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On the Thermodynamics, Kinetics, and Sub- $T_g$  Relaxations of Mg-Based Bulk Metallic Glasses

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	GFA	Thermodynamics	Kinetics	Mg <sub>65</sub> Cu <sub>25</sub> Y <sub>10</sub> DMA scan
Method	Casting	DSC	TMA	
Parameter	$d_{c}$	$\Delta G^{I-x}(T_g)$	D*	Sub-T <sub>g</sub> loss
	(mm)	(kJ/g-atom)		modulus shoulder
Mg <sub>59.5</sub> Cu <sub>22.9</sub> Ag <sub>6.6</sub> Gd <sub>11</sub>	27	2.25	26.4	MDSC scans —— 1. scan (as-cast)
$\mathrm{Mg}_{54}\mathrm{Cu}_{28}\mathrm{Ag}_{7}\mathrm{Y}_{11}$	16	2.53	22.2	2. scan (after slow cooling)
$\mathrm{Mg}_{61}\mathrm{Cu}_{28}\mathrm{Gd}_{11}$	12	2.31	21.0	offset evolves between 1. and 2. scan
$\mathrm{Mg}_{65}\mathrm{Cu}_{25}\mathrm{Y}_{10}$	4	2.51	20.1	300 320 340 360 380 400 420 T (K)
<ul> <li>→ Kinetics directly reflect the GFA: increased D* ⇔ increased d<sub>c</sub></li> <li>→ GFA of the Mg-based liquids mainly determined by their kinetics</li> </ul>				<ul> <li>→ Sub-T<sub>g</sub> effects observed by DMA and MDSC</li> <li>→ Addressed to a broad α-relaxation time spec</li> </ul>

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