

# Alloy Composition Details

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## Alloys:

1050A  
 1200  
 2007  
 2011  
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 2014A  
 2017A  
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 3003

## EN AW-5049

Mg	1.6 - 2.5
Mn	0.5 - 1.1
Fe	<= 0.50
Si	<= 0.40
Cr	<= 0.30
Zn	<= 0.20
Total Other	<= 0.15
Ti	<= 0.1
Cu	<= 0.10
Other Elem	<= 0.05
Al	Remainder

All compositions in wt%.

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Search applications for  (e.g. foil, container, "storage tank") 

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EN AW- <b>5049</b> / ISO: Al Mg2Mn0,8	
<b>Composition:</b>	Al 2.1Mg 0.8Mn
<b>Applications:</b>	Air container in road transport, tankers, static containers operating up to 100°C
<b>Characteristic Properties:</b>	5000 series alloys include Al-Mg and Al-Mg-Mn types. They are in the main stronger than 3000 series and have good corrosion resistance and weldability combined with formability. They are mainly used in sheet or plate form but can be obtained as extrusions, albeit which much less flexibility of shape than 6000 series alloys. 5049 alloy: Lower strength than high Mg alloys. Good corrosion resistance. Can be used at temperature up to 100°C without fear of intercrystalline stress corrosion cracking
<b>Precautions and Warnings:</b>	Fusion welding reduces properties if tempers other than "O" are employed.
<b>Product Forms:</b>	Sheet, Plate, Profile section shape

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## Cold Formability, Machinability and Weldability

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EN AW-5049 / ISO Al Mg2Mn0,8												
Temper	Cold Formability					Mach.	Joinability					
	CFA	CFDA	CFPA	CFSPA	EXTR	MAA	WEEB	WEGA	WEAA	WESA	BRAZA	SOLDA
<b>O</b>	6	6		5		3	6	5	6	5	4	4
<b>Hx2</b>	5			4		4	6	5	6		4	4
<b>Hx4</b>	5	5		4		4	6	5	6		4	4
<b>Hx6</b>	4					5	6	5	6	6	4	4
<b>Hx8</b>	4	3		3			6	5	6		4	4

### Key to Parameters:

CFA: Cold formability index scale 2-7  
CFDA: Deep drawability index scale 2-7  
CFPA: Stretch formability index scale 2-7  
CFSPA: Suitability for spinning scale 2-7  
EXTR: Extrudability index scale 2-7  
MAA: Machinability index scale 2-7  
WEEB: Electron beam weldability index scale 2-7  
WEGA: Oxy-gas weldability index scale 2-7  
WEAA: Shielded arc weldability index scale 2-7  
WESA: Spot & seam weldability index scale 2-7  
BRAZA: Brazability index scale 2-7  
SOLDA: Solderability index scale 2-7

### Key to Values:

-: No information available  
1: Not applicable  
2: Unsuitable  
3: Not recommended  
4: Acceptable  
5: Good  
5-6: Good to Very Good  
6: Very Good  
7: Excellent

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## Corrosion and Anodizing Properties

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Alloys: EN AW-5049 / ISO Al Mg2Mn0,8												
Temper	Corrosion								Anodizing			
	COA	COIA	COMA	CORA	SCOA	EXCA	ICOA	PCA	ANBA	ANCA	ANHA	ANPA
<b>O</b>	6	6	6	6	6	6	6	6	5	5	6	6
<b>Hx2</b>	6	6	6	6	6	6	6	6	5	5	6	6
<b>Hx4</b>	6	6	6	6	6	6	6	6	5	5	6	6
<b>Hx6</b>	6	6	6	6	-	6	6	6	5	5	6	6
<b>Hx8</b>	6	6	6	6	6	6	6	6	5	5	6	6

### Key to Parameters:

COA: Corrosion index, general scale 2-7  
 COIA: Industrial atm corr index scale 2-7  
 COMA: Marine atm corr index scale 2-7  
 CORA: Rural atm corr index scale 2-7  
 SCOA: Stress corrosion index scale 2-7  
 EXCA: Exfoliation corrosion index scale 2-7  
 ICOA: Intercrystalline corrosion index scale 2-7  
 PCA: Pitting corrosion index scale 2-7  
 ANBA: Bright anodising index scale 2-7  
 ANCA: Colour anodising index scale 2-7  
 ANHA: Hard anodising index scale 2-7  
 ANPA: Protective anodising index scale 2-7

### Key to Values:

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# aluSelect Mechanical Properties

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## EN AW-5049

Temper	Form	RP02N	RP02	RMN	RM	RG	A5N	A5	A50N	A50	HBN	HB	HV
O	Sheet	60	90	170	195	130	20	26	-	-	50	50	50
Hx2	Sheet	150	180	230	225	140	10	14	-	-	73	65	70
Hx4	Sheet	180	205	250	250	150	7	13	-	-	80	75	75
Hx6	Sheet	210	230	270	270	160	6	9	-	-	85	80	80
Hx8	Unspecif.	-	255	-	290	170	-	8	-	-	-	85	85

## Key to Properties

RP02N: Min proof stress 0.2% MPa  
 RP02: Proof stress 0.2% MPa  
 RMN: Min ultimate tensile strength MPa  
 RM: Ultimate tensile strength MPa  
 RG: Shear stress MPa  
 A5N: Min elongation A5 %  
 A5: Elongation A5 %  
 A50N: Min elongation A50 %  
 A50: Elongation A50 %  
 HBN: Min hardness, Brinell HBN  
 HB: Hardness, Brinell HB  
 HV: Hardness, Vickers HV



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## Physical and Elastic Properties

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EN AW-5049 / ISO Al Mg2Mn0,8											
Temper	Elastic			Physical							
	$E$	$G$	$\nu$	$T_{sol}$	$T_{liq}$	$C_p$	$\alpha$	$\rho$	$\rho_{el}$	$\lambda$	EC
	MPa	MPa		°C	°C	$\frac{J}{kg \cdot K}$	$\mu m \cdot m^{-1} \cdot K^{-1}$	$kg \cdot m^{-3}$	$n\Omega \cdot m$	$W \cdot m^{-1} \cdot K^{-1}$	% IACS
<b>O</b>	70000	26400	0.33	615	650	896	23.5	2700	49.5	138	35
<b>Hx2</b>	70000	26400	0.33	615	650	896	23.5	2700	49.5	138	35
<b>Hx4</b>	70000	26400	0.33	615	650	896	23.5	2700	49.5	138	35
<b>Hx6</b>	70000	26400	0.33	615	650	896	23.5	2700	49.5	138	35
<b>Hx8</b>	70000	26400	0.33	615	650	896	23.5	2700			

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#### Key to Parameters:

$E$	Modulus of elasticity	MPa
$G$	Modulus of rigidity	MPa
$\nu$	Poisson's ratio	
$T_{sol}$	Solidus temperature	°C
$T_{liq}$	Liquidus temperature	°C
$C_p$	Specific heat capacity	$J \cdot kg^{-1} \cdot K^{-1}$
$\alpha$	Coefficient of thermal expansion	$\mu m \cdot m^{-1} \cdot K^{-1}$
$\rho$	Density	$kg \cdot m^{-3}$
$\rho_{el}$	Resistivity	$n\Omega \cdot m$
$\lambda$	Thermal conductivity	$W \cdot m^{-1} \cdot K^{-1}$
EC	Electrical conductivity	%IACS

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EN AW-**5049** / ISO Al Mg2Mn0,8

**Composition:** Al 2.1Mg 0.8Mn

**Alloy family:** Wrought Al-Alloy

**Alloy type:** Non-hardenable Al-alloys

**Alloy Series:** AlMg-Alloys (5xxx)

**Alloy Sub-series:** AlMg-alloys with Medium Mg content

**Product forms available:**

- ▶ Sheet
- ▶ Plate
- ▶ Profile section shape

(Click for a list of alloys available in each form.)

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