

Typical Magnesium Thixomolding Alloys



Provided Courtesy of Materials Technology@TMS

The following is a listing of some magnesium alloys that have been made by thixomolding, including links to articles and presentations on this subject.

For additional resources, visit <http://www.materialstechnology.org>

Alloy	Description	Article or Presentation	Link
AM50A	High ductility Mg-Al-Mn alloy.	S. LeBeau, R. Decker and D. M. Walukas, "Production of Magnesium Powertrain Components via Thixomolding", GPC Powertrain Conference, Ann Arbor, MI, September 2002.	Read the Full Article
		D. Walukas, S. LeBeau, N. Prewitt, and R. Decker, "Thixomolding? - Technology Opportunities and Practical Uses"	Read the Full Article
		T. Pastirik, "Thixomolding of Magnesium", Mag III Symposium, Houten, 2004.	View Presentation
		R. Kilbert, "Thixomolding-What should Designers Know?", New Design Opportunities Seminar, Lelystad, May 2005.	View Presentation
AM60B	High ductility Mg-Al-Mn alloy.	T. K. Nandy, J. W. Jones, T. M. Pollack, D. M. Walukas and R. F. Decker, "Blended Magnesium Alloys Produced by the Thixomolding Process", Magnesium Technology 2002, TMS, pp. 215-220.	Read the Full Article
		R. Beals, S. Lebeau, O. Roberto and P. Shashkov, "Advances in Thixomolding Magnesium Alloys Part II", Magnesium Technology 2003, TMS, pp. 283-288.	Read the Full Article
		F. Czerwinski, "Semisolid Processing and Its Application to Magnesium Alloys", Magnesium Technology 2005, TMS, pp. 341-344.	Acquire the Article
		T. Pastirik, "Thixomolding of Magnesium", Mag III Symposium, Houten, 2004.	View Presentation
		R. Kilbert, "Thixomolding-Magnesium & Injection Moulding", New Design Opportunities Seminar, Lelystad, May 2005.	View Presentation
		R. Kilbert, "Thixomolding-What should Designers Know?", New Design Opportunities Seminar, Lelystad, May 2005.	View Presentation

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Alloy	Description	Article or Presentation	Link
AZ91D	Highly castable, most often applied die casting alloy. Has excellent castability and good strength.	M. Cabibbo, E. Cerri, E. Evangelista, S. Spigarelli, M. Talianker, and V. Ezersky, "Microstructural Study and Mechanical Properties of a Thixoformed AZ91", Magnesium Technology 2000, TMS, pp. 301-310.	Read the Full Article
		D. M. Walukas, R. F. Decker and A. W. Totten, "Effect of Beryllium Content in Thixomolding AZ91D", Magnesium Technology 2001, TMS, pp. 95-98.	Read the Full Article
		F. Czerwinski, P. J. Pinet, and J. Overbeeke, "The Influence of Primary Solid Content on the Tensile Properties of a Thixomolded AZ91D Magnesium Alloy", Magnesium Technology 2001, TMS, pp. 99-104.	Read the Full Article
		T. K. Nandy, J. W. Jones, T. M. Pollack, D. M. Walukas and R. F. Decker, "Blended Magnesium Alloys Produced by the Thixomolding Process", Magnesium Technology 2002, TMS, pp. 215-220.	Read the Full Article
		R. Beals, S. Lebeau, O. Roberto and P. Shashkov, "Advances in Thixomolding Magnesium Alloys Part II", Magnesium Technology 2003, TMS, pp. 283-288.	Read the Full Article
		A. R. Moore, C. J. Torbet, A. Shyam, J. W. Jones, D. M. Walukas and R. F. Decker, "Fatigue Behavior of Thixomolded Magnesium AZ91D Using Ultrasonic Techniques", Magnesium Technology 2004, TMS, pp. 263-268.	Read the Full Article
		T. Pastirik, "Thixomolding of Magnesium", Mag III Symposium, Houten, 2004.	View Presentation
		R. Kilbert, "Thixomolding-Magnesium & Injection Moulding", New Design Opportunities Seminar, Lelystad, May 2005.	View Presentation
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Alloy	Description	Article or Presentation	Link
ZAX8506	Mg-Zn-Al-Ca alloy for improved elevated temperature performance. This alloys limited die castability makes it a good candidate for thixomolding.	E. A. Nyberg, D. J. Edwards and R. H. Jones, "Microstructure and Microchemistry of Creep Resistant Magnesium Alloys", Magnesium Technology 2001, TMS, pp. 169-174.	Read the Full Article
Mg-Al-Ca (various)	Heat resistant alloys.	T. Tsukeda, A. Maehara, K. Saito, M. Suzuki, J. Koike, K. Maruyama and H. Kubo, "Mechanical Properties and Microstructure of Heat Resistant Mg-Al-Ca Alloys Formed by Thixomolding", Magnesium Technology 2000, TMS, pp. 395-402.	Read the Full Article