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The Resurgence of Triturated Materials, Supplemental Information

Triturated Material Brands

Important research questions that arose during CR's recent evaluation of triturators were:

1. What materials are available in capsule form?

2. Can any triturator be used with any material?

In an attempt to answer these questions, CR researchers compiled information on encapsulated materials from manufacturer websites, distributor websites, dental catalogs, instructions for use, and other postings in the public space. The accuracy of the following information is dependent on the accuracy of the information provided by others.

The following tables do not claim to be complete. CR made no attempt to identify every material brand on the global market or review the product offerings of every dental company. However, sufficient materials were reviewed to provide an accurate assessment of the state of triturated materials.

BrandCompanyChemistryPrimary IndicationsCureRecommended TrituresTritureSpeedDurelon3MCarboxylateLuting cement, linerSelf-cureRotoMix, Capmix8,10 se4300 rpmKetac Bond3MGlass ionomerImage IndicationSelf-cureRotoMix, Capmix8,10 se4300 rpmKetac Cem3MGlass ionomerImage IndicationSelf-cureNot specified10 sec4300 rpmKetac Fil Plus3MGlass ionomerRestorative, build-up, linerSelf-cureRotoMix, Capmix8,10 se4300 rpmKetac Silver3MGlass ionomerRestorative, build-up, linerSelf-cureRotoMix, Capmix8,10 seAstor specifiedKetac Silver3MMetal hybrid glass ionomerRestorative, build-up, linerSelf-cureRotoMix, Capmix8,10 seNot specifiedKetac Universal3MMetal hybrid glass ionomerRestorative, build-up, linerSelf-cureRotoMix, Capmix8,10 seNot specifiedFotac Fil Quick3MMetal hybrid glass ionomerRestorative, build-up, liner, self-cureSelf-cureRotoMix, Capmix8,10 seNot specifiedPhotac Fil Quick3MMetal hybrid glass ionomerRestorative, build-up, liner, self-cureRotoMix, Capmix8,10 seNot specifiedRotoAr Marc3MResin hybrid glass ionomerRestorative, build-up, liner, self-cureSelf-cureRotoMix, Capmix8,10 seNot specifiedRotoAr Fil Quick3MResin hybri
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Ketac Molar / Ketac MolarSMGassionomeRestorative, build-up, lowSelf-cerRestorAtive, comparingSelf-cer
Ketac SilverSMMetal hybrid glass ionomeRestorative, build-upSelf-curRotoMix, Capmix7-15 scNot specifiedKetac Universal3MGlass ionomerRestorative, build-up, liner, sealaSelf-curRotoMix, Capmix8,10 scNot specifiedPhotac Fil Quick3MResin hybrid glass ionomerRestorativeDual-curRotoMix, Capmix7-15 scNot specifiedRelyx Unicem3MResin hybrid glass ionomerLuting cementDual-curRotoMix, Capmix10,15 scHigh speedCalibra BioDentsply SimaResin hybrid glass ionomerLuting cementSelf-curNot specified8 sec400-500 RPM
Ketac UniversalSMGassi sourceRestoration (and source)Self-ceRestoration (and source)Restoration
Photac Fil Quick 3M Resin hybrid glass ionome Restorative Dual-cure RotoMix, Capmix 7-15 cs Not specified Relyx Unicem 3M Resin hybrid glass ionome Luting cement Dual-cure RotoMix, Capmix 10, 15 cs High specified Calibra Bio Dentspl Sima Resin hybrid glass ionome Luting cement Self-cure Not specified 8 sec 400-500 RPM
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Calibra Bio Dentsply Sirona Resin hybrid glass ionomer Luting cement Self-cure Not specified 8 sec 4000–5000 RPM
ChemFil Rock Dentsply Sirona Zinc reinforced glass ionomer Restorative, build-up Self-cure Not specified 15 sec 4000–4500 RPM
IRMDentsply SironaPolymer hybrid zinc oxideIntermediate restorative, base, linerSelf-cureVarious8–12 secHigh speed
Surefil one Dentsply Sirona Resin hybrid glass ionomer Restorative Dual-cure Not specified 10 sec 4200–5000 RPM
EQUIA Forte Fil / Forte HT FilGC AmericaResin hybrid glass ionomerRestorativeSelf-cureNot specified10 sec4000 RPM
GC Fuji I Capsule GC America Glass ionomer Luting cement Self-cure Not specified 10 sec 4000 RPM
GC Fuji II Capsule GC America Glass ionomer Restorative Self-cure Not specified 10 sec +/- 4000 RPM
GC Fuji II LC Capsule GC America Resin hybrid glass ionomer Restorative Dual-cure Not specified 10 Sec 4000 RPM
GC Fuji IX GP GC America Glass ionomer Build-up, intermediate restorative Self-cure Not specified 10 sec 4000 RPM
GC Fuji IX GP EXTRA GC America Glass ionomer Build-up, intermediate restorative Self-cure Not specified 10 sec 4000 RPM
GC Fuji IX GP FAST GC America Glass ionomer Build-up, intermediate restorative Self-cure Not specified 10 sec 4000 RPM
GC Fuji ORTHO LC Capsule GC America Resin hybrid glass ionomer Ortho band luting cement Light-cure Not specified 10 sec +/- 4000 RPM
GC Fuji PLUS Capsule GC America Resin hybrid glass ionomer Luting cement Self-cure Not specified 10 sec 4000 RPM
GC Fuji TRIAGE Capsule GC America Glass ionomer Sealant, intermediate restorative Self-cure Not specified 10 sec +/- 4000 RPM
G-CEM Capsule GC America Resin hybrid glass ionomer Luting cement Self-cure Various 10 sec 4000, 4500+
Miracle Mix GC America Metal reinforced glass ionomer Build-up, intermediate restorative Self-cure Not specified 10 sec 4000 RPM
Maxima Resin Modified Glass Ionomer CementHenry ScheinResin hybrid glass ionomerLuting cementSelf-cureCapsule Mixer10 sec≈4000 RPM
Maxima RGI Glass Ionomer Henry Schein Glass ionomer Restorative, build-up, liner Self-cure
riva luting SDI Glass ionomer Luting cement Self-cure Ultramat 2, or high speed 8–15 sec High speed
riva luting plus SDI Resin hybrid glass ionomer Luting cement Self-cure Ultramat 2, or high speed 10 sec 4000–4800 RPM
riva self cure / self cure HV SDI Resin hybrid glass ionomer Restorative, build-up, liner Self-cure Ultramat 2, or high speed 10 sec 4000–4800 RPM
seT SDI Resin hybrid glass ionomer Luting cement Dual-cure Ultramat 2, or high speed 10 sec 4000–4800 RPM
GlasIonomer Cement CX-Plus CAPSULEShofuGlass ionomerLuting cementSelf-cureHigh speed10 sec4000+ RPM
GlasIonomer FX-II CAPSULE Shofu Glass ionomer Restorative, build-up, liner Self-cure High speed 10 sec 4000+ RPM
Ionolux Voco Resin hybrid glass ionomer Restorative, build-up, liner Light-cure High speed 10 sec ≈4000 RPM
IonoStar Molar Voco Glass ionomer Restorative, build-up, liner Self-cure High speed 10–15 sec ≈4000 RPM
IonoStar Plus Voco Glass ionomer Restorative, build-up, liner Self-cure High speed 10 sec ≈4000 RPM
Meron AC Voco Glass ionomer Luting cement Self-cure High speed 10 sec ≈4000 RPM
Meron Plus AC Voco Resin hybrid glass ionomer Luting cement Self-cure High speed 10 sec ≈4000 RPM

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The Resurgence of Triturated Materials (Supplemental Information)

Triturated Material Brands (Continued)

Amalgams					
Brand	Company	Recommended Triturator	Time	Speed	
Dispersalloy	Dentsply Sirona	Various	6–17 sec	3700-4700 RPM	
Megalloy EZ	Dentsply Sirona	Various	6–16 sec	3800-4700 RPM	
Type-T Spherical	DMG	Various	5–12 sec	4200 RPM	
Premium Dispersed Phase	DMG	Various	5–12 sec	4200 RPM	
Royale	DMG				
Essentials	Essentials Healthcare Products				
Ultra	Goldsmith & Revere				
Stratosphere	Henry Schein				
Troposphere	Henry Schein				
Ionosphere	Henry Schein				
Valiant	Ivoclar Vivadent	Silamat S6, others	6–10 sec	4500 RPM	
Valiant Ph.D. / XT / EXT	Ivoclar Vivadent	Silamat S6, others	6–10 sec	4500 RPM	
Tytin	Kerr	Various	5–8.5 sec	4000-4600 RPM	
Tytin FC	Kerr	Various	5–11 sec	3800-4600 RPM	
Contour	Kerr	Various	6–11.5 sec	4000-4600 RPM	
Dental Amalgam Alloy	Quala	Various	6–16 sec	Medium–High	
gs-80	SDI	Ultramat 2	8 ± 1 sec	4550/4600 RPM	
lojic+	SDI	Ultramat 2	6 ± 1 sec	4550/4600 RPM	
permite	SDI	Ultramat 2	8 ± 1 sec	4550/4600 RPM	
Septalloy NG-50	Septodent				
Spherodon+	Silmet				
Spherodon-M	Silmet				
Nogama	Silmet				
Original D	Wykle				

Answers to the Research Questions

1. What materials are available in capsule form?

- Amalgam and glass ionomer are the main types of triturated materials. Identified exceptions include IRM (*Dentsply Sirona*) polymer reinforced zinc oxide and Durelon (*3M*) carboxylate.
- Amalgam is still widely used, although not frequently. It was noted that numerous amalgam brands were readily available through distributors, but not in online manufacturer stores or product listings.
- New glass ionomer formulations are the driving force behind the resurgence of triturated materials. They include conventional glass ionomers, resinmodified glass ionomers (*hybrids*), and novel components to provide specific benefits (*ion release, antimicrobials, light cure activators, etc.*). They are available in a variety of viscosities to facilitate handling and application as luting cements, direct restoratives, core build-ups, liners, sealants, etc.

2. Can any triturator be used with any material?

- Yes, within reason. Any modern high-speed triturator that will safely accommodate the capsule and has an adjustable timer should be compatible with current encapsulated materials.
- A new triturator should be considered if your current triturator has excessive noise or vibration, can't be adjusted to the appropriate mixing time, damages the nozzle of the capsule, won't hold the capsule securely, is difficult to use, or won't create a consistent mixture.

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