideless Posterior Triple Tray (20ml)

† Approximate cost based on refill; mix tips not included

‡ 360-380ml cartridges available for automated mixer (Penta, Deca, etc.)

§ Polyether impressions should be poured within two weeks

\*\* Super fast set also available, not tested

### Summary of Table:

- **Cost** ranged from \$0.14 to \$0.67 per ml, about 500% variance.
- **Working and setting times** (values above are an average of light and medium viscosities where applicable) varied greatly by brand and depending on viscosity. Proper timing is crucial (see clinical tip below).
- **Material properties and clinical rating** included: detail reproduction, dimensional stability, gypsum compatibility, elastic recovery, viscosity, hydrophilicity, taste, smell, and popularity of product in CR survey.
- **Dimensional stability** is a measurement of how much the material shrinks or expands during the setting process. All materials had slight shrinkage that was not clinically significant; all were clinically successful in making excellent impressions.

### Clinical Tips

Suggestions to help prevent costly remakes and ill fitting crowns:

- **Tissue management:** Poor gingival retraction is the most common cause of poor impressions. The two-cord technique is still considered the gold standard, but clinicians are using a variety of techniques successfully including gingival retraction pastes (see March 2013 Clinicians Report), laser (see June 2012 Clinicians Report), etc.
- **To resist deformation with double arch trays**, use a rigid tray (example: QuadTray by Clinicians Choice) for flexible materials, and a flexible tray (example: Sideless Triple Tray by Premier) for rigid materials.
  - For one or two adjacent tooth preparations sideless double-arch trays used properly have been proven to be completely acceptable assuming occlusion has been adjusted if necessary (see June 2008 Clinicians Report).
  - Position tray carefully when using a double arch tray to ensure that teeth are in maximum intercuspation.
- **Proper timing is crucial** to allow for complete set of material and to ensure the tray and wash material adhere to each other. The tray must be inserted into the mouth before the wash material begins to set, and removed only after it is set to avoid distortion.



Adequate impressions for crowns must show distinct margins for the entirety of the tooth preparation.

## Impression Materials: Need More Speed? (Continued from page 1)

### Clinical Tips (Continued)

- **Use adequate material** to cover crown and surrounding soft tissues. If using a sideless triple tray, also cover opposing bite.
- **Extrude initial material** from automix cartridge and use correct tip size (*as suggested by manufacturer*) to ensure the proper mixing ratio and complete set of material.
- **Latex gloves** may contain traces of sulfur, which has been shown to inhibit the set of some VPS materials.
- **For three or more tooth preparations**, fixed partial dentures, or difficult occlusion situations, full arch trays are strongly suggested.
- **To reduce or eliminate trapped air bubbles** in fixed restoration impressions, inject rapidly around the prep, blow air gently, inject again, blow gently and make the impression.
- **For trays needing adhesive**, place adhesive before making impression. VPS: at least 10 minutes prior. Polyether: 90 seconds prior.

### CR Conclusions:

Impression materials can no longer be indicted for restoration inaccuracies. All fast-setting impression materials tested were able to yield clinically good to excellent impressions provided there was proper gingival retraction and clinical technique. Fast set materials are not recommended for all cases, but they are ideal for most one or two adjacent tooth preparations where they save time and improve patient comfort. Cost of impression materials varied significantly. Excellent impressions are most likely achieved when clinicians are confident in their impression material and provide adequate gingival retraction.

## Products Highly Rated in CR Clinical Trials

Clinicians Report  
May 2011

### Anterior and Posterior Dual-Arch Impression Trays with Additional Features

This unique anterior dual-arch tray with *facial midline positioner* and posterior dual-arch tray have additional desirable features including: *rigid and solid design; fully attached thin inter-occlusal mesh; and low sidewalls*. Anterior trays allow accurate impression of prepared teeth, opposing arch, bite registration, and facial midline record all in one impression. Posterior trays have wide arch and metal distal bar to prevent distortion of impression. Both are constructed with biodegradable corn starch and posterior trays have a metal portion for added rigidity.

#### Advantages:

- Rigid and solid metal/biodegradable corn starch design
- Provides accurate impressions and inter-occlusal record
- Easy to use
- Low sides for no soft tissue or occlusal interferences
- Thin, non-sorbing, inter-occlusal mesh
- Cost

#### Limitation:

- CR Evaluators recommend use of dual-arch trays for one or two units and full-arch tray for three or more units (*see Clinicians Report June 2008*).

**CR Conclusions:** 64% of 22 CR Evaluators stated they would incorporate Harmony Dual-Arch Tray into their practice. 73% rated it excellent or good and worthy of trial by colleagues.

### Harmony Dual-Arch Tray



#### HO Dental Company

866-430-3718  
www.hodentalcompany.com

**\$39.60 / Bag of 40 (99¢ / tray)**

## What is CR?

### WHY CR?

CR was founded in 1976 by clinicians who believed practitioners could confirm efficacy and clinical usefulness of new products and avoid both the experimentation on patients and failures in the closet. With this purpose in mind, CR was organized as a unique volunteer purpose of testing all types of dental products and disseminating results to colleagues throughout the world.

### WHO FUNDS CR?

Research funds come from subscriptions to the *Gordon J. Christensen Clinicians Report*®. Revenue from CR's "Dentistry Update"™ courses support payroll for non-clinical staff. All Clinical Evaluators volunteer their time and expertise. CR is a non-profit, educational research institute. It is not owned in whole or in part by any individual, family, or group of investors. This system, free of outside funding, was designed to keep CR's research objective and candid.

### HOW DOES CR FUNCTION?

Each year, CR tests in excess of 750 different product brands, performing about 20,000 field evaluations. CR tests all types of dental products, including materials, devices, and equipment, plus techniques. Worldwide, products are purchased from distributors, secured from companies, and sent to CR by clinicians, inventors, and patients. There is no charge to companies for product evaluations. Testing combines the efforts of 450 clinicians in 19 countries who volunteer their time and expertise, and 40 on-site scientists, engineers, and support staff. Products are subjected to at least two levels of CR's unique three-tiered evaluation process that consists of:

1. Clinical field trials where new products are incorporated into routine use in a variety of dental practices and compared by clinicians to products and methods they use routinely.
2. Controlled clinical tests where new products are used and compared under rigorously controlled conditions, and patients are paid for their time as study participants.
3. Laboratory tests where physical and chemical properties of new products are compared to standard products.

### THE PROBLEM WITH NEW DENTAL PRODUCTS.

*New dental products have always presented a challenge to clinicians because, with little more than promotional information to guide them, they must judge between those that are new and better, and those that are just new. Due to the industry's keen competition and rush to be first on the market, clinicians and their patients often become test data for new products.*

*Every clinician has, at one time or another, become a victim of this system. All own new products that did not meet expectations, but are stored in hope of some unknown future use, or thrown away at a considerable loss.*

*To help clinicians make educated product purchases, CR tests new dental products and reports the results to the profession.*

**Clinical Success is the Final Test**



### Clinicians Report® a Publication of CR Foundation®

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