



Uniform corrosion is the destruction of a metal, relatively uniformly over the entire surface. Intergranular corrosion is the destruction of metal at the grain boundaries, usually on a microscopic scale.

Both types of corrosion can result in loss of structural integrity of the affected metal and potential loss of the use of the metal item. In the case of corrosion to aircraft, the loss can result in catastrophic failure.

The Forest Service requires corrosion tests throughout the evaluation period to minimize the risk of corrosion-caused equipment failure in the field.

Proper maintenance and cleaning of the equipment will also help to minimize these potential failures.

Product Performance Data on following pages

Standard Test Procedure 5.1, provides instructions for the uniform corrosion test.
 Standard Test Procedure 5.2, provides instructions for the intergranular corrosion test.

Uniform Corrosion ¹ – Water Enhancers															
Product ² Concentration ³		Tot 70	2024-T3 al 120	Aluminum Partial 70 120		4130 Steel Total 70 120 70 mils		Steel Par 70 <i>mils-pe</i> l	tial 120 <i>r-year</i>	Yellow Brass Partial 120	Az31B M Total 70 120		agnesium Partial 70 120		
		Concentrate	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Barrica	de II	Mixed – 5.0%	0.1	0.1	0.1	0.1	0.2	0.5	0.8	1.5	0.2	3.5	4.5	2.3	2.5
		Mixed – 3.0%	0.1	0.1	0.1	0.1	0.1	0.2	0.5	1.0	0.1	2.9	3.9	1.8	2.0
		Mixed –1.0%	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.5	0.1	3.3	3.5	2.2	2.2
Thermo-Gel 200L		Concentrate	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	9.8	14.1	3.9	5.9
		Mixed – 3.0%	0.1	0.4	0.1	0.3	0.1	0.3	0.8	0.6	0.3	3.6	3.8	2.3	2.0
		Mixed – 1.5%	0.2	0.4	0.1	0.3	0.1	0.2	0.8	0.5	0.3	3.8	2.6	2.7	1.7
		Mixed – 0.5%	0.2	0.4	0.2	0.2	0.1	0.1	0.6	0.2	0.1	1.9	1.5	1.9	1.0
		Concentrate	Dry Concentrate - Uniform Corrosion Not Performed 3												
Therm	o-Gel 500P	Mixed – 1.2%	0.6	1.9	0.3	1.1	0.9	2.3	1.4	2.8	0.4	3.7	7.5	2.3	4.7
		Mixed – 0.5%	0.7	1.3	0.4	0.5	0.6	1.4	1.4	1.3	0.4	4.0	3.9	2.3	2.6
		Mixed – 0.4% ⁴	0.6	1.1	0.4	0.3	0.7	1.1	1.6	1.6	0.4	3.3	3.3	2.0	2.1
Notes:															
1	Initial Uniform corro	osion rates (expressed in mils-per-y	ear) wer	e deterr	nined by	90-day w	eight los	s tests. \	/alues sl	nown are	the average of	all replic	ates.		
2	When there is more	e than one variation of a product, th	e most c	orrosive	e results a	are showr	۱.								
3	Uniform corrosion t	ests are performed on wet concent	rates and	d mixed	products	. Corrosio	on is not	conducte	ed on Dr	y concer	itrates.				
Λ	Moots intergrapula	r corrosion requirements for magne	sium							•					
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06/05/2024

ULAS STREET	Unit	form(Corro	sion ¹ -	WFC									
Product ²	duct ² Concentration ³		2024-T3 otal 120	Aluminu Pai 70 	m rtial 120	4130 Steel Total Pa 70 120 70 mils-p		Steel Par 70 <i>mils-pe</i>	tial 120 er-year	Yellow Brass Partial 120	Az31B Magn Total 70 120		gnesium Par 70	tial 120
	Concentrate	0.1	0.1	0.1	0.1	0.1	0.1	0 1	0.1	03	05	3.8	03	21
Firewall II	Mixed – 3.0% ⁴	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	2.0	3.7	1.3	2.3
	Mixed – 1.5% ⁴	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	Az31B Magne Total 70 120 0.5 3.8 0 2.0 3.7 1 1.6 3.1 1 2.0 1.6 1 1.6 3.1 1 2.0 1.6 1 2.0 1.6 1 2.0 1.6 1 2.0 1.6 1 2.0 1.6 1 2.0 1.6 1 2.0 1.6 1 2.0 1.6 1 2.0 1.6 1 3.2.0 1 1 6.1.7 4.0 1 6.2 3.1 1 6.2 5.9 1 3.8 3.1 1 formed ³ 5 1 5.3 4.5 1 4.1 4.0 3.5 1	1.3	1.8	
	Mixed – 0.25% ⁴	0.2	0.5	0.1	0.2	0.4	1.2	0.3	1.0	0.1	2.0	1.6	1.3	1.1
BioCentral Blazetamer 380	Concentrate	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.7	4.0	0.7	1.9
	Mixed – 0.65% ⁴	0.1	0.3	0.1	0.1	0.2	0.6	0.2	0.4	0.1	0.3	2.0	1.0	1.4
	Concentrate	Dry Concentrate - Uniform Corrosion Not Performed ³												
Firelce 561	Mixed – 2.1%	0.6	1.1	0.3	0.9	0.6	1.3	1.4	2.5	0.3	5.2	3.1	3.1	1.9
	Mixed – 1.4%	0.4	0.9	0.3	0.4	0.7	1.0	1.3	2.1	0.4	1.8	3.3	2.9	1.8
	Concentrate	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Phos-Chek Insul-8	Mixed – 3.0%	0.5	1.3	0.4	1.0	2.2	1.5	1.4	1.9	0.2	8.6	11.1	3.3	5.4
	Mixed – 1.0%	0.2	0.4	0.3	0.4	0.8	1.4	0.5	1.2	0.1	6.2	5.9	3.7	3.8
	Mixed – 0.37% ⁴	0.2	1.0	0.3	0.8	0.5	1.3	0.5	0.9	0.4	3.8	3.1	2.2	1.9
	Concentrate				[Dry Conc	entrate -	Uniform	Corrosi	on Not Performe	ed ³			
EarthClean TetraKO XL-P	Mixed – 1.5%	0.3	0.4	0.3	0.3	0.5	0.8	0.9	1.5	0.2	5.3	4.5	3.0	2.5
	Mixed – 1.0%	0.2	0.4	0.3	0.3	0.4	0.6	0.8	1.2	0.2	4.0	3.5	2.4	2.1
	Mixed – 0.5%	0.2	0.7	0.3	0.3	0.3	0.8	1.2	1.9	0.2	4.1	4.0	2.4	2.6
1 Initial Uniform corros	ion rates (expressed in mils-per-year) w	ere dete	rmined I	by 90-day	weight los	s tests. V	alues sho	wn are th	e averag	e of all replicates.				
2 When there is more t	han one variation of a product, the mos	t corrosi	ve result	s are show	wn.			1	4					
 Uniform corrosion tests are performed on wet concentrates and mixed products. Corrosion is not conducted on Dry concentrates. Meets intergranular corrosion requirements for magnesium. 														

Unifo				Corros	sion ¹ –	WFC									
				2024-T3	Aluminu	m		4130 \$	Steel		Yellow Brass	Å	gnesium		
Product	† 2	Concentration ³	Total		Partial		Total		Partial		Partial	Total		Partial	
		Concentration	70	120	70	120	70	120	70	120	120	70	120	70	120
			mils-per-year												
		Concentrate	<0.1	0.1	<0.1	<0.1	0.3	0.5	0.2	0.4	1.1	29.3	24.0	7.0	13.9
Strong	Water	Mixed – 1.25%	0.2	1.3	0.1	0.7	0.1	0.4	0.5	0.9	0.4	7.4	6.1	3.9	3.3
		Mixed - 1.6%	0.2	1.2	0.1	0.3	0.1	0.3	0.6	1.0	0.4	8.9	8.6	5.6	5.2
		Mixed – 2.0%	0.2	0.3	0.1	0.3	0.1	0.4	0.7	0.7	0.5	10.1	10.5	5.3	5.3
1	Initial Uniform corrosi	on rates (expressed in mils-per-year) w	oro deta	rmined b	vsb-09 v	weight los	s tests V/	alues sho	vn are th	e averad	e of all replicates				
2	When there is more t	han one variation of a product the most	corrosi	ve resulte	s are show	vn	5 10313. 71			c averag	e or an replicates.				
3	Uniform corrosion tes	its are performed on wet concentrates a	nd mixe	d produc	ts. Corros	sion is not	conducted	d on Drv o	oncentra	tes.					
4	Meets intergranular o	orrosion requirements for magnesium.													

A CONTRACT OF CONTRACT				Uniform Corrosion ¹ – Colored Water Enhancers										WFC				
Product	<u></u> 2	Concentration ³	2024-T3 Alı Total 70 120		3 Aluminum Partial 0 70 120		4130 Total 70 120) Steel Partial 70 120 <i>mils-per-year</i>		Yellow Brass Partial 120	T(70	Az31B M otal 120	lagnesium Part 70	ial 120			
Thermo-Gel 200L Blue		AV-B1 – 0.1125% in Water	0.3	0.6	0.3	0.3	1.5	2.0	0.9	1.8	<0.1	0.7	1.0	0.6	0.6			
		0.1125% AV-B1 in Water	0.1	0.4	0.1	0.2	0.1	0.3	1.0	0.3	0.2	2.4	2.2	1.4	1.4			
Firelce 561 Cool Blue		2.0 g Cool Blue / gallon water	0.9	0.4	0.5	0.2	1.6	2.5	1.1	1.9	<0.1	0.5	0.4	0.4	0.4			
		0.18 lb/gal FireIce Uncolored mixed with 2.0 g Cool Blue in water	0.4	0.9	0.2	0.7	0.5	0.8	1.4	2.4	0.2	7.0	13.8	2.1	4.4			
		Concentrate		1			Dry Conc	entrate -	Uniform C	Corrosion	Not Performed ³				1			
Firelce	HVB-Fx	Mixed – 2.7%	0.1	0.5	0.1	0.3	0.6	1.0	1.3	2.4	0.1	4.5	3.4	2.7	1.8			
(Colo	red, 1 Component)	Mixed – 2.2%	0.1	0.5	0.1	0.5	0.7	1.1	1.3	2.4	0.2	5.3	3.0	3.6	1.4			
		Mixed – 1.7%	0.2	0.8	0.1	0.5	0.6	1.3	1.5	2.7	0.2	4.4	2.8	3.4	1.6			
Notes:																		
1	Initial Uniform corros	ion rates (expressed in mils-per-year)	were deter	mined by	90-day w	eight loss	s tests. Va	alues sho	wn are th	e average	e of all replicates.							
2	When there is more t	han one variation of a product, the me	ost corrosiv	e results a	are shown	۱.												
3	Uniform corrosion tes	sts are performed on wet concentrates	s and mixed	d products	. Corrosi	on is not o	conducted	d on Dry o	concentra	tes.								
4	Meets intergranular o	corrosion requirements for magnesium	۱.															