



Airborne Labs International

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Carbon Dioxide (CO₂) Analysis

Pepsi-Cola No-Haz Beverage-Grade Program[®]

Customer Company _____
Street Address 1 _____
City, State ZIP _____
Phone: nnn-xxx-xxxx, Cell: nnn-xxx-xxxx, (Fax: nnn-xxx-xxxx)
Attn.: Mr./Ms./Dr. John Smith and Mr./Ms./Dr. Derek Jeter
E-Mail: _____
Sample ID.: Vaporized Liquid CO₂: "See Sample ID on Analysis Auth Form"
Sample ID.: Received in 2L True Blue Tedlar Polybag 1.2 + MiniCyl 1.0 + NVR 8.0 No-Haz Kits

ALI Track No.: nnnnn
Received On: mm/dd/yy
Report Date: mm/dd/yy
Invoice No.: PO

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

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]): _____

Total Other Volatile Oxygenates (TOVO, ppm v/v, ISBT 11.0 [GC]): _____
Comments: Obtained by summation of all speciated VOX target impurities less AA, MeOH & EtOH

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 speciated VSC target impurities less SO₂

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

Sensory Tests

Appearance in Water (Pass/Fail, ISBT 16.0): _____

Odor & Taste in Water (Pass/Fail, ISBT 16.0): _____
Comments:

Supplemental Tests

Hydrogen Cyanide (HCN, ppm v/v by ISBT SM-1.0 [GC]): _____

Vinyl Chloride (VCl, ppm v/v by ISBT SM-2.0 [GC]): _____

Ethylene Oxide (ETO, ppm v/v by ISBT 11.0 [GC]): _____

Result	LOQ	Pepsi Limit
	5	positive
	5	99.9 min
	1	30 max
	1	120 max
	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	1 max
	2	20 max
	0.01	0.1 max
	0.05	1 max
	na	clear
	na	none
	0.2	nd
	0.1	nd
	0.1	nd

Speciated Volatile Hydrocarbons (VHC, ppm v/v by ISBT 10.1)

Table with 3 columns: Analyte Name, Result, and Pepsi Limit. Lists hydrocarbons like Ethane, Ethylene, Propane, etc., with results of 0.1 and limits of 'see THC'.

Comments: Peak ID based upon t_r match vs target analyte std. CH4 result on pg 1.

Speciated Volatile Sulfur Compounds (VSC, ppm v/v by ISBT 14.0)

Table with 3 columns: Analyte Name, Result, and Pepsi Limit. Lists sulfur compounds like Hydrogen Sulfide, Carbonyl Sulfide, Methyl Mercaptan, etc., with results of 0.01 and limits of 'see TSC'.

Comments: Peak ID based upon t_r match against target analyte standards. Note: SO2 + TSO* results reported on pg. 1.

Speciated Volatile Oxygenates (VOX, ppm v/v, by ISBT 11.0)

Table with 3 columns: Analyte Name, Result, and Pepsi Limit. Lists oxygenates like Dimethyl Ether, Diethyl Ether, Propionaldehyde, etc., with results of 0.1 and limits of 'see THC'.

Comments: Peak ID based upon t_r match against target analyte standards. AA and ETO results reported on pg. 1.

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 Pepsi No-Haz LCO2 test program. This sample meets all Pepsi purity criteria for beverage grade LCO2.

Reviewed by / Date:

Laboratory Manager

mm/dd/yyyy

Laboratory Manager

Attachments: none

Addendum: Signatures, Instrument & Notebook data on-file

ISO Statement

Statements of conformity (pass or fail) resulting from the test/analysis performed on the above sample will not take into account the reported measurement uncertainty unless otherwise specified. This is a shared risk decision rule in which the customer also has responsibility for determining acceptance of the results. The methods Airborne Labs International uses are developed by Airborne Labs International and are based on the current revisions of international, national, or industry standards unless otherwise specified. The acceptance criteria of the above item are based on ISBT specifications, NFPA, CGA, USP, or other industry specifications unless otherwise specified on the contract.



Accreditation # 68099