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

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

Yale 5.0kV 5.2mm x120 SE(M) 4000x
Yale 5.0kV 0.1mm x35 SE(M) 1.00mm
Mg-Cu-Y

Best formability composition here: Mg_{69}Cu_{21}Y_{10}

Best formability composition reported: Mg_{65}Cu_{25}Y_{10}

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