

# COLESHILL ALUMINIUM LIMITED



## BS 1490 - ALLOY CHART

**TABLE 1 - CHEMICAL COMPOSITION OF GROUP A INGOTS/CASTINGS (GENERAL PURPOSE ALLOYS)**

DESIGNATION	LM2		LM4		LM6		LM20		LM24		LM25		LM27	
Nominal Composition	Al-Si10 Cu2		Al-Si5 Cu3 Mn0.5		Al-Si12		Al-Si12		Al-Si8 Cu3.5		Al-Si7 Mg0.5		Al-Si7 Cu2 Mn0.5	
Colour Code	Red/White		Red		Yellow		Yellow/Green		Red/Blue		Yellow/Blue		Green/Blue	
Elements	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	Remainder		Remainder		Remainder		Remainder		Remainder		Remainder		Remainder	
Aluminium	99.50		Remainder		Remainder		Remainder		Remainder		Remainder		Remainder	
Copper	0.7	2.5	2.0	4.0	-	0.1	-	0.4	3.0	4.0	-	0.20	1.5	2.5
Magnesium	-	0.30	-	0.20	-	0.10	-	0.2	-	0.30	0.20	0.6	-	0.35
Silicon	9.0	11.5	4.0	6.0	10.0	13.0	10.0	13.0	7.5	9.5	6.5	7.5	6.0	8.0
Iron	-	1.0	-	0.8	-	0.6	-	1.0	-	1.3	-	0.5	-	0.8
Manganese	-	0.5	0.2	0.6	-	0.5	-	0.5	-	0.5	-	0.3	0.2	0.6
Nickel	-	0.5	-	0.3	-	0.1	-	0.1	-	0.5	-	0.1	-	0.3
Zinc	-	2.0	-	0.5	-	0.1	-	0.2	-	3.0	-	0.1	-	1.0
Lead	-	0.3	-	0.1	-	0.1	-	0.1	-	0.3	-	0.1	-	0.2
Tin	-	0.2	-	0.1	-	0.05	-	0.1	-	0.2	-	0.05	-	0.1
Titanium	-	0.2	-	0.2	-	0.2	-	0.2	-	0.2	-	0.20	-	0.2
Each other Element	-	-	-	0.05	-	0.05	-	0.05	-	-	-	0.05	-	0.05
Total other Elements	-	0.50	-	0.15	-	0.15	-	0.20	-	0.50	-	0.15	-	0.15

**TABLE 2 - CHEMICAL COMPOSITION OF GROUP B INGOTS/CASTINGS (SPECIAL PURPOSE ALLOYS)**

DESIGNATION	LM0		LM5		LM9		LM13		LM16		LM21		LM22	
Nominal Composition	99.50 + % Al		Al-Mg5 Mn0.5		Al-Si12 Mg0.5 Mn0.5		Al-Si12 Cu1 Mg1		Al-Si5 Cu1 Mg0.5		Al-Si6 Cu4 Mn0.4 Mg0.2		Al-Si5 Cu3 Mn0.4	
Colour Code	White		Black		Yellow/Brown		Yellow/Black		Red/Black		Red/Green		Red/Brown	
Elements	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	Remainder		Remainder		Remainder		Remainder		Remainder		Remainder		Remainder	
Aluminium	99.50		Remainder		Remainder		Remainder		Remainder		Remainder		Remainder	
Copper	-	0.03	-	0.1	-	0.20	0.7	1.5	1.0	1.5	3.0	5.0	2.8	3.8
Magnesium	-	0.03	3.0	6.0	0.2	0.6	0.8	1.5	0.4	0.6	0.1	0.3	-	0.05
Silicon	-	0.30	-	0.3	10.0	13.0	10.0	13.0	4.5	5.5	5.0	7.0	4.0	6.0
Iron	-	0.40	-	0.6	-	0.6	-	1.0	-	0.6	-	1.0	-	0.6
Manganese	-	0.03	0.3	0.7	0.3	0.7	-	0.5	-	0.5	0.2	0.6	0.2	0.6
Nickel	-	0.03	-	0.1	-	0.1	-	1.5	-	0.25	-	0.3	-	0.15
Zinc	-	0.07	-	0.1	-	0.1	-	0.5	-	0.1	-	2.0	-	0.15
Lead	-	0.03	-	0.05	-	0.1	-	0.1	-	0.1	-	0.2	-	0.1
Tin	-	0.03	-	0.05	-	0.05	-	0.1	-	0.05	-	0.1	-	0.05
Titanium	-	-	-	0.2	-	0.2	-	0.2	-	0.2	-	0.2	-	0.2
Each other Element	-	-	-	0.05	-	0.05	-	0.05	-	0.05	-	0.05	-	0.05
Total other Elements	-	-	-	0.15	-	0.15	-	0.15	-	0.15	-	0.15	-	0.15

**TABLE 3 - CHEMICAL COMPOSITION OF GROUP C INGOTS/CASTINGS (SPECIAL PURPOSE ALLOYS OF LIMITED APPLICATION)**

DESIGNATION	LM12		LM26		LM28		LM29		LM30		LM31	
Nominal Composition	Al-Cu10 Mg0.3		Al-Si10 Cu3 Mg1		Al-Si18 Cu1.5 Mg1 Ni1		Al-Si23 Cu1 Mg1 Ni1		Al-Si17 Cu4.5 Mg0.5		Al Zn5 Mg0.7 Cr0.5 Ti	
Colour Code	Green		Brown/blue		Brown/White		Brown/Green		Green/Black		Blue/White	
Elements	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
	%	%	%	%	%	%	%	%	%	%	%	%
	Remainder		Remainder		Remainder		Remainder		Remainder		Remainder	
Aluminium	99.0		Remainder		Remainder		Remainder		Remainder		Remainder	
Copper	9.0	11.0	2.0	4.0	1.3	1.8	0.8	1.3	4.0	5.0	-	0.1
Magnesium	0.2	0.4	0.5	1.5	0.8	1.5	0.8	1.3	0.4	0.7	0.5	0.75
Silicon	-	2.5	8.5	10.5	17.0	20.0	22.0	25.0	16.0	18.0	-	0.25
Iron	-	1.0	-	1.2	-	0.7	-	0.7	-	1.1	-	0.5
Manganese	-	0.6	-	0.5	-	0.6	-	0.6	-	0.3	-	0.1
Nickel	-	0.5	-	1.0	0.8	1.5	0.8	1.3	-	0.1	-	0.1
Zinc	-	0.8	-	1.0	-	0.2	-	0.2	-	0.2	4.8	5.7
Lead	-	0.1	-	0.2	-	0.1	-	0.1	-	0.1	-	0.05
Tin	-	0.1	-	0.1	-	0.1	-	0.1	-	0.1	-	0.05
Titanium	-	0.2	-	0.2	-	0.2	-	0.2	-	0.2	0.05-	0.25
Chromium	-	-	-	-	-	0.6	-	0.6	-	-	0.4	0.6
Each other Element	-	0.05	-	0.05	-	0.10	-	0.10	-	0.10	-	0.05
Total other Elements	-	0.15	-	0.15	-	0.30	-	0.30	-	0.30	-	0.15

NOTE Single figures are specified impurities. Analysis is required to verify that the contents of the specified impurities are less than the limits given in Table 2. Analysis for other elements is made when their presence is suspected to be in excess of the 'each other element' limit.

LM0 The aluminium content shall be determined by difference, i.e. by subtracting the total for all other elements listed.

LM16 & 25 If titanium alone is used for grain refining, the amount present shall not be less than 0.05%.

LM31 Ingots should be grain refined with titanium, or with titanium plus boron.

LM28 & 29 Maximum cobalt content 0.5%.