Title (en)

Investment and mould casting in carbon and organic aerogels

Title (de)

Fein- und Formguss in Kunststoff/Kohlenstoffaerogelen

Title (fr)

Moulage de précision et en châssis dans des aérogels organiques ou en carbone

Publication

EP 1036610 A1 20000920 (DE)

Application

EP 00104214 A 20000301

Priority

DE 19911847 A 19990317

Abstract (en)

Open-pored aerogel mold material is obtained by sol-gel polymerization e.g., resorcinol/formaldehyde with a polymerization catalyst such as ammonium or sodium carbonate, followed by complete or partial pyrolysis of the resultant aerogel. Fillers, e.g. aluminum oxide, titanium oxide, quartz, polystyrene particles, carbon or silicon carbide fibers can be added. Independent claims are also included for the following precision casting processes for metals or alloys: (a) a wax mold is coated with a sol of suitable composition and a catalyst and converted to a gel at a temperature below the melting point of the wax. The process is repeated to build up the mold, after which the gel is dried. The temperature is then raised to melt or burn out the wax; (b) a wax pattern is placed in a container which is then filled with the synthetic sol and heated to below the wax melting point. The resultant gel is dried and the temperature raised to melt or burn out the wax.

Abstract (de)

Gegenstand der Erfindung ist ein Formstoff für den Fein- und Formguss von Metallen oder Metall-Legierungen umfassend Kunststoff- und/oder Kohlenstoffaerogete sowie ein Verfahren zur Herstellung von entsprechenden Formstoffen. Der Formstoff umfasst hochporöse, offenporige Kunststoff- und/oder Kohlenstoffaerogele, erhältlich durch Sol-Gel-Polymerisation von organischen Kunststoffmaterialien gegebenenfalls gefolgt von teilweise oder vollständiger Pyrolyse des erhaltenen Kunststoffaerogels.

IPC 1-7

B22C 1/00; B22C 1/16

IPC 8 full level

B22C 1/00 (2006.01); **B22C 1/16** (2006.01)

CPC (source: EP US)

B22C 1/00 (2013.01 - EP US); **B22C 1/165** (2013.01 - EP US)

Citation (search report)

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