Typical Magnesium Sheet and Plate Alloys

Provided Courtesy of Materials Technology@TMS

The following is a summary of typical magnesium sheet and plate alloys including links to supplier property data and links to articles and handbook information.

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

Alloy	Temper	Description	Supplier Information	Article or Handbook	Link to Article/Handbook
AZ31B	O, H24, H26	Mg-Al-Zn alloy with good room temperature strength, ductility and corrosion resistance. Weldable. Increased strength obtained by strain hardening and partial annealing.	Magnesium-Elektron	Handbook of Materials Selection, ed. Kutz, Myer, 2002 John Wiley & Sons	Read the Full Article
				Metallic Materials Properties Development and Standardization, U. S. Department of Transportation, 2003	Read the Full Article
				Y. Lin and X. Wu, "An Electron-Backscattered Diffraction Study of the Texture Evolution in a Coarse-Grained AZ31 Magnesium Alloy Deformed in Tension at Elevated Temperatures", Met. Trans. A, January 2006, pp. 7-17.	Acquire the Article
				S. R. Agnew, J. W. Senn and J. A. Horton, "Mg Sheet Metal Forming: Lessons Learned from Deep Drawing Li and Y Solid-Solution Alloys", JOM, May 2006, pp. 62-69.	Read the Full Article
				Fr.-W. Bach, B. -A. Behrens, M. Rodman, A. Rossberg and G. Kurtz, "Macroscopic Damage by the Formation of Shear Bands during the Rolling and Deep Drawing of Magnesium Sheets", JOM, May 2005, pp. 57-61.	Read the Full Article
				A. Jain and S. R. Agnew, "Effect of Twinning on the Mechanical Behavior of a Magnesium Alloy Sheet During Strain Path Changes", Magnesium Technology 2006, TMS, pp. 219-224.	Acquire the Article
				Z. Keshavarz and M. R. Barnett, "In-Situ Investigation of Twinning Behavior in Mg-3Al-1Zn", Magnesium Technology 2005, TMS, pp. 171-178.	Acquire the Article
				A. Jain and S. R. Agnew, "Measuring the Temperature Dependence of the Flow Surface of Magnesium Alloy Sheet", Magnesium Technology 2005, TMS, pp. 71-76.	Acquire the Article

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AZ31B (continued)				R. Krishnamurthy, Y. Liu, X. Wu, W. yang and M. L. Werner, "Thermal Forming of Magnesium Alloys: Processing and Simulation", Magnesium Technology 2004, TMS, pp. 51-60.	Read the Full Paper
				G. Kurz, "Heated Hydro-Mechanical Deep Drawing of Magnesium Sheet Metal", Magnesium Technology 2004, TMS, pp. 67-72.	Read the Full Paper
				T. Imai, S. Dong, N. Saito and I. Shigemastu, "Microstructure and Mechanical Properties of Mg-Al-Zn Alloys Processed by Different-Speeds-Rolling", Magnesium Technology 2004, TMS, pp. 91-96.	Read the Full Paper
				S. R. Agnew, "Plastic Anisotropy of Magnesium Alloy AZ31B Sheet", Magnesium Technology 2002, TMS, pp. 169-174.	Read the Full Paper
				P. E. Krajewski, "Elevated Temperature behavior of Sheet Magnesium Alloys", Magnesium Technology 2002, TMS, pp. 175-179.	Read the Full Paper
				For more articles, search Magnesium Article and Presentation Database; Eric Nyberg of Pacific Northwest National Laboratory, 2007.	Search Database
Superplastic AZ31B	O	Approved for use in Superforming process. Exhibits enhanced elongation characteristics at elevated temperature, equivalent to those of aluminum alloys 5083 and 2004.	Magnesium-Elektron		
ZM21	O, H24	Medium strength. Easily formed. Fully weldable by argon arc process.	Magnesium-Elektron		
LA141		Mg-Li alloy.		P. D. Frost, "Technical and Economic Status of Magnesium-Lithium Alloys", Batelle Memorial Institute, NASA SP-5028, Washington, D. C., 1965.	Read the Full Report

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LAZ933		Mg-Li alloy.		Magnesium.com General Forum Discussion "Magnesium Lithium alloy LAZ933" (also includes mention of LA141)	Read the Discussion Thread
Red Top		Photoengraving plate.	Magnesium-Elektron		
AQ-BLU		Photoengraving plate.	Magnesium-Elektron		
Elektron Tooling Plate	thermally stabilized	Tooling plate w/ flat plate surface, moderate strength and ductility. Exceptional dimensional stability in machining. Remains stable over time. Has sufficient ductility for limited room temperature forming and is weldable.	Magnesium-Elektron		