



Carbon Dioxide (CO₂) Analysis

ISBT No-Haz Beverage-Grade Tier I Program[®]

Phone:
Attn.:
E-Mail:
Sample ID.: Vaporized Liquid CO₂ / Gaseous CO₂: "See Sample ID on Analysis Auth Form"
Sample ID.: Received in 2L True Blue MLB Polybag 1.2 + MiniCyl 1.0 + NVR 8.0 No-Haz Kits

ALI Track No.:

Received On:

Report Date:

Invoice No.:

Sample Date:

Process Stage: Final

Test Description/Units:

CO₂ Identification (Positive/ Negative by USP [DT]): _____

Comments: Positive ID = Positive Detector Tube Response.

CO₂ Purity (% v/v, ISBT 2.0 [GC/DID]): _____

Comments: Obtained by NCG + target list impurity subtraction method

Water Vapor (H₂O, ppm v/v, ISBT 3.0 [FTIR]): _____

Oxygen (O₂, ppm v/v, ISBT 4.0 [GC/DID]): _____

Comments: Result represents Total O₂ + Ar ppm v/v.

Nitrogen (N₂, ppm v/v, ISBT 4.0 [GC/DID]): _____

Carbon Monoxide (CO, ppm v/v, ISBT 5.0 [GC/DID]): _____

Ammonia (NH₃, ppm v/v, ISBT 6.0 [DT]): _____

Oxides of Nitrogen (NO_x, ppm v/v, ISBT 7.0 [DT]): _____

Comments: *Speciation required if above 2.5 ppm v/v. Maximum 2.5 ppm of either or both NO & NO₂

Nitric Oxide (NO, ppm v/v, ISBT 7.1 [DT]): _____

Nitrogen Dioxide (NO₂, ppm v/v, ISBT 7.2 [DT]): _____

Non-Volatile Residue (NVR, ppm w/w, ISBT 8.0 [Grav]): _____

Comments: No visible matter observed.

Non-Volatile Organic Residue (NVOR, ppm w/w, ISBT 8.0 [Grav]): _____

Comments: No NVOR film observed.

Phosphine (PH₃, ppm v/v, ISBT SM 3.0 [DT]): _____

Comments:

Total Hydrocarbons (THC, ppm v/v as CH₄, ISBT 10.0): _____

Flash Vaporized Liquid Phase: _____

Total Non-Methane Hydrocarbons (TNMHC, ppm v/v as CH₄, ISBT 10.1): _____

Methane (CH₄, ppm v/v, ISBT 10.1 [GC]): _____

Methanol (MeOH, ppm v/v, ISBT 9.0 [GC]): _____

Acetaldehyde (AA, ppm v/v, ISBT 11.0 [GC]): _____

Acetone (Acetone, ppm v/v, ISBT 11.0 [GC]): _____

Ethanol (Ethanol, ppm v/v, ISBT 11.0 [GC]): _____

Aromatic Hydrocarbon Content (ppb v/v as Benzene, ISBT 12.0 [GC]): _____

Comments: No target BTEX impurities detected.

Total Sulfur Content* (TSC* ppm v/v as S, ISBT 14.0): _____

Comments: *Obtained by summation of all specified VSC target impurities less SO₂

Hydrogen Sulfide (H₂S, ppm v/v, ISBT 14.0 [GC]): _____

Carbonyl Sulfide (COS, ppm v/v, ISBT 14.0 [GC]): _____

Sulfur Dioxide (SO₂, ppm v/v, ISBT 14.0 [GC]): _____

Result	LOQ	ISBT Limit
	5	positive
	5	99.9 min
	1	20 max
	1	30 max
	1	na
	1	10 max
	0.5	2.5 max
	0.5	5 max*
	0.5	2.5 max
	0.5	2.5 max
	2	10 max
	2	5 max
	0.25	0.3 max
	0.1	50 max
	0.1	20 max
	0.1	50 (see THC)
	0.1	10 (see THC)
	0.05	0.2 max
	0.1	see THC
	0.1	see THC
	2	20 max
	0.01	0.1 max
	0.01	see TSC
	0.01	see TSC
	0.05	1 max
	na	clear
	na	none
	0.2	nd
	0.1	nd
	0.1	0.2 max

LOQ = Limit of Quantitation (lowest amount of analyte quantitatively determined with suitable precision and accuracy) MDL = method detection limit (lowest amount of analyte detected).
trace = unquantified amount observed between MDL and LOQ. nd = indicates the impurity was not detected (below MDL). -- = test not performed. na = not available. LT = less than the amount specified. GT = greater than the amount specified. % = percent. ppm = parts per million. ppb = parts per billion. v/v = volume analyte/volume sample. w/w = weight analyte/weight sample. [result] indicates the result was obtained by the method listed within brackets. TSC* = ISBT Total Sulfur Content excluding SO₂. Unit Conversions: 1ppm v/v = 1μL/L = 1000 ppb = 0.0001% v/v. Date format: MM/DD/YY.

Report Summary:

Customer requested a standard ISBT No-Haz LCO₂ test program.

This sample meets all ISBT purity criteria for beverage grade LCO₂.

Reviewed by / Date:

Lab Manager

mm/dd/yy

Lab Manager

Attachments: none

Addendum: Signatures, Instrument & Notebook data on-file

ISO Statement

F-21.7v10 (8/23)



Accreditation # 68099