SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

LABORATORIES ADMINISTRATION, MDH
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CHEMICAL

Valid to: May 31, 2024 Certificate Number: 3525.02

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the laboratory's compliance with the A2LA Food Testing Program Requirements, containing 2018–*"AOAC International Guidelines for Laboratories Performing Microbiological and Chemical Analyses of Food, Dietary Supplements, and Pharmaceuticals"*), accreditation is granted to this laboratory to perform the following tests on FDA regulated foods:

Test	**Internal Method**	**Reference Method(s)**
Food		
Determination of Arsenic species in Fruit Juice by HPLC and Inductively Coupled Plasma/Mass Spectrometry *(Arsenite (As III), Arsenate (As V), Dimethylarsinate (DMA), Monomethylarsonate (MMA))*	CHEM-SOP-AsSp	EAM 4.10 Determination of Arsenic species in fruit juice by HPLC-ICPMS, ver 1.1, Feb 2020
Determination of Arsenic species in Rice & rice products by HPLC and Inductively Coupled Plasma/Mass Spectrometry *(Arsenite (As III), Arsenate (As V), Dimethylarsinate (DMA), Monomethylarsonate (MMA))*	CHEM-SOP-AsSp-Rice	EAM 4.11 Determination of Arsenic species in Rice and Rice products by HPLC-ICPMS, ver 1.1, November 2012
Determination of Solids in Syrup (ºBrix) by Means of Refractometer	CHEM-SOP-AOAC 932.12	AOAC 932.12
Determination of Toxic Elements in Food & Consumer Products using Microwave Assisted Digestion	CHEM-SOP-EAM 4.7 Mod	Determination of As, Cd, Cr, Pb, Hg, and other elements in Food by ICPMS using Microwave Assisted Digestion E.A.M 4.7, February 2020

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Test	Internal Method	Reference Method(s)
Determination of Water Activity in Food Products	CHEM-SOP-WAFP	Aqua Lab Manual Oregon State Univ.
Fat (Crude) in Meat and Cheese Products	CHEM-SOP-AOAC 991.36	AOAC 991.36
Loss of Drying (Moisture) in Meat and Cheese Products	CHEM-SOP-AOAC 985.14	AOAC 985.14
Measurement of Percent Salt in Cheese and Meat Products	CHEM-SOP-AOAC 935.43	Modified AOAC Method 935.43
Patulin in Apple Ciders, Clear and Cloudy Apple Juices	CHEM-SOP- Modified AOAC 2000.02	Modified AOAC 2000.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on potable, non-potable, and bottled waters:

Test	Internal Method	Reference Method(s)
Inorganics		
Determination of Ammonia Nitrogen by Semi-Automated Colorimetry (**High Level Ammonia**)	CHEM-SOP-EPA 350.1	EPA Method 350.1 Revision 2.0
Determination of Chloride by Flow Injection Analysis	CHEM-SOP-SM 4500 Cl^- E	SM 4500 Cl^- E Rev. 21
Determination of Corrosivity by pH Measurement	CHEM-SOP-EPA SW 846 9040 C	EPA SW 846 9040 C
Determination of Free Cyanide by Potentiometric Method	CHEM-SOP-SM 4500 FC	SM 4500 CN F Rev. 21
Determination of Nitrate-Nitrite Nitrogen by Automated Colorimetry (**High Level Nitrite**)	CHEM-SOP-EPA 353.2	EPA Method 353.2 Rev. 2.0
Determination of Nitrate-Nitrite Nitrogen by Automated Colorimetry	CHEM-SOP-EPA 353.2	EPA Method 353.2 Rev. 2.0

Test	Internal Method	Reference Method(s)
Determination of Sulfate by Flow Injection Analysis	CHEM-SOP-EPA 375.2	EPA Method 375.2 Rev. 2.0
Electrometric Determination of pH	CHEM-SOP-EPA 150.1	EPA Method 150.1 Rev. 2.0
Fluoride by Ion Selective Electrode	CHEM-SOP-SM 4500 F	SM 4500F C Rev. 21
Organics		
2-Dibromethane (EDB), 1,2-Dibromo-3-Chloropropane (DBCP), and 1,2,3-Trichloropropane (123TCP) in Water by Micro Extraction and Gas Chromatography	CHEM-SOP-EPA 504.1	EPA Method 504.1 Rev. 1.1
Determination of Chlorinated Acids in Drinking Water by Liquid-Liquid Extraction, Derivatization and Gas Chromatography with Electron Capture Detection[1]	CHEM-SOP-EPA 515.3	EPA Method 515.3 Rev. 1.0
Determination of Chlorinated Pesticides in Water by Gas Chromatography with an Electron Capture Detector[2]	CHEM-SOP-EPA 508	EPA Method 508 Rev. 3.1
Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid- Liquid Extraction, Derivatization, and Gas Chromatography with Dual Electron Capture Detection[3]	CHEM-SOP-EPA 552.2	EPA Method 552.2 Rev. 1.0
Determination of Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary Column Gas Chromatography/Mass Spectrometry[4]	CHEM-SOP-EPA 525.2	EPA Method 525.2 Rev. 2.0

Test	Internal Method	Reference Method(s)
Determination of Selected Per- and Polyfluorinated Alkyl Substances (PFAS) in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) [5]	CHEM-SOP-EPA 537.1	EPA Method 537.1
Measurement of N Methylcarbamoyloximes and N-Methyl-Carbamates in Water by Direct Aqueous Injection HPLC with Post Column Derivatization[6]	CHEM-SOP-EPA 531.2	EPA Method 531.2 Rev. 1.0
Measurement of Purgeable Organic Compounds by Capillary Column Gas Chromatography/Mass Spectrometry[7]	CHEM-SOP-EPA 524.2	EPA Method 524.2 Rev. 4.1
Trace Metals		
Determination of Mercury in Water by Cold Vapor Atomic Absorption Spectrometry	CHEM-SOP-EPA 245.1	EPA Method 245.1 Rev. 3.0
Determination of Metals and Trace Elements in Waters and Wastes by Inductively Coupled Plasma- Atomic Emission Spectrometry *(Aluminum, Arsenic, Sodium, Potassium, Magnesium, Calcium, Iron, Manganese, Chromium, Silver, Vanadium, Lead)*	CHEM-SOP-EPA 200.7	EPA Method 200.7 Rev. 4.4
Trace Metals (Continued)		
Determination of Trace Elements in Waters and Wastes by Inductive Coupled Plasma - Mass Spectrometry *(Antimony, Aluminum, Arsenic, Barium, Beryllium, Cadmium, Cobalt, Copper, Chromium, Mercury, Molybdenum, Nickel, Lead, Selenium, Silver, Thallium, Uranium, Vanadium, Zinc)*	CHEM-SOP-EPA 200.8	EPA Method 200.8 Rev. 5.4

Test	Internal Method	Reference Method(s)
Radiation		
Gross Alpha and Gross Beta Radioactivity in Drinking Water	CHEM-SOP-EPA 900.0	EPA 900.0
Radium-226 in Drinking Water: Radon Emanation Technique	CHEM-SOP-EPA 903.1	EPA 903.1
Radium-228 in Drinking Water	CHEM-SOP-EPA 904.0	EPA 904.0
Tritium in Water	CHEM-SOP-EPA 906.0	EPA 906.0

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on blood and urine:

Test	Internal Method	Reference Method(s)
Organics		
Analysis of OPNA Metabolites in Urine by High Performance Liquid Chromatography/Isotope Dilution Mass Spectrometry *(VX Acid ,GB Acid, rVX Acid, GD Acid, GF Acid)*	CHEM-SOP-CDC-CTL-NAM 3.01	CDC Method CTL-NAM 3.01
Determination of Cyanide in Blood by Headspace Gas Chromatography with Mass Selective Detection	CHEM-SOP-CDC-CTL-CN-1.02	CDC Method CTL-CN 1.02
Determination of Ricin and Abrin Biomarkers by Solid Phase Extraction and High Performance/Liquid Chromatography Isotope Dilution Tandem Mass Spectometry	CHEM-SOP-CDC-CTL-ABRC 2.0	CDC Method CTL-ABRC 2
Determination of Tetramethylene disulfotetramine (Tetramine) in Urine by Solid Phase Extraction/Gas Chromatography/Isotope Dilution Mass Spectrometry	CHEM-SOP-CDC-CTL-TETRA 1.2	CDC Method CTL-TETRA 1.2
Determination of Volatile Organic Compounds in Whole Blood by Gas Chromatography/Mass Spectrometry[8]	CHEM-SOP-CDC-13- OD	CDC Method No 13-OD

Trace Metals		
Determination of Mercury, Lead, Cadmium, Manganese & Selenium in Whole Blood by Inductively Coupled Plasma/Mass Spectrometry	CHEM-SOP-CDC-DLS-3016.8-.3	CDC Method, Multi-Elements in Whole Blood, No. 3016.8-03
Determination of Multi Elements in Urine by Inductively Coupled Plasma/ DRC-Mass Spectrometry[10]	CHEM-SOP-CDC-DLS-3018.4-02 & 3018A.3-02	CDC Method, Multi-Elements in Urine, No. 3018.4-02 and 3018A.3-02
Determination of Iodine & Mercury in Urine by Inductively Coupled Plasma-Mass Spectrometry	CHEM-SOP-CDC-DLS-3002.7-04	CDC Method, Iodine & Mercury in Urine, No. 3002.7-04

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following test on hand sanitizer:

Test	**Internal Method**	**Reference Method(s)**
Gas Chromatography with Flame Ionization Detector (GC-FID) Determination of Alcohols in Hand Sanitizer using Modified FDA: SOP000573 *(Methanol, Ethanol, Isopropanol, n-Propanol)*	CHEM-SOP-Modified FDA000573	Modified FDA 000573 Rev.1.1

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on air:

Test	**Internal Method**	**Reference Method(s)**
Particulate Matter 2.5 ($PM_{2.5}$) in Ambient Air	CHEM-SOP EPA454-R-98-005/ R5.0-16	EPA Method 454/R-98-005

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following test on Aqueous, Solid, Biosolids, and Tissues Samples:

Test	**Internal Method**	**Reference Method(s)**
Determination of PFAS in Aqueous, Solid, Biosolids, and Tissues Samples by Liquid Chromatography/Tandem Mass Spectrometry (LC-MS/MS)[9]	CHEM-SOP-Draft EPA 1633	Draft EPA Method 1633

[1] CHEM-SOP-EPA 515.3

2,4,5-T	2,4-DB	Dinoseb
2,4,5-TP (Silvex)	Dalapon	PCP
2,4-D	Dicamba	Picloram

[2] CHEM-SOP-EPA 508

Aroclor 1016	Aroclor 1242	Aroclor 1260
Aroclor 1221	Aroclor 1248	Toxaphene
Aroclor 1232	Aroclor 1254	

[3] CHEM-SOP-EPA 552.2

Analytes	**Acronym**	**Analytes**	**Acronym**
Bromochloroacetic Acid	BCAA	Monobromoacetic Acid	MBAA
Dibromoacetic Acid	DBAA	Monochloroacetic Acid	MCAA
Dichloroacetic Acid	DCAA	Trichloroacetic Acid	TCAA

[4] CHEM-SOP-EPA 525.2

Alachlor	Endrin	Metribuzin
Aldrin	Heptachlor	Propachlor
Atrazine	Heptachlor Epoxide	Simazine
Benzo(a)pyrene	Hexachlorobenzene	trans-Chlordane
Bis (2-ethylhexyl) phthalate	Hexachlorocyclopentadiene	cis-Chlordane
Bis(2-ethylhexyl) adipate	Lindane	trans-Nonachlor
Butachlor	Methoxychlor	Chlordane
Dieldrin	Metolachlor	

[5] CHEM-SOP-EPA 537.1

Analytes	**Acronym**
Hexafluoropropylene oxide dimer acid	HFPO-DA
N-ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA
N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA
Perfluorobutanesulfonic acid	PFBS
Perfluorodecanoic acid	PFDA
Perfluorododecanoic acid	PFDoA
Perfluoroheptanoic acid	PFHpA
Perfluorohexanesulfonic acid	PFHxS
Perfluorohexanoic acid	PFHxA
Perfluorononanoic acid	PFNA
Perfluorooctanesulfonic acid	PFOS
Perfluorooctanoic acid	PFOA
Perfluorotetradecanoic acid	PFTDA
Perfluorotridecanoic acid	PFTrDA
Perfluoroundecanoic acid	PFUnDA
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS
4,8-dioxa-3H-perfluorononanoic acid	ADONA

[6] CHEM-SOP-EPA 531.2

3-Hydroxycarbofuran	Carbaryl	Oxamyl
Aldicarb	Carbofuran	Propoxur

Aldicarb Sulfone	Methiocarb	
Aldicarb Sulfoxide	Methomyl	

[7] CHEM-SOP-EPA 524.2

1,1,1,2-Tetrachloroethane	2-Chlorotoluene	Isopropylbenzene
1,1,1-Trichloroethane	4-Chlorotoluene	m+p-Xylene
1,1,2,2-Tetrachloroethane	Benzene	Methylene Chloride
1,1,2-Trichloroethane	Bromobenzene	Methyl-tert-Butyl Ether (MTBE)
1,1-Dichloroethane	Bromochloromethane	Naphthalene
1,1-Dichloroethene	Bromodichloromethane	n-Butylbenzene
1,1-Dichloropropene	Bromoform	n-Propylbenzene
1,2,3-Trichlorobenzene	Bromomethane	o-Xylene
1,2,3-Trichloropropane	Carbon Tetrachloride	p-Isopropyltoluene
1,2,4-Trichlorobenzene	Chlorobenzene	sec-Butylbenzene
1,2,4-Trimethylbenzene	Chloroethane	Styrene
1,2-Dibromo-3-Chloropropane	Chloroform	tert-Amyl Methyl Ether (TAME)
1,2-Dibromoethane	Chloromethane	tert-Butylbenzene
1,2-Dichlorobenzene	cis-1,2-Dichloroethene	Tetrachloroethene
1,2-Dichloroethane	cis-1,3-Dichloropropene	Toluene
1,2-Dichloropropane	Dibromochloromethane	trans-1,2-Dichloroethene
1,3,5-Trimethylbenzene	Dibromomethane	trans-1,3-Dichloropropene
1,3-Dichlorobenzene	Dichlorodifluoromethane	Trichloroethene
1,3-Dichloropropane	Ethylbenzene	Trichlorofluoromethane
1,4-Dichlorobenzene	Ethyl-tert-Butyl Ether (ETBE)	Vinyl Chloride
2,2-Dichloropropane	Hexachlorobutadiene	

[8] CHEM-SOP-CDC-13- OD

Chloroform	Toluene	Styrene
1,2-Dichloroethane	Tetrachloroethylene	o-Xylene
Benzene	Ethylbenzene	
Carbon tetrachloride	m & p- Xylene	

[9] CHEM-SOP-CDC-DLS-3018.4-02 & 3018A.3-02

Arsenic
Cadmium
Lead
Thallium
Uranium
Beryllium
Barium

[10] CHEM-SOP-Draft EPA 1633

Analytes	**Abbreviation**
Perfluorobutanoic acid	PFBA
Perfluoropentanoic acid	PFPeA
Perfluorohexanoic acid	PFHxA
Perfluoroheptanoic acid	PFHpA
Perfluorooctanoic acid	PFOA
Perfluorononanoic acid	PFNA
Perfluorodecanoic acid	PFDA
Perfluoroundecanoic acid	PFUnA
Perfluorododecanoic acid	PFDoA
Perfluorotridecanoic acid	PFTrDA

Perfluorotetradecanoic acid	PFTeDA
Perfluorobutanesulfonic acid	PFBS
Perfluoropentansulfonic acid	PFPeS
Perfluorohexanesulfonic acid	PFHxS
Perfluoroheptanesulfonic acid	PFHpS
Perfluorooctanesulfonic acid	PFOS
Perfluorononanesulfonic acid	PFNS
Perfluorodecanesulfonic acid	PFDS
Perfluorododecanesulfonic acid	PFDoS
1H,1H, 2H, 2H-Perfluorohexane sulfonic acid	4:2FTS
1H,1H, 2H, 2H- Perfluorooctane sulfonic acid	6:2FTS
1H,1H, 2H, 2H Perfluorodecane sulfonic acid	8:2FTS
Perfluorooctanesulfonamide	PFOSA
N-methyl perfluorooctanesulfonamide	NMeFOSA
N-ethyl perfluorooctanesulfonamide	NEtFOSA
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA
N-methyl perfluorooctanesulfonamidoethanol	NMeFOSE
N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE
Hexafluoropropylene oxide dimer acid	HFPO-DA
4,8-Dioxa-3H-perfluorononanoic acid	ADONA
Perfluoro-3-methoxypropanoic acid	PFMPA
Perfluoro-4-methoxybutanoic acid	PFMBA
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	9Cl-PF3ONS
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS
Perfluoro (2-ethoxyethane)sulfonic acid	PFEESA
3-Perfluoropropyl propanoic acid	3:3FTCA
2H,2H,3H,3H-Perfluorooctanoic acid	5:3FTCA
Perfluoroheptyl propanoic acid	7:3FTCA

Accredited Laboratory

A2LA has accredited

LABORATORIES ADMINISTRATION, MDH

Baltimore, MD

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 laboratory also meets the requirements of A2LA R204 - *Specific Requirements - Food and Pharmaceutical Testing Laboratory Accreditation Program*. 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 8th day of September 2022.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3525.02
Valid to May 31, 2024

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