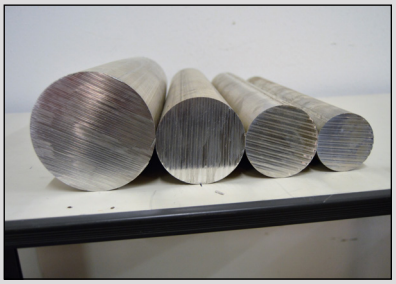
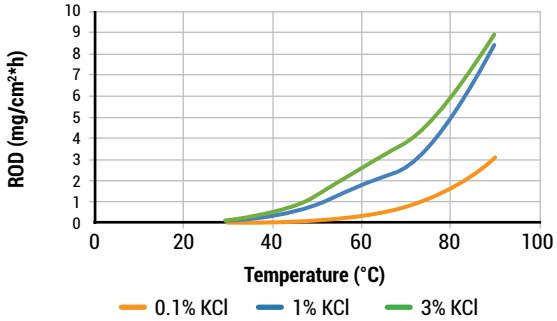
PRODUCT DESCRIPTION: DISSOLVABLE ALLOY

TervAlloy™ 3042 (TAx50E) is a slower dissolving form of our market-leading TervAlloy 3241 high strength dissolvable magnesium designed for oil and gas applications. TervAlloy 3042 will dissolve in potassium chloride and sodium chloride solutions, and is available in frac ball configurations, in extruded tubulars and solids, or machined-to-print in shapes up to 5 inches in diameter, and can be purchased in one inch increments up to 48 inches in length (depending on shape).

Our patented TervAlloy can also be provided with various Response Coatings™ applied to modify or extend particular dissolution rates.



3042 Dissolution vs Temperature



Physical Data	
Density	1.8 g/cm³

Dissolution Rates in Common Mediums for TAx-50E (mg/cm² hr)		
Temp (°C)	1% KCl	3% KCl
60	2	3
75	3	5
90	8	9

Mechanical Data	4" Solid Rod 5:1 Extrusion Ratio
Ultimate Tensile Strength (ksi)	43.1
Yield Strength (ksi)	31.8
Elongation[1] (%)	12.3
Double Shear (ksi)	18.4
Compressive Strength (ksi)	54.1

[1]Longitudinal values

1 Based on the standard solution of KCl the TervAlloy dissolves in ranked from **0 to 3** (3 requires the highest salinity)
- 0: 0.01% KCl
- 1: 0.1% KCl
- 2: 1.0% KCl
- 3: **3.0% KCl**

2 Based on the rate of dissolution in the determined solution (see first number as noted above) at 60°C, ranked from **0 to 5** (5 being the highest/fastest)
- 0: **0-9 mg/cm²hr**
- 1: 10-19 mg/cm²hr
- 2: 20-29 mg/cm²hr
- 3: 30-39 mg/cm²hr
- 4: 40-49 mg/cm²hr
- 5: 50-59 mg/cm²hr

3 Based on the average ultimate tensile strength (UTS) ranked from **0 to 6** (6 being the highest) **(4)**

4 Based on the elongation, ranked from **0 to 4** (4 being the highest rate of average elongation) **(2)**

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TERVALLOY SELECTION GUIDE

TervAlloy™ 3042 (TAx50E) is a slower dissolving form of our market-leading TervAlloy 3241 high strength dissolvable magnesium designed for oil and gas applications. Below are some comparative charts outlining mechanical properties and dissolution rates for our TervAlloy product line:

TervAlloy Comparative Dissolution Rates (mg/cm²hr)

Salinity (%KCl)	Temp (°C)	TervAlloy 3241 (TAx 100E)	TervAlloy 3042 (TAx 50E)	TervAlloy 1530 (TAx FW)	TervAlloy 1132 (TAx FW+)	TervAlloy 3133 (TAx HD)	TervAlloy 1343 (TAx HT)	TervAlloy 1331
0.1	30	-	-	17	4	-	17	11
	45	5	-	34	6	3	21	22
	60	9	-	52	11	9	38	38
	75	12	1	84	15	12	43	64
	90	17	3	118	37	16	51	116
1	30	3	-	24	13	2	26	16
	45	10	-	48	25	8	33	35
	60	18	2	70	48	14	58	59
	75	25	3	132	74	19	67	109
	90	33	8	187	75	25	69	137
3	30	4	-	24	16	2	29	16
	45	13	-	51	29	9	36	35
	60	22	3	91	56	17	61	66
	75	34	5	148	90	24	69	119
	90	46	9	233	117	33	93	152

DISCLAIMER: The information provided in this document is intended to assist manufacturers and specifiers in the selection and use of Terves' products. All data noted should be understood to be average and expected performance, and is provided to serve as a general guideline only. This information **does not represent and is not to serve as minimum specification standards.** For further information contact Terves directly. All Terves commercially available products have patents or patents pending in the United States and in a variety of countries. For the latest patent information on this specific product contact Terves directly.

US Patent no.s: US9903010B2, US10150713B2, and US9757796B

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