

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



3 Porter School Road  
Barrington, IL 60010-2667 USA

Tel: +1 847-304-4700  
Fax: +1 847-304-4710  
Email: [alcohol@itecref.com](mailto:alcohol@itecref.com)  
URL : [www.itecref.com](http://www.itecref.com)

**JAPAN GRADE – CRUDE BEVERAGE / INDUSTRIAL ETHYL ALCOHOL SPECIFICATION (95.5%)**

<u>Parameter</u>	<u>Units</u>	<u>Limits</u>	<u>Method</u>
Alcohol Strength at 15° C	% Vol.	Min 95.5	ASTM D 4052
Alcohol Strength at 20° C	% Mass	Min. 93.2	ASTM D 4052
Aldehydes (as Acetaldehyde)	Mg/100 ml	Max. 5.0	GLC
Acidity (as Acetic Acid)	Mg/100 ml	Max. 3.0	ASTM D 1613
Appearance	-	Clear <sup>(1)</sup>	Visual
Benzene	ppm	Absent <sup>(2)</sup>	UV/GLC
Chloride	ppm	Absent <sup>(4)</sup>	Turbidimetric
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. 1.5	ASTM D 1353
Esters (as Ethyl Acetate)	Mg/100 ml	Max. 6.0	GLC
I-Propanol	Mg/100 ml	Max. 1.0	GLC
Higher Alcohols (I-Propanol, N-Propanol, I-Butanol, N-Butanol, I-Amyl)	Mg/100 ml	Max. 10	GLC
Methanol	Mg/100 ml	Max. 5.0	GLC
Permanganate time at 20° C	Minutes	Min. 6	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	Pt-Co	Max. 5	ASTM D 1209
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