



RAYONG LABORATORY ADDRESS :
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CERTIFICATION OF ANALYSIS
(COCA-COLA CO2 BEVERAGE GRADE SPECIFICATIONS)

REPORT DESCRIPTION :	
REPORT No. :	REPORT DATE :
ANALYSIS No. :	ANALYSIS DATE :
SERVICE ORDER AGREEMENT No. :	SAMPLE RECEIVED DATE :
EXPORT INVOICE No. or PO No. / DATE:	ANALYSIS BY :

CUSTOMER DESCRIPTION :	
CUSTOMER NAME :	
CUSTOMER ADDRESS :	
TEL. No. / FAX. No. :	
Attn. to :	

SAMPLE DESCRIPTION (By Customer) :	
SAMPLE TYPE :	SAMPLING RECEIVED IN
SAMPLE POINT / LOCATION :	- Cylinder No. :
SAMPLING DATE :	- Sampling Kit : Small Cylinder no
SAMPLING TIME :	Beaker no. :
SAMPLING BY :	Sampling Bags no. :

TEST PARAMETER	UNIT	TEST METHOD	ISBT Reference no.	TEST RESULT	DL	SPECIFICATION
CO2 Purity (Assay)*	% v/v	Zahn & Nagel	ISBT 2.0		99.00	Min. 99.90
Moisture Content / Water (H2O)*	ppm v/v	Moisture Analyzer	ISBT 3.0		0.25	Max. 20.0
Oxygen (O2)	ppm v/v	Inhouse method ²	ISBT 4.0		0.7	Max. 30.0
Ammonia (NH3)*	ppm v/v	Detector Tube	ISBT 6.0		0.2	Max. 2.5
Nitrogen Dioxide (NO2)*	ppm v/v	Detector Tube	ISBT 7.1		0.1	Max. 2.5
Nitric Oxide (NO)*	ppm v/v	Detector Tube	ISBT 7.2		0.1	Max. 2.5
Non-Volatile Organic Residue (NVOR)*	ppm w/w	Gravimetry	ISBT 8.0		1.5	Max. 5.0
Non-Volatile Residue (NVR)*	ppm w/w	Gravimetry	ISBT 8.0		1.5	Max. 10.0
Methanol (CH3OH)*	ppm v/v	Gas chromatography	ISBT 9.0		0.1	Max. 10.0
Phosphine (PH3)*	ppm v/v	Detector Tube	ISBT 19.0		0.02	Max. 0.3
Total volatile Hydrocarbon (THC) (as CH4)*	ppm v/v	Gas chromatography	ISBT 10.0		0.15	Max. 50.0
Methane	ppm v/v	Inhouse method ¹	-		0.15	-
Ethane	ppm v/v	Inhouse method ¹	-		0.15	-
Ethylene	ppm v/v	Inhouse method ¹	-		0.15	-
Propane	ppm v/v	Inhouse method ¹	-		0.15	-
Propylene	ppm v/v	Inhouse method ¹	-		0.15	-
Isobutane	ppm v/v	Inhouse method ¹	-		0.15	-
n-butane	ppm v/v	Inhouse method ¹	-		0.15	-
Isopentane	ppm v/v	Inhouse method ¹	-		0.15	-
n-pentane	ppm v/v	Inhouse method ¹	-		0.15	-
Hexane plus	ppm v/v	Inhouse method ^{1,5}	-		0.15	-
Acetaldehyde (C2H4O, or AA)	ppm v/v	Inhouse method ³	ISBT 11.0		0.1	Max. 0.2
Aromatic Hydrocarbon (Benzene)	ppb v/v	Inhouse method ³	ISBT 12.0		5.0	Max. 20.0
Carbon Monoxide (CO)	ppm v/v	Inhouse method ²	ISBT 5.0		0.5	Max. 10.0
Total Sulfur (as S) (Excluding Sulfur Dioxide)*	ppm v/v	Gas chromatography	ISBT 13.0		0.05	Max. 0.1
Sulfur Dioxide (SO2)*	ppm v/v	Gas chromatography	ISBT 14.0		0.05	Max. 1.0
Hydrogen Sulfide	ppm v/v	Inhouse method ⁴	ISBT 13.0		0.05	-
Carbonyl Sulfide	ppm v/v	Inhouse method ⁴	ISBT 13.0		0.05	-
Odor of Solid CO2 (Snow)*	-	Organoleptic	ISBT 15.0		na	No off odor
Appearance of Solid CO2 (Snow)*	-	Organoleptic	ISBT 15.0		na	No Foreign Appearance
Appearance in Water*	-	Organoleptic	ISBT 16.0		na	No Color or Turbidity
Odor in Water*	-	Organoleptic	ISBT 16.0		na	No off odor
Taste in Water*	-	Organoleptic	ISBT 16.0		na	No off taste

Note :
 (1) Inhouse method WI-LAB08 based on International Society of Beverage Technologists (ISBT)- 4th Revision, 01 Oct 2021, Procedure 10.0
 (2) Inhouse method WI-LAB06 based on ASTM D8098-17.
 (3) Inhouse method WI-LAB03 & WI-LAB07 based on International Society of Beverage Technologists (ISBT)- 4th Revision, 01 Oct 2021, Procedure 12.0
 (4) Inhouse method WI-LAB04 based on International Society of Beverage Technologists (ISBT)- 4th Revision, 01 Oct 2021, Procedure 13.0
 (5) Inhouse method WI-LAB05 based on International Society of Beverage Technologists (ISBT)- 4th Revision, 01 Oct 2021, Procedure 11.0
 (*) Test marked "Not TISI Accredited" in this certificate are not included in the TISI Accreditation Schedule for our laboratory.
 - The reported uncertainty is an expanded uncertainty calculated using a coverage factor of k=2 which gives a level of confidence of approximately 95%
 DL = Detection Limit. nd = less than the detection Limit. ppm = parts per million. ppb = parts per billion. na = not available.

Review by :

(Thatchayaphan Thongmuengluang)

Approved by :

(Tippawan Pichetjumscheep)

Remark :

- Partial duplication of this certificate without documentary permission from Laboratory is prohibited.
- This certificate is valid only for the test and mentioned sample(s).
- The laboratory disclaims responsibility for The information is supplied by the customer and can affect the validity of results.
- The certificate that the results apply to the sample as received.
- The laboratory does not have a policy to reporting opinions , interpretations and statements of conformity.
- The laboratory disclaims in the report indicating which results may be affected by the deviation.