

R&R[®] Glass-Cast[™] Mold Materials

R&R GLASS-CAST mold materials have been successfully used for pate de verre, kiln-cast and crucible casting processes.

Mold Making

Mix 100 parts R&R GLASS-CAST powder to the appropriate parts water by weight (refer to table on page 2 for specific R&R GLASS-CAST products). Mix for 2-3 minutes. R&R recommends mechanical mixing to achieve the best mixing action. It is possible (but not required) to vacuum the mix until the investment rises and breaks to eliminate entrapped air before pouring around the pattern.

Pour the R&R GLASS-CAST mold material down the side of the flask or mold frame until the patterns are covered to an appropriate depth. This depth will vary depending on the size of glass casting and the strength of the mold material you use. It is possible (but not required) to vibrate or vacuum the mold to remove air bubbles, which may adhere to the patterns. This operation normally takes 1-1½ minutes. R&R recommends that the mold then sit a minimum of 1 hour after it has set, before moving onto pattern removal.

Pattern Removal

Re-usable patterns — after waiting a minimum of 1 hour, re-usable patterns can be physically removed from the mold.

Wax patterns — two methods of wax removal are commonly used: dry dewax and steam dewax. For dry dewaxing, place the mold into a kiln or furnace at a temperature of 300°F-350°F (149°C-177°C) and hold for 3-4 hours. For steam dewaxing, place the mold into the steam dewaxer. Steam dewax only for the time required to remove the wax and no longer. The amount of time required to dewax the molds will vary depending on the size of the mold. After steam dewaxing, it is recommended to immediately move to the curing of the mold.

Mold Curing

After the pattern is removed, place the mold into a kiln or furnace at a temperature of 300°F-350°F (149°C-177°C) and hold until the water is removed from the mold. The temperature of the mold can then be raised to desired casting temperature at a rate of 150°F-200°F (66°C-93°C) per hour.

Glass Application

Once the pattern has been removed, glass frit can be placed into the mold at any time during the process. The glass can then be heated at the same time as the mold. When crucible casting, it is important to have all water removed from the mold before casting. It is recommended that mold temperature be at least the desired annealing temperature of the glass.



R&R GLASS-CAST

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R&R[®] Glass-Cast[™]
mold material

R&R® Glass-Cast™ Mold Materials

	R&R® Glass-Cast™ 101 BANDUST™ investment	R&R® Glass-Cast™ 400 investment	R&R® Glass-Cast™ 910 investment	R&R® Glass-Cast™ 965 investment
Water/Powder Ratio	40/100	34/100	28/100	28/100
Pour Time	10-15 minutes	10-11 minutes	10-11 minutes	9-10 minutes
Set Time	<25 minutes	<20 minutes	14-17 minutes	11-13 minutes
Slump	4-5 inches	4½-5 inches	4-4¼ inches	2¾-3½ inches
Green Compressive Strength	400 psi	680 psi	1000 psi	700 psi
Post Fired Compressive Strength	40 psi	100 psi	150 psi	130 psi
Mixed Density	1.75 g/ml	1.82 g/ml	1.88 g/ml	1.87 g/ml
Permeability (Darcy)	0.045	0.036	0.020	0.050
Maximum Casting Temperature	1540°F (838°C)	1540°F (838°C)	1540°F (838°C)	1540°F (838°C)

US: Danger. May cause cancer by inhalation. Causes damage to lungs through prolonged or repeated exposure by inhalation. Contains crystalline silica. See SDS for more information.

EU: Danger. Causes damage to lungs through prolonged or repeated exposure. Contains respirable crystalline silica. See SDS for more information.

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