

I T E C
Refining and Marketing Company Ltd.



SPECIFICATIONS FOR FUEL ETHANOL

SPECIFICATION	UNIT		BRAZIL	ASTM	EUROPE
Density @ 20°C	kg/m ³	max.	791.5		
Alcohol strength @ 20°C	INPM, mass, ppm	min.	99.3 ⁽¹⁾		
Alcohol strength @ 20°C	% v/v	min.	99.6		98.7 ⁽³⁾
Ethanol @ 60°C (15.56°C)	% v/v	min.		92.1 ⁽²⁾	
Water (Karl Fischer)	% v/v	max.	-	1.0	0.300
Water	% m/m	max.			0.300
Total acidity (as acetic acid)	mg/L (mass, ppm)	max.	30.	56 (0.007)	56 (0.007)
Electrical conductivity	µS/m	max.	500	-	
pHe	-		-	6.5 - 9.0	
Copper	mg/kg	max.	0.07	0.1	0.100
Inorganic chloride	mass, ppm (mg/L)	max.	-	10 (8)	(20.0)
Solvent-washed gum	mg/100 mL	max.	-	5.0	
Methanol	% v/v	max.	-	0.5	
Methanol	% m/m	max.	-		1.0
C3-C5 max.	% v/v	max.	-		2.0
Denaturant content	% v/v		-	1.96 - 5.0	
Sulfur	mass, ppm (mg/kg)	max.	-	30	(10.0)
Total sulfate	mass, ppm	max.	-	4	
Phosphorus	mg/L	max.	-		0.50
Non-volatile material	mg/10 mL	max.	-		10
Aspect	-		Clear ⁽⁴⁾	Clear ⁽⁴⁾	Clear ⁽⁴⁾

⁽¹⁾ Densimeter

⁽²⁾ Gas chromatography

⁽³⁾ 98.7 - Ethanol + higher saturated alcohols

⁽⁴⁾ Clear, bright and visibly free of suspended or precipitated contaminants

Brazil - ANP Anhydrous Resolution #36 (December 6, 2005)

ASTM D 4806-09

Europe - Draft prEN 15376 (Aug/2007)