Combinatorial process for Bulk Metallic Glasses

OCR Number: OCR 6186

Rapid Development of BMG Alloys with High Formability

High-Throughput Characterization

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

Combinatorial Sputtering

Al: 10-30 %

Cu: 30-60 %

Zr: 30-55 %
High-Throughput Characterization of Formability

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

A. P1 → Si Mold
  P2 ← BMG

B. ~3000 compositions

C. Si Mold
   MG Film
   P1
   P2
Mg-Cu-Y

Compositional mapping

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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