

E Grade Denatured Fuel Ethanol Specifications

Specification Points	Test Method	Shipments	Deliveries^{1/}
Apparent Proof, 60°F Or Density, 60°F	Hydrometer ASTM D-4052	Report Report	
Water, Volume %, Maximum	ASTM E-203 or E-1064	1.0	
Ethanol, Volume % Minimum	ASTM D-5501	93.5	93.0
Methanol, Volume %, Maximum	ASTM D-5501	0.5	
Sulfur, ppm (wt/wt), Maximum	ASTM D5453	10	
Solvent Washed Gum, mg/100mL Maximum	ASTM D-381 Air Jet Method	5	
Potential Sulfate, mass ppm Maximum	ASTM D7319	4	
Chloride, mg/L Maximum	ASTM D-512-81 Procedure C, Modified per D-4806	32	
Copper, mg/L Maximum	ASTM D-1688 Method A, Modified per D-4806	0.08	
Acidity (as acetic acid), Mass % Maximum	ASTM D-1613	0.007	
pHe Minimum Maximum	ASTM D-6423	6.5 9.0	
Appearance @ 60°F	Visual Examination	Visibly free of suspended or precipitated contaminants. Must be clear and bright.	
Denaturant Content and Type ^{2/} Volume %		2	
Corrosion Inhibitor Additive, One of the following is required:	Minimum treat rate	Vendor	Additive
	10 lbs./1000 bbls.	Innospec	DCI-11 Plus
	20 lbs/1000 bbls.	G. E. Betz	Endcor GCC9711
	20 lbs./1000 bbls.	Petrolite	Tolad 3222
	20 lbs./1000 bbls.	Nalco	5403
	20 lbs./1000 bbls.	Betz	ACN 13
	20 lbs./1000 bbls.	Midcontinental	MCC5011E
	13 lbs./1000 bbls.	Midcontinental	MCC5011PHE
	13 lbs./1000 bbls.	Petrolite	Tolad 3224
	13 lbs/1000 bbls.	US Water Services	Corrpro 654
	10 lbs/1000 bbls.	Nalco	5624A
	10 lbs/1000 bbls.	Nalco	5624ATR
	13 lbs/1000 bbls.	US Water Services	Corrpro 656
	6 lbs/1000 bbls	Ashland	Ameryg ECI-6
	3 lbs/1000 bbls.	G.E. Power & Water	8Q123ULS
	10 lbs/1000 bbls.	NALCO	EC5624A Plus

E Grade Denatured Fuel Ethanol Specifications (continued)

- 1/ Delivered products meets all applicable requirements at time and place of delivery.
- 2/ Only approved denaturants listed in D4806. The denaturant range must be within the guidelines provided for in IRS Notice 2009.06, which is 1.96% to no more than 2.5%.