



10636
Accredited to
ISO/IEC 17025:2017

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

Broughton Life Sciences Limited
Issue No: 012 Issue date: 13 January 2025

Testing performed at main address only

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|--|---|
| SMOKELESS NICOTINE DELIVERY PRODUCTS (ecigarettes, electronic cigarettes, vaping devices) (cont'd) | <u>Chemical Tests</u> (cont'd) | |
| Electronic cigarette liquid and Smokeless nicotine delivery vapour / aerosol (cont'd) | 1,3-Butadiene Isoprene Acrylonitrile Benzene Propylene Oxide Toluene | NTM0012 - based on ISO 20768:2018 and gas chromatography-mass spectrometry (GC-MS) |
| | Nicotine n-oxide Cotinine Nornicotine Anatabine Myosmine Anabasine beta-Nicotyrine | NTM0016 - based on ISO 20768:2018 using liquid chromatography mass spectrometry |
| | Acetaldehyde Formaldehyde Crotonaldehyde Acrolein Propionaldehyde Butyraldehyde Methyl Ethyl Ketone (2-Butanone) | NTM0025a - based on ISO 20768:2018 and liquid chromatography-mass spectrometry (LC-MS). |
| | Diacetyl Acetyl Propionyl | NTM0025b - based on ISO 20768:2018 and liquid chromatography-mass spectrometry (LC-MS) |
| | Furfural | NTM0025c - based on ISO 20768:2018 and liquid chromatography-mass spectrometry (LC-MS) |
| | Benzaldehyde Cinnamaldehyde Vanillin | NTM0025d - based on ISO 20768:2018 and liquid chromatography tandem mass spectrometry (LC-MS/MS) |
| | pH | NTM0027 - based on ISO 20768:2018 and European Pharmacopoeia monograph, Ph. Eur. 2.2.3 Potentiometric Determination of pH |



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| SMOKELESS NICOTINE DELIVERY PRODUCTS (ecigarettes, electronic cigarettes, vaping devices) (cont'd) | <u>Chemical Tests</u> (cont'd) 1-Butanol Benzyl Acetate Ethyl Acetate Ethyl Acetoacetate Isoamyl Acetate Isobutyl Acetate Methyl Acetate Propionic acid Benzoic acid Arsenic Cadmium Chromium Copper Nickel Lead Tin Zinc Iron Silver Aluminium Vanadium Cobalt Molybdenum Antimony Mercury Gold | Documented In-House Methods based on industry standard methods (solvent extraction and aerosol collection only based on ISO 20768:2018) NTM0037 - based on ISO 20768:2018 and headspace gas chromatography-mass spectrometry (GC-MS) 1. NTM0038 - based on ISO 20768:2018 and ion chromatography (IC) 2. NTM0057 - based on ISO 20768:2018 and liquid chromatography-ultraviolet (HPLC-UV) NTM0063 by Ion Chromatography NTM0004 - based on ISO 20768:2018 and inductively coupled plasma mass spectrometry (ICP-MS). NTM0065 - based on ISO 20768:2018 and inductively coupled plasma mass spectrometry (ICP-MS). NTM0065 - based on ISO 20768:2018 and inductively coupled plasma mass spectrometry (ICP-MS). |



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| Smokeless nicotine delivery vapour / aerosol | Nicotine | TM1111 - based on ISO20768:2018 and liquid chromatography-ultraviolet (HPLC-UV) |
| Electronic cigarette liquid | Nicotine | TM1116 - Determination of Nicotine assay in E-Liquid by liquid chromatography-ultraviolet (HPLC-UV) |
| SMOKELESS NICOTINE DELIVERY PRODUCTS (ecigarettes, electronic cigarettes, vaping devices) | <u>Physical Tests</u> | Documented In-House Methods based on industry standard methods (solvent extraction and aerosol collection only based on ISO 20768:2018) |
| Electronic cigarette liquid | Density Relative Density Specific Gravity | NTM0019 - at 20°C based on British Pharmacopoeia Monograph, Appendix V G |
| | Viscosity | NTM0023 at 25°C by Rotational Rheometer |
| | Mass loss during storage | NTM0041 - Determination of Mass Loss During Storage of Samples using analytical balances |
| | Boiling point | NTM0051 - Determination of Boiling Point of E-Liquids using Mettler Toledo MP80 Instrument |
| | Water content | TM1051 - Determination of Water Content by Karl Fischer. In-house method based on European Pharmacopoeia Ph. Eur. 2.5.12/British Pharmacopoeia Monograph Water Content by Karl Fischer titration |



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| Electronic cigarette liquid (cont'd) | Density | TM1145 – based on British Pharmacopoeia Monograph, Appendix V G at 20°C by a Density Meter |
| | <u>Chemical Tests</u> | Documented In-House Methods based on industry standard methods (solvent extraction and aerosol collection only based on ISO 20768:2018) |
| | Refractive Index | TM1146 - Determination of Refractive Index at 20°C by optical refractometry. In-house method based on European Pharmacopoeia monograph, Ph. Eur. 2.2.6 Determination of Refractive Index. |
| Smokeless nicotine delivery vapour/aerosol | Particle size | TM1309 - Particle Size Determination based on European Pharmacopoeia Ph. Eur. 2.9.31/British Pharmacopoeia Monograph Laser Diffraction. |
| Modern Oral Tobaccoless Pouches | Water Content | NTM0081 – Determination of Water Content based on British Pharmacopoeia method for water 2.5.12/Karl Fischer Titration |



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| Modern Oral Tobaccoless Pouches (cont'd) | <p>Metals: Ag, Silver Al, Aluminium As, Arsenic Cd, Cadmium Co, Cobalt Cr, Chromium Hg, Mercury Mo, Molybdenum Ni, Nickel Pb, Lead Sb, Antimony Sn, Tin V, Vanadium Zn, Zinc</p> <p>Carbonyls: Acetaldehyde Acrolein AP Butyraldehyde Crotonaldehyde DA Formaldehyde MEK/methyl ethyl ketone/butanone Propionaldehyde</p> <p>Diketones: Diacetyl Acetyl Propionyl</p> <p>Nicotine</p> <p>4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK) N'-Nitrosonornicotine (NNN) (S)-N-Nitrosoanabasine (NAB) (S)-N-Nitrosoanatabine (NAT)</p> <p>Dissolution of Nicotine</p> | <p>NTM0082 – Determination of metals by ICP-MS</p> <p>NTM0083a – Determination of Carbonyls by HPLC-MS</p> <p>NTM0083b – Determination of Diketones by HPLC-MS</p> <p>NTM0084 – Determination of Nicotine Assay by HPLC-UV</p> <p>NTM0115 Determination of tobacco specific nitrosamines by LC-MS/MS</p> <p>NTM0086 - USP-4 Dissolution Apparatus by HPLC-UV</p> |



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| Modern Oral Tobaccoless Pouches (cont'd) | Freebase Nicotine | NTM0088 - Determination of Freebase Nicotine using pH meter and Henderson-Hasselbalch Equation |
| | Nicotine n-oxide Cotinine Nor nicotine Anatabine Myosmine Anabesine beta-Nicotyrine | NTM0097 - Determination of Nicotine Related Substances by LC-MS/MS |
| | <u>Physical Tests</u> | Documented In House Methods: |
| | pH | NTM0098 – Determination of pH European Pharmacopeia Method 2.2.3 Potentiometric Determination of pH using pH meter |
| | Water Activity (25°C) | NTM0087 – Determination of Water Activity at 25°C by Water Activity Meter |
| | Loss on drying | NTM0099 – Determination of Loss on drying based on European Pharmacopeia Method 2.2.32 |
| Alternative Tobacco Products | Weight | NTM0120 – by analytical balance |
| | Length and Diameter | NTM0119 – by callipers |
| Disposable Electronic Nicotine Delivery Systems and E-liquid Pods | Fill weight and Fill volume | NTM0106 – by analytical balance and density meter |



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| SMOKELESS NICOTINE DELIVERY PRODUCTS (ecigarettes, electronic cigarettes, vaping devices) (cont'd) | <u>Chemical Tests</u> | Documented In House Methods |
| E-liquids and Aerosols | Cannabinoids: Cannabichromenic acid (CBCA) Cannabidiolic acid (CBDA) Cannabivaranic acid (CBDVA) Cannbigerolic acid (CBGA) Cannabinolic acid (CBNA) Tetrahydrocannabinolic acid (THCA-A) Tetrahydrocannabicaric acid (THCVA) Cannabichromene (CBC) Cannabicyclol (CBL) Cannabidiol (CBD) Cannabidivarin (CBDV) Cannabigerol (CBG) Cannabinol (CBN) d8-tetrahydrocannabinol (d8-THC) d9-tetrahydrocannabinol (d9-THC) Tetrahydrocannabicaric acid (THCV) | NTM0100 – by HPLC MS/MS |
| Heated Tobacco Products | Tobacco Specific Nitrosamines (TSNAs) | NTM0115 – by LC-MS/MS |
| | Carbonyls | NTM0112 – by LC-MS |
| | PG, VG, Menthol, Nicotine and Triacetin | NTM0113 – by GC-FID |
| | Acetamide and Acrylamide | NTM0114 – by HPLC-MS/MS |
| | Nitric oxide and nitrogen oxides | NTM0116 – by chemiluminescence |
| | Total Particulate Matter (TPM) and Carbon Monoxide | NTM0118 – using Horiba VA500 CO Analyser |



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| OILS AND TINCTURES | <u>Chemical Tests</u> Cannabinoids: Cannabichromenic acid (CBCA) Cannabidolic acid (CBDA) Cannabivarinic acid (CBDVA) Cannabigerolic acid (CBGA) Cannabinolic acid (CBNA) Tetrahydrocannabinolic acid (THCA-A) Tetrahydrocannabicarinic acid (THCVA) Cannabichromene (CBC) Cannabicyclol (CBL) Cannabidiol (CBD) Cannabidivarin (CBDV) Cannabigerol (CBG) Cannabinol (CBN) d8-Tetrahydrocannabinol (d8-THC) d9- Tetrahydrocannabinol (d9-THC) Tetrahydrocannabicarín (THCV) | Documented In House Methods NTM0121 – by HPLC-MS/MS |
| END | | |