



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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CHEMICAL

Valid To: September 30, 2023

Certificate Number: 3198.01

In recognition of the successful completion of the A2LA evaluation process accreditation is granted to this laboratory to perform the following tests on electronic cigarette aerosol, electronic cigarette liquid, tobacco, and tobacco products:

<u>Test/Technology(ies)</u>	<u>Test Method(s)</u>
E-Cigarette Liquid and Aerosol	
Aerosol Particle Size Analysis of ENDS	ENT520
Ammonia in E-Cigarette Aerosol by IC	ENT307
Ammonia in E-Cigarette Liquid by IC	ENT307
Benzo(a)pyrene in E-Cigarette Aerosol by GC/MS	ENT217
Benzo(a)pyrene in E-Cigarette Liquid by GC/MS	ENT217
Carbonyls in E-Cigarette Aerosol by HPLC/UV	ENT305
Carbonyls in E-Cigarette Liquid by HPLC/UV	ENT301
Collection of E-Cigarette Aerosol Using an Analytical Smoking Machine	ENT518
Esters in E-Liquids by GC/MS	ENT209
Esters in E-Cigarette Aerosol by GC/MS	ENT218
Glycidol in E-Cigarette Aerosol by GC/MS	ENT203
Glycidol and 3-CPD in E-Cigarette Liquid by GC/MS	ENT203
Karl Fischer Titration of E-Cigarette Liquids	ENT072T, ASTM D-4017-02
Karl Fischer Titration of Water in E-Cigarette Liquids and Aerosol	ENT073

<u>Test/Technology(ies)</u>	<u>Test Method(s)</u>
E-Cigarette Liquid and Aerosol (cont.)	
Karl Fischer Titration of Water in Pouches	ENT073
Ketones in E-Cigarette Liquid by GC/MS	ENT225
Long Chain Acids in E-Liquids by GC/FID	ENT121
Nitrosamines in E-Cigarette Aerosol by GC/MS	ENT211
Nitrosamines in E-Cigarette Liquid by GC/MS	ENT211
Organic Acids in E-Cigarette Aerosol by IC	ENT327
Organic Acids in E-Cigarette Liquid by IC	ENT327
pH in E-Cigarette Aerosol	ENT056
pH in E-Cigarette Liquid	ENT058
Primary Constituents in E-Cigarette Aerosol by GC/FID & GC/TCD	ENT185
Primary Constituents in E-Cigarette Liquid by GC/FID & GC/TCD	ENT184
Steric Acid in E-Cigarette Aerosol by GC/FID	ENT123
Volatile Organic Compounds in E-Cigarette Aerosol by GC/MS	ENT208
Volatile Organic Compounds in E-Cigarette Liquid by GC/MS	ENT208
Volatile Organic Compounds in E-Cigarette Aerosol Collected on Sorbent Media (Low-Level) by GC/MS	ENT208A
Volatile Organic Compounds in E-Cigarette Liquids (Low-Level) by GC/MS	ENT208A
Volatile Organic Compounds (Extended Analyte List) in E-Cigarette Aerosol by GC/MS	ENT208B
Volatile Organic Compounds (Extended Analyte List) in E-Cigarette Liquid by GC/MS	ENT208B
Hydrogen Cyanide in E-Cigarette Liquid by HPLC	ENT335



<u>Test/Technology(ies)</u>	<u>Test Method(s)</u>
E-Cigarette Liquid and Aerosol (cont.)	
Hydrogen Cyanide in E-Cigarette Aerosol by HPLC	ENT335
Phenols in E-Cigarette Liquid by HPLC	ENT306
Phenols in E-Cigarette Aerosol by HPLC	ENT306
Hydrazine in E-Cigarette Liquid by HPLC	ENT318
Hydrazine in E-Cigarette Aerosol by HPLC	ENT318
Mint Flavors in E-Cigarette Liquid by GC/MS	ENT227
Organic Acids in E-Cigarette Aerosol by GC/FID	ENT 187
Organic Acids in E-Cigarette Liquid by GC/FID	ENT187
Heated Tobacco Products (HTP)	
Ammonia in HTP Aerosol by HPLC	ENT307
Collection of HTP Aerosol Using an Analytical Smoking Machine	ENT518
Furan and Furfuryl Alcohol in HTP by GC/MS	ENT266
Glycidol and 3-CPD in HTP Aerosol by GC/MS	ENT203
Hydrogen Cyanide in HTP Aerosol by HPLC	ENT335
Nitrosamines in HTP Aerosol by HPLC	ENT211
Phenols in HTP Aerosol by HPLC	ENT306
Primary Constituents in HTP Aerosol by GC/FID & GC/TCD	ENT185
Volatile Organic Compounds in HTP Aerosol Collected on Sorbent Media (Low-Level) by GC/MS	ENT208A
Mainstream Cigarette Smoke	
Aldehydes, Ketones, and Acrolein in Smoke by HPLC	ENT302, Coresta Recommended Method N°74
Ammonia in Smoke by IC	ENT304, HC T-101
Benzo(a)pyrene in Smoke by GC/MS	ENT204

<u>Test/Technology(ies)</u>	<u>Test Method(s)</u>
Mainstream Cigarette Smoke (cont.)	
Nicotine & Water in Smoke by GC	ENT181, ISO 10315, ISO 10362-1
Nitrosamines in Smoke by GC/MS	ENT211, Coresta Recommended Method N°63
PAHs in Smoke by GC/MS	ENT220
pH in Smoke	ENT056
Phenolics in Smoke by HPLC	ENT306, HC T-114
Sample Prep for Collection by Cambridge Pad Trapping	ENT502, ISO 4387, ISO 3402, ISO 3308
Semi-Volatile Organic Compounds in Smoke by GC/MS	ENT206, HC T-112
Volatile Organic Compounds in Smoke by GC/MS	ENT208, HC T-116, Coresta Recommended Method N°70
Tobacco, Tobacco Products, and Cigarette Filler	
Ammonia in Tobacco by IC	ENT332, HC T-302
Benzo(a)pyrene in Tobacco by GC/MS	ENT 212
Carbonyl Compounds in Tobacco by HPLC	ENT303
Mint Flavors in Tobacco by GC/MS	ENT227
Nicotine and Minor Alkaloids in Tobacco by GC/MS	ENT264
Nicotine in Tobacco by GC	ENT182, FR Vol.73, No. 51/Friday, 3/14/2008
Nitrate and Nitrite in Tobacco by IC	ENT334
Nitrosamines in Tobacco by GC/MS	ENT210, Coresta Recommended Method N°63
Oven Volatiles in Tobacco by Gravimetric	ENT046
pH Measurement in Tobacco	ENT058
Other Testing	
Proprietary Client Method	ENT265

Key:
FR = Federal Register
HC = Health Canada



Accredited Laboratory

A2LA has accredited

ENTHALPY ANALYTICAL, LLC.

Durham, NC

for technical competence in the field of

Chemical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 20th day of October 2021.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3198.01
Valid to September 30, 2023

For the tests to which this accreditation applies, please refer to the laboratory's Chemical Scope of Accreditation.