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**COUNTRY COMPARISON ANALYSIS  
SPECIFICATIONS FOR ANHYDROUS FUEL ETHANOL**

Specification	Unit		BRAZIL ANP Reg # 19 April 15, 2015	USA ASTM D-4806- 16a 2016	EUROPE EN 15376: 2014 (E) Sept. 6, 2014	CHINA GB 18350- 2013
Specific mass @ 20°C	kg/m <sup>3</sup>	Max.	791.5	-	-	-
Alcohol strength @ 20°C	mass %	Min.	99.3	-	-	-
Ethanol @ 60°F (15.56°C)	v/v %	Min.	-	92.1	-	92.1
Ethanol @ 20°C	mass %	Min.	98.0	-	98.7 <sup>(1)</sup>	-
Water (Karl Fischer)	v/v %	Max.	-	1.0	-	0.8
Water	m/m %	Max.	0.7	-	0.300	-
Total acidity (as acetic acid)	mg/L, (mass %), [mg/kg]	Max.	30	56 (0.0070) [70]	(0.007)	56
Electrical conductivity	μS/m	Max.	300	-	-	-
pHe	-		-	6.5 ~ 9.0	-	6.5 ~ 9.0
Copper	mg/kg	Max.	0.07	0.1	0.100	0.08
Inorganic chloride	mg/kg (mg/L)	Max.	1	6.7 (5)	1.5	(8)
Solvent-washed gum	mg/100 mL	Max.	-	5.0	-	5
Methanol	v/v %	Max.	0.5	0.5	-	0.5
Methanol	m/m %	Max.	-	-	1.0	-
Higher saturated mono-alcohols-C3-C5 max.	m/m %	Max.	-	-	2.0	-
Sulfur	mass %, ppm (mg/kg)	Max.	Report	30.	-	(30)
Total sulfate	mg/kg	Max.	4	4	3.0	-
Phosphorus content	mg/L	Max.	-	-	0.15	-
Non-volatile material	mg/100mL	Max.	5	-	<sup>(2)</sup>	-
Denaturant content	vol. %	Max.	3	1.96 ~ 2.5	-	0.99 ~ 4.76
Iron	mg/kg	Max.	5	-	-	-
Sodium	mg/kg	Max.	2	-	-	-
Aspect	-		Clear <sup>(3)</sup>	Clear <sup>(3)</sup>	Clear <sup>(3)</sup>	

<sup>(1)</sup> Ethanol + higher saturated alcohols.

<sup>(2)</sup> The concentration is at the discretion of the National Authorities and should not be in contradiction with EN 228 requirements.

<sup>(3)</sup> Clear, bright and visibly free of suspended or precipitated contaminants.