



CERTIFICATE OF ACCREDITATION

ANSI National Accreditation Board

11617 Coldwater Road, Fort Wayne, IN 46845 USA

This is to certify that

Enthalpy Analytical, LLC

2714 Exchange Drive
Wilmington, NC 28405

has been assessed by ANAB and meets the requirements of international standard

ISO/IEC 17025:2017

and the

U.S. Department of Defense (DoD) Quality Systems Manual for Environmental Laboratories (DoD QSM V5.3)

while demonstrating technical competence in the field of

TESTING

Refer to the accompanying Scope of Accreditation for information regarding the types of activities to which this accreditation applies

ADE-2835

Certificate Number



ANAB Approval

Certificate Valid Through: 01/15/2022
Version No. 001 Issued: 01/15/2020



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. 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).

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017 AND U.S. DEPARTMENT OF DEFENSE (DOD) QUALITY SYSTEMS MANUAL FOR ENVIRONMENTAL LABORATORIES (DOD QSM V5.3)

Enthalpy Analytical, LLC

2714 Exchange Drive
Wilmington, NC 28405
Valgena Respass
919-850-4392

TESTING

Valid to: **January 15, 2022**

Certificate Number: **ADE-2835**

Environmental

| Non-Potable Water | | |
|--------------------------|---|---------------------------------------|
| Technology | Method | Analyte |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFBA (Perfluorobutanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFPeA (Perfluoropentanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFBS (Perfluorobutanesulfonic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFHxA (Perfluorohexanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFHpA (Perfluoroheptanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFHxS (Perfluorohexanesulfonic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | 6:2-FTS (6:2 Fluorotelomer sulfonate) |



| Non-Potable Water | | |
|-------------------|---|--|
| Technology | Method | Analyte |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFOA (Perfluorooctanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFHpS (Perfluoroheptanesulfonate) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFOS (Perfluorooctanesulfonic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFNA (Perfluorononanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFDA (Perfluorodecanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | 8:2-FTS (8:2 Fluorotelomer sulfonate) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFOSA (Perfluorooctane sulfonamide) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFDS (Perfluorodecanesulfonate) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFUdA (Perfluoroundecanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFDoA Perfluorododecanoic acid |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFTTrDA (Perfluorotridecanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFTeDA (Perfluorotetradecanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | EtFOSAA (N-ethyl perfluorooctanesulfonamidoacetic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | MeFOSAA (N-methyl perfluorooctanesulfonamidoacetic acid) |



| Non-Potable Water | | |
|-------------------|---|---|
| Technology | Method | Analyte |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | 4:2 FTS (4:2 Fluorotelomer sulfonate) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFPeS (Perfluoropentane sulfonic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFNS (Perfluorononane sulfonic acid) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-Hxcdd) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf) |
| HRGC/MS | EPA 8290A / EPA1613B | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd) |
| HRGC/MS | EPA 8290A / EPA1613B | 2,3,4,6,7,8-Hexachlorodibenzofuran |
| HRGC/MS | EPA 8290A / EPA1613B | 2,3,4,7,8-Pentachlorodibenzofuran |
| HRGC/MS | EPA 8290A / EPA1613B | 2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) |
| HRGC/MS | EPA 8290A / EPA1613B | 2,3,7,8-Tetrachlorodibenzofuran |
| HRGC/MS | EPA 8290A / EPA1613B | Total Hpcdd |
| HRGC/MS | EPA 8290A / EPA1613B | Total Hpcdf |
| HRGC/MS | EPA 8290A / EPA1613B | Total Hxcdd |
| HRGC/MS | EPA 8290A / EPA1613B | Total Hxcdf |



| Non-Potable Water | | |
|--------------------|----------------------|--|
| Technology | Method | Analyte |
| HRGC/MS | EPA 8290A / EPA1613B | Total Pecdd |
| HRGC/MS | EPA 8290A / EPA1613B | Total Pecdf |
| HRGC/MS | EPA 8290A / EPA1613B | Total TCDD |
| HRGC/MS | EPA 8290A / EPA1613B | Total TCDF |
| Preparation | Method | Type |
| Aqueous Extraction | SOP EU-046 | Extraction/Preparation of Dioxins and Furans |

| Solid and Chemical Materials | | |
|------------------------------|---|---------------------------------------|
| Technology | Method | Analyte |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFBA (Perfluorobutanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFPeA (Perfluoropentanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFBS (Perfluorobutanesulfonic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFHxA (Perfluorohexanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFHpA (Perfluoroheptanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFHxS (Perfluorohexanesulfonic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | 6:2-FTS (6:2 Fluorotelomer sulfonate) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFOA (Perfluorooctanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFHpS (Perfluoroheptanesulfonate) |



| Solid and Chemical Materials | | |
|------------------------------|---|--|
| Technology | Method | Analyte |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFOS (Perfluorooctanesulfonic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFNA (Perfluorononanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFDA (Perfluorodecanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | 8:2-FTS (8:2 Fluorotelomer sulfonate) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFOSA (Perfluorooctane sulfonamide) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFDS (Perfluorodecanesulfonate) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFUdA (Perfluoroundecanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFDoA Perfluorododecanoic acid |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFTTrDA (Perfluorotridecanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFTeDA (Perfluorotetradecanoic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | EtFOSAA (N-ethyl perfluorooctanesulfonamidoacetic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | MeFOSAA (N-methyl perfluorooctanesulfonamidoacetic acid) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | 4:2 FTS (4:2 Fluorotelomer sulfonate) |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFPeS (Perfluoropentane sulfonic acid) |



| Solid and Chemical Materials | | |
|------------------------------|---|---|
| Technology | Method | Analyte |
| LC/MS/MS | SOP EU-047/PFAS by LCMSMS Compliant with QSM 5.3 Table B-15 | PFNS (Perfluorononane sulfonic acid) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-Hxcdd) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf) |
| HRGC/MS | EPA 8290A / EPA 1613B | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd) |
| HRGC/MS | EPA 8290A / EPA 1613B | 2,3,4,6,7,8-Hexachlorodibenzofuran |
| HRGC/MS | EPA 8290A / EPA 1613B | 2,3,4,7,8-Pentachlorodibenzofuran |
| HRGC/MS | EPA 8290A / EPA 1613B | 2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) |
| HRGC/MS | EPA 8290A / EPA 1613B | 2,3,7,8-Tetrachlorodibenzofuran |
| HRGC/MS | EPA 8290A / EPA 1613B | Total Hpcdd |
| HRGC/MS | EPA 8290A / EPA 1613B | Total Hpcdf |
| HRGC/MS | EPA 8290A / EPA 1613B | Total Hxcdd |
| HRGC/MS | EPA 8290A / EPA 1613B | Total Hxcdf |
| HRGC/MS | EPA 8290A / EPA 1613B | Total Pecdd |
| HRGC/MS | EPA 8290A / EPA 1613B | Total Pecdf |
| HRGC/MS | EPA 8290A / EPA 1613B | Total TCDD |
| HRGC/MS | EPA 8290A / EPA 1613B | Total TCDF |



| Solid and Chemical Materials | | |
|------------------------------|------------|--|
| Preparation | Method | Type |
| Soxhlet Extraction | SOP EU-046 | Extraction/Preparation of Dioxins and Furans |

| Drinking Water | | |
|----------------|---------|---|
| Technology | Method | Analyte |
| LC/MS/MS | EPA 537 | NEtFOSAA (N-ethyl perfluorooctanesulfonamidoacetic acid) |
| LC/MS/MS | EPA 537 | NMeFOSAA (N-methyl perfluorooctanesulfonamidoacetic acid) |
| LC/MS/MS | EPA 537 | PFBS (Perfluorobutanesulfonic acid) |
| LC/MS/MS | EPA 537 | PFDA (Perfluorodecanoic acid) |
| LC/MS/MS | EPA 537 | PFDoA (Perfluorododecanoic acid) |
| LC/MS/MS | EPA 537 | PFHpA (Perfluoroheptanoic acid) |
| LC/MS/MS | EPA 537 | PFHxS (Perfluorohexanesulfonic acid) |
| LC/MS/MS | EPA 537 | PFHxA (Perfluorohexanoic acid) |
| LC/MS/MS | EPA 537 | PFNA (Perfluorononanoic acid) |
| LC/MS/MS | EPA 537 | PFOS (Perfluorooctanesulfonic acid) |
| LC/MS/MS | EPA 537 | PFOA (Perfluorooctanoic acid) |
| LC/MS/MS | EPA 537 | PFTA (Perfluorotetradecanoic acid) |
| LC/MS/MS | EPA 537 | PFTrDA (Perfluorotridecanoic acid) |
| LC/MS/MS | EPA 537 | PFUnA (Perfluoroundecanoic acid) |

| Air and Emissions | | |
|-------------------|--------|---|
| Technology | Method | Analyte |
| HRGC/MS | EPA 23 | 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF) |
| HRGC/MS | EPA 23 | 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD) |
| HRGC/MS | EPA 23 | 1,2,3,4,6,7,8-Heptachlorodibenzofuran (1,2,3,4,6,7,8-hpcdf) |
| HRGC/MS | EPA 23 | 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-hpcdd) |
| HRGC/MS | EPA 23 | 1,2,3,4,7,8,9-Heptachlorodibenzofuran (1,2,3,4,7,8,9-hpcdf) |
| HRGC/MS | EPA 23 | 1,2,3,4,7,8-Hexachlorodibenzofuran (1,2,3,4,7,8-Hxcdf) |

| Air and Emissions | | |
|--------------------------|---------------|--|
| Technology | Method | Analyte |
| HRGC/MS | EPA 23 | 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (1,2,3,4,7,8-Hxcdd) |
| HRGC/MS | EPA 23 | 1,2,3,6,7,8-Hexachlorodibenzofuran (1,2,3,6,7,8-Hxcdf) |
| HRGC/MS | EPA 23 | 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin(1,2,3,6,7,8-Hxcdd) |
| HRGC/MS | EPA 23 | 1,2,3,7,8,9-Hexachlorodibenzofuran (1,2,3,7,8,9-Hxcdf) |
| HRGC/MS | EPA 23 | 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (1,2,3,7,8,9-Hxcdd) |
| HRGC/MS | EPA 23 | 1,2,3,7,8-Pentachlorodibenzofuran (1,2,3,7,8-Pecdf) |
| HRGC/MS | EPA 23 | 1,2,3,7,8-Pentachlorodibenzo-p-dioxin (1,2,3,7,8-Pecdd) |
| HRGC/MS | EPA 23 | 2,3,4,6,7,8-Hexachlorodibenzofuran |
| HRGC/MS | EPA 23 | 2,3,4,7,8-Pentachlorodibenzofuran |
| HRGC/MS | EPA 23 | 2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) |
| HRGC/MS | EPA 23 | 2,3,7,8-Tetrachlorodibenzofuran |
| HRGC/MS | EPA 23 | Total Hpcdd |
| HRGC/MS | EPA 23 | Total Hpcdf |
| HRGC/MS | EPA 23 | Total Hxcdd |
| HRGC/MS | EPA 23 | Total Hxcdf |
| HRGC/MS | EPA 23 | Total Pecdd |
| HRGC/MS | EPA 23 | Total Pecdf |
| HRGC/MS | EPA 23 | Total TCDD |
| HRGC/MS | EPA 23 | Total TCDF |
| Preparation | Method | Type |
| Soxhlet Extraction | SOP EU-046 | Extraction/Preparation of Dioxins and Furans |

Note:

1. This scope is formatted as part of a single document including Certificate of Accreditation No ADE-2835.



Vice President