



The heart of
a good
restoration

Impression Materials

Guide to correct
material selection

3M

Bad impressions cause depressions

The process of creating a good quality dental restoration that fits and works well, starts with ensuring that you take the most accurate impression possible. If your impression doesn't capture the precise details of the treatment area, the laboratory will not be able to produce the prosthesis correctly and you will probably find it very difficult, if not impossible to fit. The result is extra work for you, often for which you cannot charge, disagreement perhaps with your laboratory and almost certainly inconvenience for your patient who may also become upset with the 'poor quality' of the work. Bad impressions are quite simply, bad for business.



To help ensure that you always take an accurate impression you need to choose the right impression material for the procedure, support the correct functioning of this material with the most appropriate type of impression tray, and of course, employ a good impression taking technique! The GC Education Guide 'Impression Trays: Guide to Correct Tray Selection' highlighted the importance of the tray and gave advice on how to choose the most suitable tray from the myriad of different types available. Selecting the right impression material from the vast range on offer can be equally difficult and so to accompany the GC Guide on Impression Trays, GC has produced this Guide on Impression Materials and their correct selection.

The Impression material

What then are the important features to look for when choosing a dental impression material?

- **Fast setting time:** As fast as possible is usually better both for your patients and for your business.
- **Good hydrophilic properties (wettability):** Helps to ensure optimum reproduction, even in a wet environment and allows the gypsum to flow into every detail.
- **High tear strength:** Reduces the risk of damage to the impression during removal from the mouth.
- **High elasticity:** Improves comfort for both patient and technician.

- **Good recovery from deformation:**

Ensures an exact replica of the treatment area is retained after the impression is removed from the mouth.

- **Dimensional stability:**

Ensures that the dimensions of the final impression will not be affected during storage and transport.

- **Smell and taste of the material:**

Can be very important as some materials are highly pungent, which can be very irritating for dental staff and patients.

Other considerations

- When carrying out small restorations, it is easier to use fast setting impression materials. However, with larger restorations, normal setting materials are recommended.
- Avoid the use of latex gloves or retraction cords that can affect the setting of the impression material.
- After removing the impression, examine it carefully for any imperfections, voids and air bubbles.
- Disinfect the impression before you send it to the dental laboratory. Your dental technician will appreciate it.

The 'two materials, two steps' technique

Also known as a putty wash or a correction impression, this method uses two different types of material in a two steps procedure. The dentist first makes a pre-impression by inserting the tray with a heavy-bodied putty material into the mouth. After the material sets the dentist

removes all undercuts and then cuts escape channels for the excess wash material. This light-bodied correction material is applied in the second step. Some dentists use a plastic foil to create extra space so preventing the need for cutting.

Problems

The two materials, two-steps technique can be a time-consuming and problematic procedure. For example, if the dentist fails to remove sufficient excess material from the pre-impression, it may not fit properly when returned into the mouth causing dis-

tortion of the final impression or bite increase. In addition, if the 'spacer' foils are too smooth, the adhesion of the light-bodied injection material to the pre-impression can be affected adversely. However, GC offers dental practitioners a simple solution to this problem.



Bad repositioning of pre-impression



Bite increase

The GC solution

For this technique GC recommends using the polyethylene Impression Separation Wafer (ISW), a thin, roughened spacer wafer that is applied onto the putty during the pre-impression taking. After the putty has set, the wafer is removed resulting in a very rigid "custom" tray that forms the perfect base for the impression. Ideally this is done before the preparation. Finally the appli-

cation of a light body material enables precise and detailed reproduction. Since the injection materials are extremely elastic and the wafer leaves sufficient space, easy removal is guaranteed. Also, the rough surface of the wafer ensures that the light-bodied injection materials bond properly to the putty. Impressions with the highest possible precision will be obtained.

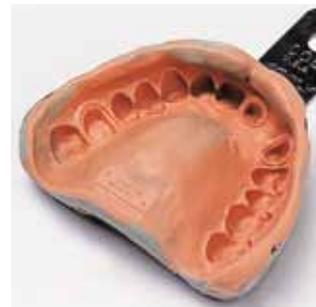
Additional recommendations

If you select Exaflex Putty or Exafast Putty for the first impression, GC recommends that you use a perforated impression tray. Alternatively, if you decide to choose Exajet, GC recommends that you use a non-perforated tray with adhesive. GC also recommends that you should use a light-bodied material

such as Examix NDS, Exafast NDS or Exaflex Injection, when taking your final impression to ensure that it is as accurate as possible.



Impression Separation Wafer



Equal layer of injection material



Perfect reproduction of mouth situation

The 'two materials, one step' technique

Also known as the double impression technique, this procedure is faster than the 'two materials, two steps technique', but it is more difficult to achieve a precise impression. To obtain the best results it is crucial that the viscosity's of the two materials are as close as possible to each other.



Injection material pushed away

Problems

If a too light bodied wash material is used in combination with a too viscous tray material, such as a putty, it will be pushed away, resulting in a lack of detail reproduction in the cervical area of the impression and possibly distortions over the entire surface. The ideal solution is

to use materials with perfectly balanced viscosities and good detail reproduction.



Correct margin?

The GC solution

GC provides the ideal solution with Examix NDS Monophase or Exajet, two materials with a viscosity adapted to the lighter-bodied Exa Injection or Regular materials.

Any combination of these materials is able to offer the required level of pressure build-up without jeopardising detail reproduction.

Additional recommendations

When using Examix NDS Monophase or Exajet, a non-perforated tray should be selected together with an appropriate adhesive. If the patient's mouth is completely dry, an injection material is recommended, but if not possible, use the Exa Regular viscosity. The injection type of material should also be

used when making an impression for a large span bridge since it has a longer working time.



Perfect adapted viscosity's



Perfect model, result of a perfect impression

The 'one material, one step' technique

Also referred to as the monophase technique this method involves applying into the impression tray an impression material that gives sufficient pressure build-up during the impression taking, whilst at the same time the dentist applies the same material by means of a syringe to the treatment area

of the patient's mouth. The base material in the impression tray is then set in the mouth while pressure is applied to ensure that an accurate impression is achieved. This technique requires a material that can provide both a high degree of reproduction and enough pressure build-up.

Problems

The materials most commonly used with this technique are polyethers. Despite producing excellent results, polyethers discharge a pungent odour and have a bitter taste, which can be very unpleasant for the patient. Also, being rather inelastic, these materials can make it

difficult to remove the gypsum model after pouring, so increasing the risk of damage to the working model. Experience will tell if the so called 'softer versions' will solve this problem.



Lack of detail reproduction



Correct margin?

The GC solution

GC recommends that an addition-cured silicone material such as Examix NDS or Exafast NDS Monophase be used. If this material is chosen, then it is extremely important that it is used in combination with a non-perforated tray so that sufficient pressure is provided during impression taking.

Ideally, a custom-made tray should be created and always use an adhesive.



Use a non-perforated tray for this technique



Non-perforated tray



Universal Adhesive

GC Impression Materials

GC EXAMIX NDS

A-Silicone Impression Materials in Cartridges



Examix NDS

represents a family of thixotropic and hydrophilic impression materials, supplied in cartridges, which may be used for all popular impression techniques. Being thixotropic, Examix NDS is highly fluid under pressure and remains stable once in position. Excellent hydrophilic properties provide extra wettability and detailed reproduction. Snap-set properties, together with extended working time, make Examix NDS very easy to use. But this is not all; the hydrogen scavenger formulation of Examix NDS eliminates the risk of air bubbles and allows immediate pouring with gypsum.

Advantages

- Cartridge delivery system for homogeneous, bubble-free mixing and no problems from crossover contamination.
- Hydrophilic and thixotropic with uniform flow properties ensure accurate reproduction of detail.
- High degree of elasticity, excellent tear resistance and good dimensional stability ensures that the perfect impression can be made.
- Immediate pouring with gypsum.
- Excellent adhesion to all other GC A-silicone impression materials.

GC Examix NDS in combination with other GC products

Technique	Injection	Regular	Monophase
Two Materials, Two Steps	As wash material with Exajet Fast, Exafast Putty or Exaflex Putty		
Two Materials, One Step	As wash material with Examix NDS Monophase	As wash material with Exajet Normal or Exaflex Putty	In combination with Examix NDS Injection
One Material One Step			Examix NDS Monophase

GC EXAFAST NDS AND GC EXAFAST PUTTY

Fast setting A-Silicone Impression Materials



Exafast NDS

represents a family of A-silicone impression materials, developed by GC, to provide high-quality, accurate and consistent dental impressions, very rapidly. In fact, Exafast NDS allows you to produce very smooth and highly precise impressions in only around 2 minutes, thus increasing your productivity and maximising the comfort of your patients. Exafast Putty is an extremely fast setting putty material ideally for use in the ISW technique. In combination with the other Exafast NDS materials it's working time of 45 seconds and setting time of 2 minutes 15 seconds offers you the perfect combination of speed and precision.

Advantages

- The rapid setting time of the impression material reduces the risk of distortion due to movement during setting and is more acceptable to patients.
- Cartridge delivery system for homogeneous, bubble free mixing and no problems from crossover contamination.
- Hydrophilic and thixotropic with uniform flow properties ensure accurate reproduction of detail.
- High degree of elasticity, excellent tear resistance and good dimensional stability ensures that the perfect impression can be made.
- Immediate pouring with gypsum.

GC Exafast in combination with other GC products

Technique	Injection	Regular	Monophase	Putty
Two Materials, Two Steps	As wash material with Exajet Fast, Exafast Putty or Exaflex Putty			In combination with Examix NDS, Exafast NDS or Exaflex Injection
Two Materials, One Step	As wash material with Exafast NDS Monophase	As wash material with Exajet Fast	In combination with Exafast NDS Injection	
One Material One Step			Exafast NDS Monophase	

GC Impression Materials

GC EXAFLEX

A-Silicone Impression Material



Exaflex

represents a family of hand-mixable A-silicone impression materials with exceptional hydrophilic properties ideal for use with all the popular impression techniques.

Advantages

- Exaflex is easy to mix and extremely stable. It also has excellent affinity with modelling stone materials making it an ideal partner for dental impressions.
- The high level of elasticity and optimal thixotropic flow properties of Exaflex ensure that dental impressions are made to the highest level of precision.
- The extended working time provided with Exaflex enables you to complete a dental impression without the pressure of time constraints.
- Immediate pouring with gypsum.

GC EXAJET

A-Silicone Impression Material in Foil Pouches



Exajet

is the world's first impression material specially designed to work as a complete system with GC impression trays and the Exaflex, Examix NDS and Exafast NDS materials. A heavy body tray material available in a normal and a fast setting version, Exajet also comes in handy self-activating foil pouches that fit all modern dynamic mixing units so leaving no mess.

Advantages

- Mixing is simple, bubble-free and produces a consistent texture. If using the normal version, its setting time and consistency is ideal for the 'two materials, one step' technique. Alternatively, if using the fast setting version, the setting time is perfect for use in the 'two materials, two step' technique especially with an Impression Separation Wafer (ISW).
- A high degree of elasticity enables easy removal of the impression from the mouth and easy removal of the gypsum model from the impression so reducing the risk of breakage.
- Since the foil pouches are activated automatically, there is no need for cutting and no cross-contamination.
- The Exajet cartridge fits all standard-mixing machines.

GC Exaflex in combination with other GC products

Technique	Injection	Regular	Putty
Two Materials, Two Steps	As wash material with Exajet Fast, Exafast Putty or Exaflex Putty		In combination with Examix NDS or Exafast NDS Injection
Two Materials, One Step		As wash material with Exajet Normal or Exaflex Putty	In combination with Examix NDS Regular
One Materials One Step			

GC Exajet in combination with other GC products

Technique	Normal Set	Fast Set
Two Materials, Two Steps		In combination with Examix NDS, Exafast NDS or Exaflex Injection
Two Materials, One Step	In combination with Examix NDS or Exaflex Regular	

Impressions Materials

from GC

	Viscosity	Working time	Setting time	Minimum time in the mouth
GC Examix NDS	Injection	2'15"	4'00"	4'00"
		1'00"	1'45"	1'30"
	Regular	2'00"	4'00"	4'00"
		1'15"	2'15"	1'30"
Monophase	2'00"	4'00"	4'00"	
	1'20"	2'15"	1'30"	
GC Exafast NDS	Putty	45"	2'15"	2'15"
GC Exajet	Normal	2'00"	4'00"	3'00"
	Fast	1'30"	3'15"	2'30"
GC Exaflex	Injection	2'15"	4'00"	4'00"
	Regular	1'45"	4'00"	4'00"
	Putty	1'00"	4'00"	4'00"

All working and setting times measured at 23°C
 All other physical properties according to ISO 4823:1993



Packages

GC Examix NDS and
 GC Exafast NDS
 Refill:
 2 cartridges, 48 ml each
 6 mixing tips II, size S, L or LL
 depending on the viscosity

GC Exaflex and GC Exafast
 Putty
 1-1 Pack.:
 base and catalyst, 500 g each
 5-5 Pack.
 5 x base and catalyst,
 500 g each

GC Exaflex
 1-1 Pack.:
 base and catalyst, 74 ml each

20-20 Big Pack.:
 20 x base and catalyst,
 74 ml each

GC Exajet Normal & Fast
 Intro pack.:
 foil pouches base 300 ml
 and catalyst 62 ml
 Cartridge
 10 Dynamic mixing tips

Refill:
 2 foil pouches each of base
 300 ml and catalyst 62 ml
 Clinic Pack.:
 6 foil pouches each of base
 300 ml and catalyst 62 ml

Accessories:
 cartridge
 50 dynamic mixing tips

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