

Preheating in general

You can start the conventional or speed preheating process after 25 minutes at the earliest, and at any later time within 24 hours for conventional preheating and up to one week for speed preheating. For speed preheating always set up only one muffle with 160g/220g or two muffles with 110g at once, the next muffle 30 min. later. Lower set-up temperatures, longer standing until setting up or conventional preheating do not alter the expansion of the investment. **Do not preheat implant abutments, telescopic and tapered crowns of pattern resin with speed casting**, preheat conventional or set up at a maximum of 500°C with a hold time of 40 minutes, then preheat to the final temperature. Coat Straumann resin implants with a thin wax layer as far as the edge. Set up at a maximum of 300°C with a hold time of 50 minutes, then preheat conventionally to the final temperature. For these expensive and high-quality work you should not take any risk!

If you will use over 65% concentrate only a conventional or soft-speed preheating is possible (max. 500°C, hold 40 minutes, then final temperature).

If you have a furnace with free visible heating filaments please only make a soft-speed preheating (start at 500°C, hold 40 minutes, then preheat to the final temperature). Most preheating furnaces have placed the heating filaments in shamrock. Only in this case you can preheat speed.

Preheating casting muffles as quickly as possible

You can put one size 3 muffle (up to 220 g) with pure wax models and proportion of concentrate up to 65% into the hot furnace but note the temperatures for the corresponding muffle sizes:

- ⇒ size 3 muffles up to 850°C → 50 min. hold time.
- ⇒ size 6 muffles up to 600°C → 45 min. hold time, then final temperature → 40 min. hold time.

at higher casting temperatures, set up muffles at the above temperatures and

- ⇒ hold size 3 muffles for 30 min., then preheat the furnace to the final temperature → hold 30 min.
- ⇒ hold size 6 muffles for 45 min., then preheat the furnace to the final temperature → hold 45 min.

Preheating casting muffles conventionally

Muffle size	1 x	3 x	6 x	9 x
Climb time	6° - 9° C per minute (starting in cold furnace)			
1st hold time 300°C	40 min.	60 min.	70 min.	80 min.
Final temperature 680° - 1000°C	20 min.	30 min.	40 min.	50 min.

If the furnace is full, the hold times should be extended by 10 minutes.

Special features and tips

Casting the muffle is not possible (defect in casting machine, no metal etc.): If casting is possible within the next 3 hours, continue to keep the muffle at the end temperature. If this is not the case, switch the furnace off immediately and let the muffle cool in the furnace. Do not remove the muffle from the hot furnace → Muffle cracks! Store the muffle in a dry place and preheat and cast again conventionally. On no account wet the muffle beforehand.

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PrimaVest® - DUO

Phosphate-bonded investment for
pressable ceramics and casting technique

V 2.1 b
160 g

Thank you for purchasing a premium product for highest demands in all applications developed and produced by Weber Dental Manufaktur in Switzerland.

Areas of use: All pressable ceramics, especially lithium disilicate ceramics (Amber®Press*, e.max**). Casting technique: crowns, bridges, inlays, telescopes, tapered crowns, bar, bolts of all precious metals and NPM (chrome-cobalt) alloys. Not suitable for Celtra®Press! Please use PrimaVest®-PRESS, -PRESS-2, PRESS Universal or -CLASSIC!

Muffle systems: Investment without a muffle ring is also possible, but use the same silicone ring from one manufacturer otherwise different expansion values are possible. Use only muffle systems that allow a constant setting expansion of the investment. In our experience, you will get the best and most constant fit with metal rings and fleece. Use 1 mm thick mineral fleece. Use two fleece liners with muffle sizes 6+9. Do not moisten the fleece. Caution when spraying the base mould/rings with mould release agents → incompatibility.

CAD/CAM: Please use for CAD/CAM no material of 100% plastic, also no objects printed by 3-D printer with pure plastic. The muffles will crack when preheating. Both should have a minimum wax part of 30% and a maximum part of 70% plastic. Therefore only a conventional preheating of 1 hour holding temperature of 300°C is possible. If you will use 100% wax objects a speed preheating or at least a soft speed preheating (start at 500°C, hold 40 min. then go to final temperature) is possible.

Storage and processing temperature: Most important for constant results in fitting and surface is the use of a **clean** mixing beaker and a constant temperature of powder, liquids and mixing beaker. Our table is based on a processing temperature of 22°-23°C. Higher temperatures above 24°C will increase the setting expansion and reduce the processing time. In this case you have to reduce the mixing time by 30 – 60 seconds and the liquid concentration too (1 ml per degree) to get a lower setting expansion and have more processing time. Do not process below 20°C. The consequence is poorer cast and press-ceramic surfaces with a lower setting expansion, this means smaller fittings. Therefore you have to increase the liquid concentration and mixing time by 30 – 60 seconds. I suggest to buy a mini fridge with cooling and heating function if you have great differences in room temperature to keep the investment powder, the liquids and beaker at a constant temperature of 22°-23°C. The mix concentrate is sensitive to frost. Keep stock of the mix concentrate light-protected.

Waxes: Use only 100% organic wax for press ceramics and in connection with pattern resin.

Mixing: Measure the concentrate and demineralised water exactly in our measuring cylinder and let it flow fully into the mixing beaker. Use a separate gypsum-free and clean mixing beaker for phosphate investment material. Place this beaker on an electronic scale, press tare, add the powder (with the measuring scoop weighed exactly to the gramme), **mix well with a spatula and mix immediately in a vacuum**, then invest.

Mixing time: Mix for 3 minutes in a vacuum at a processing temperature of 23°C - 24°C (3,5 min. at 22°C) with a very high mixing speed of at least 400 rpm, better 450 rpm or higher. Important for obtaining best surfaces of the casting! **The best and most consistent results are obtained with a constant storage temperature of 22 - 24 °C for powder and liquids.**

Filling: Set the vibrator to the lowest setting and fill the muffle ring with investment material. Do not shake any further.

Processing range: Approx. 6 minutes at 22°C.

Pressure investment: Possible, but only with pure wax models the expansion is the same. We recommend pressureless investment.

Curing time: 25 minutes at least. Place the muffle in a vibration-free place and do not touch, move etc. during the curing period.

Demoulding the muffle and setting up: Remove muffle mould and silicone ring, if applicable, only after the entire curing time. Remove the muffle mould with a slight rotating movement. **Start cutting with the muffle top dry or roughen it with a knife. Very important with speed casting, otherwise parts of the muffle top chip off.** Do not let the muffle come in contact with water.

Preheating: See backside! Always place the muffle with the casting funnel facing downward and in the middle of the ribbed base plate. No direct contact with the furnace wall.

Other: Important for casting metal parts: investment material contains no chlorides!

Safety instructions: Investment materials contain quartz. Avoid production of dust and do not inhale dust. Use wet methods of dust removal or an approved extractor. Ammonia escapes during preheating, divert furnace gases to the open air. Do not open the furnace doors during preheating as the waxes can burn unexpectedly and produce flames. Particularly with speed casting, never open the furnace doors for the first 15 minutes.

Trade marks of other companies: *Amber®Press, HASS Corp., South Korea, ** IPS e.max®, **** IPS Empress Esthetic® ETC, Ivoclar Vivadent AG, FL-Schaan, *** Creation® CP, Creation Willi Geller International GmbH, A-Meiningen, Celtra®Press, Dentsply Sirona

Mixing values for pressable ceramics with PrimaVest®– DUO

Note: 110g/220 g powder are mixed with 22 ml/44 ml liquid (concentrate Universal (clear) /dem. water (green)). For speed preheating please set up at max. 850°C and hold for 60 min.

Muffle size →	110 g = 22 ml 2 – 3 fl. inlays, crowns, veneers	220 g = 44 ml 2 – 3 fl. inlays, crowns, veneers
↓ Pressable ceramics		
Lithium-disilicate Amber Press* (e.max**)	5 (5) ml conc. (clear) 17 (17) ml dem. water	10 (9) ml conc. (clear) 34 (35) ml dem. water
Pressing temperature 915°C – 930°C		
Deep melting press ceramics	8 ml conc. (clear)	16 ml conc. (clear)
Pressing temperature up to 960°C	14 ml dem. water	28 ml dem. water
High melting press ceramics	9 ml conc. (clear)	18 ml conc. (clear)
Pressing temperature up to 1050°C (Creation CP***)	13 ml dem. water	26 ml dem. water
High melting press ceramics	10 ml conc. (clear)	20 ml conc. (clear)
Pressing temperature up to 1080 °C (Empress Esthetic ETC****)	12 ml dem. water	24 ml dem. water

Only for central inlays reduce concentrate by 2 ml/110 g or 4 ml/220 g.

Mixing values for the casting technique with PrimaVest®– DUO

Note: 160 g powder are mixed with 32 ml liquid (concentrate Spezial PLUS (turquoise) /dem. water. For gold casting with wax we recommend to use the concentrate Universal (clear). All figures for muffle size 3 with 160 g powder and 22°C processing temperature. For muffle size 6 you have to reduce concentrate by 1,5 ml to 160 g powder.

Expansion is controlled by the ratio of mix concentrate to demineralised water, more concentrate = greater expansion/ less concentrate = lower expansion. For telescope crowns we use acrylic pattern resin.

Objects →	Wax crowns wax-dipped dies 2 + 3fl. inlay)	Telescope crowns parallel abutments in resin	Telescope crowns parallel abutments in wax	Tapered crowns 6 degrees abutments in resin
Investment type →	with or without pressure	without pressure	with/without pressure	without pressure
↓ Alloy type				
High gold content yellow gold alloy (70-76% Au)	8 ml conc. (turqu.)	8 ml conc. (turqu.)	7 ml conc. (turqu.)	5 ml conc. (turqu.) 27 ml dem. water
Slightly reduced yellow gold alloy (55-65% Au)	24 ml dem. water or alternatively 10 ml conc. (clear) 22 ml dem. water	24 ml dem. water or alternatively: 13 ml conc. (clear) 19 ml dem. water	25 ml dem. water or alternatively: 9 ml conc. (clear) 23 ml dem. water	
High gold content silver- coloured burn-on alloy (70-80% Au)	11 ml conc. (turqu.) 21 ml dem. water	11 ml conc. (turqu.) 21 ml dem. water	10 ml conc. (turqu.) 22 ml dem. water	8 ml conc. (turqu.) 24 ml dem. water
High gold content yellow- coloured burn-on alloy (approx. 85% Au, 11% Pt)	or alternatively: 13 ml conc. (clear) 19 ml dem. water	or alternatively: 16 ml conc. (clear) 16 ml dem. water	or alternatively: 12 ml conc. (clear) 20 ml dem. water	
Reduced burn-on alloy (50-60% Au)				
Palladium base alloy				
NPM alloy (Cr-Co / Cr-Ni leg.)	14 ml conc. (turqu.) 18 ml dem. water	15 ml conc. (turqu.)* 17 ml dem. water	13 ml conc. (turqu.) 19 ml dem. water	12 ml conc. (turqu.) 20 ml dem. water
NPM alloy (Cr-Co with 5-10% Wolfram)	15 ml conc. (turqu.) 17 ml dem. water	16 ml conc. (turqu.)* 16 ml dem. water	14 ml conc. (turqu.) 18 ml dem. water	13 ml conc. (turqu.) 19 ml dem. water

*Especially important here : use of a clean mixing beaker ! Residues can be easily removed with citric acid.