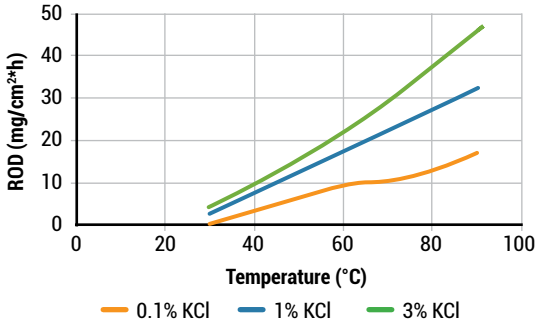
PRODUCT DESCRIPTION: DISSOLVABLE ALLOY

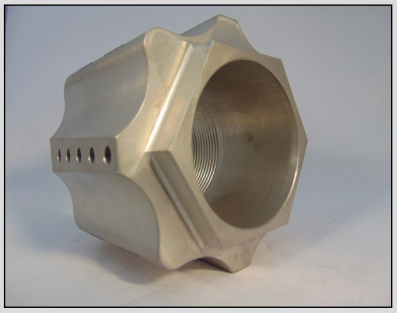
TervAlloy™ 3241 (TAx100E) is a high strength dissolvable magnesium designed for oil and gas applications. TervAlloy 3241 will dissolve in a variety of brine solutions and is available in frac ball configurations, in extruded tubulars and solids, or machined-to-print in shapes up to 5 inches in diameter, and is sold in 1 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 dissolution rates.

TAx100 Dissolution vs Temperature



Physical Data	
Density	1.8 g/cc



TervAlloy™ machined part

Dissolution Rates in Common Mediums for TervAlloy 3241 (mg/cm² hr)			
Temp (°C)	0.1% KCl	1% KCl	3% KCl
30	0	3	4
45	5	10	13
60	9	18	22
75	12	25	34
90	17	33	46

Mechanical Data	4" Solid Rod 5:1 Extrusion Ratio
Ultimate Tensile Strength (ksi)	41.3
Yield Strength (ksi)	28.7
Elongation[1] (%)	7.6
Double Shear (ksi)	17.5
Compressive Strength (ksi)	56.2

[1]Longitudinal values

Mechanical Properties at Elevated Temperatures			
Temp (°C)	Yield strength (ksi)	Ultimate tensile strength (ksi)	Elongation
20	30.8	43.0	10.3
50	30.5	43.2	12.8
75	29.6	42.2	16.7
100	27.3	39.6	22.4
150	20.1	29.8	34.6
300	4.5	8.3	45.4

Longitudinal, average value for extrusions ratio of 13:1

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) **(1)**

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TERVALLOY SELECTION GUIDE

TervAlloy™ 3241 is a 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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