

**I T E C**  
*Refining and Marketing Company Ltd.*



The Grove Country Offices  
22 East Dundee Road, Suite 21  
Barrington, IL 60010-7410 USA

Tel: 847-304 4700  
Fax: 847-304 4710  
E-mail: [alcohol@itecref.com](mailto:alcohol@itecref.com)  
URL: [www.itecref.com](http://www.itecref.com)

**KOREAN GRADE A - HYDRATED INDUSTRIAL ETHYL ALCOHOL SPECIFICATION (95.4%)**  
**(BRAZILIAN ORIGIN)**

<u>Parameter</u>	<u>Units</u>	<u>Limits</u>	<u>Method</u>
Alcohol Strength at 15°C	% Vol.	Min. 95.4	ASTM D 4052
Alcohol Strength	% Mass	Min. 93.0	ASTM D 4052
Aldehydes (as Acetaldehyde)	Mg/100 ml	Max. 6.5	GLC
Acidity (as Acetic Acid)	Mg/100 ml	Max. 3.0	ASTM D1613
Appearance	-	Clear <sup>(1)</sup>	Visual
Benzene	ppm	Absent <sup>(2)</sup>	UV/GLC
Chloride	ppm	Absent <sup>(4)</sup>	Turbidimetri c
Crotonaldehyde	Mg/100 ml	Absent <sup>(3)</sup>	GLC / ASTM D 5501
Cyclohexane	ppm	Absent <sup>(2)</sup>	GLC / ASTM D 5501
Hydrocarbons	% vol.	Absent <sup>(6)</sup>	ASTM D 1722
Dry Extracts	Mg/100 ml	Max. 4.0	ASTM D 1353
Esters (as Ethyl Acetate)	Mg/100 ml	Max. 9.0	GLC
I-Propanol	Mg/100 ml	Max. 2.0	GLC
Higher Alcohols (I-Propanol, N-Propanol, I-Butanol, N-Butanol, I-Amyl)	Mg/100 ml	Max. 24	GLC
Methanol	Mg/100 ml	Max. 6.0	GLC
Permanganate time at 20°C	Minutes	Min. 2	ASTM D 1363
Alkalinity		Negative	ASTM D 1614
Xylene	ppm	Negative <sup>(2)</sup>	UV/GLC
Toluene	ppm	Negative <sup>(2)</sup>	ASTM D 5580
Acetal	Mg/100 ml	Max. 10	GLC
Color	-	-	Not Specified
MEG	Mg/L	Max. 1.0	GLC
DEG	Mg/L	Max. 1.0	GLC
1,4 Dioxane	Mg/L	<0.01 <sup>(5)</sup>	GLC/MS

- (1) Clear and free of suspended matter  
 (2) Detection limit of test method: 0.1 ppm  
 (3) Detection limit of test method: 0.5 ppm  
 (4) Detection limit of test method: 1.0 ppm  
 (5) Detection limit of test method: 0.01 Mg/L  
 (6) Detection limit of test method – ASTM D 1722