

# DATA SHEETS

## Aluminum



New Material:

### **FORMODAL<sup>®</sup> 024 elox**

cast plates with improved anodizing ability

Applications:

- tool making, mold making and model making
- laser technology
- cover plates
- printing technology
- fixture construction
- electronics and optical industry
- packaging technology
- medical technology



ALUMINUM

COPPER

BRASS

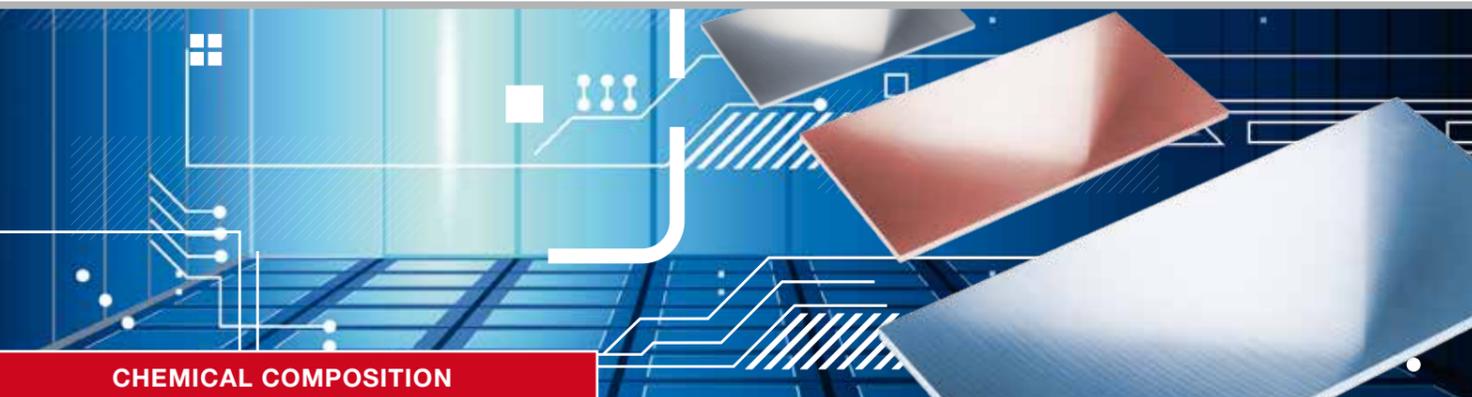
BRONZE

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**BIKAR  
METAL**  
NORTH AMERICA



## CHEMICAL COMPOSITION

### Aluminum and aluminum alloys

Special alloy with improved anodizing ability  
cast plates · precision milled or rough sawn



#### Alloy designation:

EN AW	5083
EN AW	Al Mg4,5 Mn0,7
Old designation	Al Mg4,5 Mn
Material no. according to DIN	3.3547
Great Britain BS	N8
Italy UNI	7790
Spain	L-3321
Sweden	144140
Norway	17215
France AFNOR	A-G4,5MC
Color code	RAL 8002 Signal Brown

#### Typical physical properties:

Density [lb./in³]	0.0961	
Elastic modulus	10153 ksi	
Thermal conductivity	63.6 - 80.9 Btu/ft x h x °F	
Coeff. of Thermal Exp.	-58°F – 68°F	
	68°F – 212°F	12.78
	68°F – 392°F	
	68°F – 572°F	
Specific heat	167 ft lbf / lb °F	
Electrical conductivit	30 IACS	

#### Chemical composition\* (EN 573-3):

Specifications in %												Remainder: Aluminum		Other	
Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V	Note	Individual	Total²		
0.40	0.40	0.10	0.40 - 1.0	4.0 - 4.9	0.05 - 0.25	-	0.25	0.15	-	-	-	0.05	0.15		

<sup>x</sup> Chemical specifications as perc. of weight. If no ranges are specified, the alloy content has the maximum value.

<sup>2</sup> Includes all items listed for which no limit values are specified.

#### Special features of this material:

- Very good machinability
- Excellent corrosion resistance
- Good welding properties
- Low stress and dimensionally stable
- Improved anodizing ability through optimised casting process and special homogenization
- Very good polishing
- Very fine-grained structure

#### Applications:

- Tool making, mold making and model making
- Laser technology
- Cover plates
- Printing technology
- Fixture construction
- Electronics and optical industry
- Packaging technology
- Medical technology

#### Available forms:

**Sheets · Plates · Cuttings · Circular blanks · Rings · Parts from drawings**

#### Homogenization:

Special homogenization technique according to BIKAR specification.

#### Other data:

##### Processing / machinability

Homogenized and stress relieved	1 – 2
Dimensional stability	1
Erosion	1

##### Surface treatment

Anodizing - (protective anodization)	1
Anodizing - decorative	2 *
Painting / coating	4
Polishing	2 – 3

##### Welding

		Filler metal
Gas	4	
WIG	2	S-Al 5183
MIG	2	S-Al 5356
Resistance welding	2	S-Al 5087

##### Solder

Brazing with flux	-
Brazing without flux	-
Abrasion soldering	-
Soft soldering with flux	-

\*: For physical reasons we can't guarantee the color finish.

#### Legend:

- 1 very good
- 2 good
- 3 moderate
- 4 poor
- 5 unsuited

#### Hardening

Solution annealing	-
Quenching	-
Natural aging treatment	-
Artificial aging treatment	-

#### Corrosion resistance

In a normal atmosphere/ weather conditions	1
Sea water atmosphere	1

#### Metal forming

Cold forming		Delivery condition
Bending	5	
Pressure forming	5	
Deep drawing (condition-based)	5	
Upsetting (condition-based)	5	
Impact extrusion	5	
Hot forming		
Drop forging	-	
Extrusion molding	-	
Hammer forging	-	

Suitable for food industry according to DIN EN 602 yes

The specifications in our data sheets are subject to correction and are only valid as references. Liability is excluded in this regard. We reserve the right to make changes to the standards and informative values. The agreements of our order confirmation are always authoritative. With regard to anodic oxidisability, we point out that we accept no liability for the anodization result and the color formation for decorative applications. The same applies to the corrosion resistance. Special arrangements must be made in writing.

# FORMODAL® 024 elox



## MECHANICAL PROPERTIES

### Aluminum and aluminum alloys

Special alloy with improved anodizing ability  
cast plates · precision milled or rough sawn



### Typical mechanical properties:

Delivery condition	Nominal thickness in.		Typical Tensile Strength ksi		0.2% Yield Strength ksi		Typical Elongation %		Bending radius <sup>9</sup>		Hardness <sup>9</sup> HBW
	over	to	min.	max.	min.	max.	A0.394"	A	180°	90°	
O3	0.197"	19.69"	33.4	42.1	16.0	18.9	15	-			70 – 80
<sup>9</sup>	<i>For information only</i>										

### We supply aluminum sheets and plates of alloy FORMODAL® 024 elox in the following dimensions:

Thickness in.	Length x Width in.
0.197" – 19.69"	119.09" x 61.02"

### Anodizing ability of alloy:

With **FORMODAL® 024 elox**, the physical limits of the anodizing ability are exploited with an optimised casting process and special homogenization.

This produces optimum anodizing results for this alloy.

However, for physical reasons (magnesium content), deviations in the anodized finish can occur, for which BIKAR is unable to accept any liability.

### Available forms:

**Sheets · Plates · Cuttings · Circular blanks · Rings · Parts from drawings**