Combinatorial process for Bulk Metallic Glasses

OCR Number: OCR 6186

Rapid Development of BMG Alloys with High Formability

High-Throughput Characterization

\[ F \propto \frac{h}{S} \]

Compositional Library

- Gas Releasing Agents
- (GRAs)
- (GRAs) Si
- Steel

\[ F = \frac{1}{3} \int_{0}^{\eta(F)} \frac{1}{\eta} dF \]

Combinatorial Sputtering

Al
10-30%

Cu
30-60%

Zr
30-55%
High-Throughput Characterization of Formability

\[ F \propto \frac{h}{S} \]

A. Si Mold

B. BMG

C. 

~3000 compositions
**Mg-Cu-Y**

Best formability composition here: $\text{Mg}_{69}\text{Cu}_{21}\text{Y}_{10}$

Best formability composition reported: $\text{Mg}_{65}\text{Cu}_{25}\text{Y}_{10}$

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