Combinatorial process for Bulk Metallic Glasses

OCR Number: OCR 6186

Rapid Development of BMG Alloys with High Formability

High-Throughput Characterization

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

a

Combinatorial Sputtering

b

Compositional Library

<table>
<thead>
<tr>
<th>Gas Releasing Agents</th>
<th>(GRAs)</th>
<th>(GRAs)</th>
<th>Si</th>
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</thead>
<tbody>
<tr>
<td>Steel</td>
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</table>

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.

C.

Si Mold

MG Film

~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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