

HARZ Labs
MATERIALS FOR 3D PRINTING

HARZ Labs

J-cast 42

Material Technical Data Sheet (TDS)

Version J42
9 November 2020

SECTION 1: DESCRIPTION AND APPLICATION

Jewelry cast resin is odorless resin developed especially for Jewelry market for casting of diverse metals and alloys. Zero ash content is achievable in appropriate selected burnout profile for the parts.

SECTION 2: MATERIAL PROPERTIES

2.1 Characteristics of liquid

Tested property	Standard/Method	Result (Metric)
Color	-	Transperent blue
Odour	-	Weak
Density	ASTM D1298	1.1±0.2 g/cm ³
Viscosity (25°C)	ASTM D2393	80±50 mPa·s

2.2 Processing recommendations

- Post curing process

The printed pieces should be rinsed with isopropyl alcohol (IPA) or immersed in ultrasonic bath filled with IPA for 30 sec, then manually washed with water followed by IPA. The washing cycles should be done until the parts will be free of liquid resin. Manual washing with soft paint brush could facilitate the cleaning process. After 3 cycles if the parts are still in resin it is desired to continue cleaning process in 5% detergent solution in order not to dissolve surface of printed part (negative defects could appear after investment casting). Afterwards, printed parts recommended to blow with compressed air and finally dried at 80oC for 30 minutes. Post curing in UV chambers under glycerol (in order to achieve better curing of printed parts surface) until the part will change color from blue to semitransparent (Fig.1, Fig.2).



Fig.1 Initial color of printed parts.



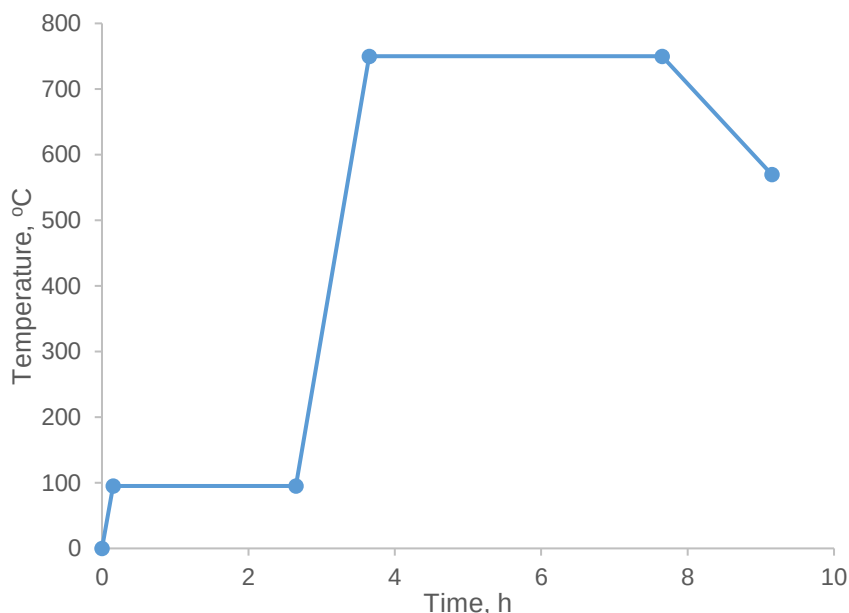
Fig.2 Post cured parts.

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- Investment casting recommendations

Casting materials	Silver, gold, various alloys
Recommended investments	Plasticcast, Prestige Oro, Prestige Optima
Mixing ratio investment: water	100:42
Boric acid	0.5-2% on total mixed mass
Investment funnel position	Upside
Ventilation during burnout	Strongly desired

Burnout profile depends on size and volume of casting parts. Huge parts require longer burnout profile. Below recommended burnout profile for rings-like parts.



Stage 1	0-95°C	Rising temperature up 95°C with maximum speed
Stage 2	95°C	2 h. water evaporation period
Stage 3	95°C-750 or 800 °C	Main burnout stage. Depending on the part volume, size, location on investment tree appropriate temperature, and duration should be selected. Starting point 4 h.
Stage 4	750°C – cast temperature	Decrease of temperature up to desired casting temperature

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