

SoluMag® Freshwater Magnesium Alloy

Luxfer MEL Technologies SoluMag® Freshwater alloy

Luxfer MEL Technologies is the world leader in the development and supply of highly functional magnesium alloys. SoluMag® Freshwater is specifically designed to corrode in very low chloride environments. This lightweight alloy is available as balls, extruded rods, bars, tubes and profiles to produce components that require strength and ductility in demanding environments as well as a controlled corrosion rate that will effectively dissolve the component in a known time. SoluMag® Freshwater offers significant advantages over other corrodable materials in that it retains super-corroding properties in conditions where other dissolvables would not function.

Product forms

- Balls/spheres
- Seamless tubes and round bars
- Square/rectangular sections
- Solid profiles

Mechanical properties

Imperial units							
Sizes OD bar and tube (in)	Longitudinal (ksi)		Elong. (%)	Transverse (ksi)		Elong. (%)	Dissolution rate MCD (mg/cm ² /day)
	Yield	UTS		Yield	UTS		
<0.5	*	*	*	*	*	*	150 ° F: 500–1,500 Corrosion test at 0.05% KCl
0.5 ≤ to <2.5	32	38	6	+	+	+	
2.5 ≤ to <5	30	36	6	12	22	2	
5 ≤ to <6	*	*	*	*	*	*	
>6	*	*	*	*	*	*	

* Contact Luxfer representative for additional information
+ Transverse data not available

Typical applications

- Balls for hydraulic fracturing systems
- Machined components for downhole completion tools in oil and gas
- Time activated downhole devices

Specifications

- ASTM B107 for extruded products, dimensions only
- Corrosion rate according to agreed testing protocol
- Manufactured to aerospace quality and metal cleanliness standard

Component sizes

- Machined balls from 1/2 inch to 5 inches diameter
- Extruded round rod from 1/2 inch to 5 inches diameter
- Tube and bar sizes available upon request

Metric units							
Sizes OD bar and tube (mm)	Longitudinal (MPa)		Elong. (%)	Transverse (MPa)		Elong. (%)	Dissolution rate MCD (mg/cm ² /day)
	Yield	UTS		Yield	UTS		
<12.7	*	*	*	*	*	*	65 ° C: 500–1,500 Corrosion test at 0.05% KCl
12.7 ≤ to <63.5	220	260	6	+	+	+	
63.5 ≤ to <127	205	245	6	80	150	2	
127 ≤ to 152.4	*	*	*	*	*	*	
>152.4	*	*	*	*	*	*	

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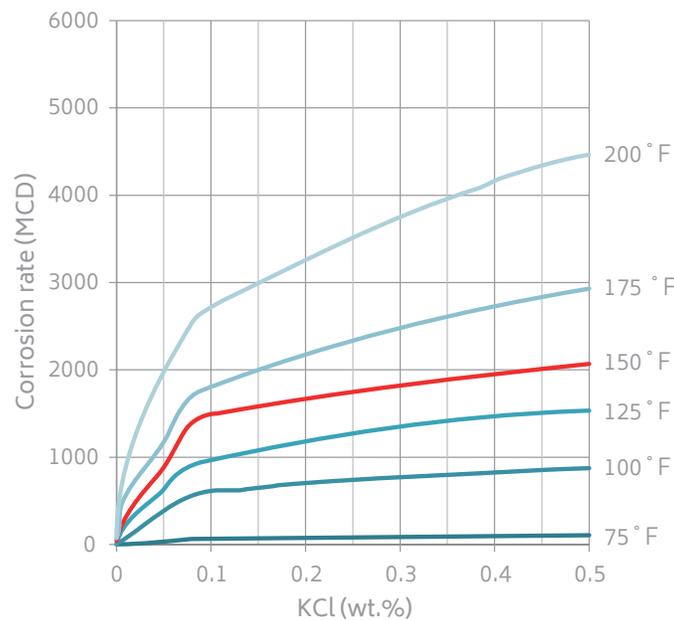
Additional information

Dissolution rate in MCD (mg/cm ² /day)			
Temperature		Fluid concentration	
		250 ppm*	1%**
100 °F	38 °C	400	1,000
150 °F	66 °C	750	2,500
200 °F	93 °C	1,500	5,000

*Typical chloride content in ground water sources

**Chloride ions present in water. KCl used as chloride source

Corrosion rate of SoluMag® Freshwater in KCl at various concentrations and temperatures



Product details [LINK](#)

Discover more at

www.luxfermeltechnologies.com

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SoluMag®, UK Patent No 2529062B. July 2015.

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