

Rapicast Non Precious Bonding Investment

Instructions for Use

INTRODUCTION

Rapicast Non Precious Bonding Investment is a fine grain phosphate bonded investment specifically developed to possess the additional expansion required when casting non-precious bonding alloys. By adjusting the expansion liquid to water ratio ideal fits can also be obtained with precious and semi-precious alloys. It contains no graphite and its high temperature strength makes it suitable for ringless casting as well as for metal rings. In accordance with EN ISO 15912:2006, Rapicast Non Precious Bonding Investment is a type 1 product suitable for both Class 1 and Class 2 burn-out techniques.

WARNING



This material contains silica that may cause lung injury (silicosis or cancer) if inhaled. Avoid inhalation of dust and wear a suitable dust mask.



Read health & safety section of these directions and request a copy of the Safety Data Sheet before use.

INDICATIONS

For the production of moulds for dental castings for:-

1. Non precious bonding alloys.
2. Palladium based bonding alloys.
3. High and medium gold content bonding alloys.
4. Inlays, onlays and full cast crowns.

PHYSICAL PROPERTIES

Mixing ratio:

60g powder - 15ml liquid (4g powder- 1ml liquid)

Mixing liquid: Schottlander Expansion liquid or High Expansion liquid

Liquid: water ratio - as below

Mixing time under vacuum - 60 seconds

Working time - 5-7 minutes

Initial setting time - 9-12 minutes

Time before commencing pre-heat - 15 minutes Setting

expansion > 1.80% approx

Storage temperature - 10-22°C

Working temperature - 17-22°C

PROPORTIONS

The liquid/powder ratio is 15 ml: 60g (4g to 1ml) The recommended liquid concentrations are as follows:-

Description	Liquid concentration
Non-precious alloys	90%
Semi precious ceramic alloys	75%
Precious ceramic alloys	75%
Full coverage gold crowns	60%
Posts, cores, inlays, onlays and conical crowns	50-55%

Concentration	Sachet 1 x 60g	
	Expansion Liquid (ml)*	Water (ml)
100	15	-
95	14	1
90	13.5	1.5
85	13	2
80	12	3
75	11	4
70	10.5	4.5
65	10	5
60	9	6
55	8	7
50	7.5	7.5

**Please note: when a metal ring casting system is utilised, Schottlander High Expansion Liquid (not Schottlander Expansion Liquid) should be used at the above concentrations to achieve the correct fit.*

MIXING AND APPLICATION

It is recommended that both powder and liquid are stored and used at a temperature of 17-22°C since this will give the most consistent results. Pour the Schottlander Expansion liquid or High Expansion liquid (suitably diluted) into a damp mixing bowl, add the powder and incorporate it rapidly by hand, then spatulate under vacuum for 1 minute using a mechanical mixer. After mixing fill the ring using light or no vibration. Leave on the bench for 15 minutes to set.

USE OF PRESSURE

Investing under pressure is not necessary due to the extremely homogeneous grain distribution. If investing under pressure is preferred, the pressure should be released after 15 minutes so that it does not impede the setting expansion.

ATTACHING SPRUES

For crowns and bridges the best casting channels are a double curve or a sprue wax coil with a maximum diameter of 3.5mm. The diameter of joins with the cast object must be Ø 2.0 mm. The distance between the cast object and the double curve or coil should be 3.0 - 3.5 mm depending on the diameter of the sprue wax used. The cast objects should be arranged in the muffle so that they are never in the centre of heat. The thinner parts (i.e. the edges of the crowns) should point towards the wall of the muffle and be at least 5.0 mm away from its edge and with the thicker parts further away. Preferably use muffle sizes 3 and 6.

WORKING AND SETTING TIME

Working time from start of mix at 21°C approx 5-7 minutes.
Initial setting time on bench approx 9-12 minutes.

DRYING AND HEATING THE MOULD

Speed Casting

Rapicast Non Precious Bonding Investment gives the best results when using the speed casting technique. After the ring has bench set for 15 minutes trim the surface to remove the skin and place the mould in a hot furnace at 850°C with the sprue hole down. In the case of furnaces with floor heating, make sure that there is sufficient clearance (approximately 1cm) between the ring and the bottom of the furnace. Ideally use a grooved tray or crown stand.

Rings are ready to cast after heat soaking for 45 – 60 minutes, depending on the size of the ring and the recommended temperature for specific alloys. When ready to cast non precious alloys keep rings in the burnout furnace until alloy has melted. For high palladium alloys allow to cool for 2 minutes and for high gold alloys 3 minutes before casting.

Notes

1. When Speed Casting the optimum fit and surface quality are best achieved using patterns fabricated entirely from wax. If patterns fabricated from resin are used then use the two stage Burn-out technique.
2. If a pre-heating temperature other than 850°C is required the temperature should be adjusted 15 minutes after placing the ring in the furnace. Refer to directions for alloy concerned.

Caution! During the first 15 minutes the furnace fan and extractor should remain switched off and the furnace door should not be opened because of the risk of instant combustion. Fume cabinet extraction should be used when rings are placed into the furnace.

STEP HEATING BURNOUT

(recommended for resin patterns, implant plastic sleeves and other non-wax patterns)

For Step Heating (two-stage) burnout, leave ring to bench set for one hour and then heat from cold to 290°C at 3°C per minute and hold this temperature one hour. Then raise to final casting temperature.

COOLING THE MOULD

Leave mould to cool to room temperature by itself.
Do not plunge into cold water immediately after casting.

PHYSICAL DATA

(at a temperature of 21°C and liquid at 75% concentration)

Proportion	The liquid/powder ratio is 15ml:60g
Working time at 21°C	5 minutes
Setting time on bench	15 minutes
Ready for burnout	15 minutes from first contact between powder and liquid
Setting expansion after 1 hour	Approximately 0.95
Thermal expansion (700-1000°C)	Approximately 1.1



HEALTH AND SAFETY

- Do not open the furnace during preheating as this may cause aggressive combustion.
- The preheating furnace should only be filled to half of its maximum capacity.
- Investments contain quartz. Do not inhale the dust! Risk of lung damage (silicosis, lung cancer). Recommendation: Wear a protective face mask, type FFP 2 EN 149:2001. Prevent the release of dust when opening the bag and filling the mixing bowl.
- Rinse the empty bag with water before crumpling it up.
- Always moisten any dust before removing it from the workplace.
- After casting and once the ring has completely cooled, place it in water until it is fully moistened to prevent dust when divesting.
- Use an extractor with a fine dust filter when sandblasting.

LOT NUMBERS

The lot number and date of manufacture are shown on the outside of all containers or on the printed sachets.

This product is specifically formulated for use in dentistry.

Rapicast is an internationally registered trademark of Davis Schottlander & Davis Limited.