

SCOPE OF CAPABILITIES

GENERAL

EN-CAS Analytical Laboratories is a fully compliant GLP facility providing analytical laboratory services to the agrochemical, animal health, food safety and life science industries. EN-CAS has been in operation since 1976 applying a wide range of analytical chemistry technologies to various agrochemical, veterinary, and life science problems. As a result, EN-CAS has developed an extensive capability in performing studies requiring the determination of pesticides, herbicides, fungicides, insecticides, veterinary drugs, and related animal treatment, and life sciences products in a variety of complex sample matrices.

EXPERIENCE

Our experience includes:

- *Methods development (specializing in trace organic residue analysis in complex biological, environmental, and exposure monitoring media).*
- *Comprehensive method modernization and validation studies (Independent EPA PRN 96-1, environmental, and FDA-CVM / EC method verification/validation trials).*
- *FDA/USDA interlaboratory method evaluation trials.*
- *Supportive analysis for avian and aquatic toxicity studies.*
- *Crop, soil, and environmental water residue analyses.*
- *Analysis of animal tissue and animal fluids from animal dosing/feeding studies.*
- *Human exposure studies of farm and manufacturing workers (including applicator, re-entry, and dislodgeable residue studies).*
- *Outdoor, indoor, and aerial spray drift deposition studies.*
- *Aquatic dissipation studies.*
- *Ground and surface water monitoring studies.*
- *Soil dissipation studies.*
- *Analytical support for 14C field metabolism studies.*
- *Nationwide Market Basket studies of agrochemical residues in supermarket food commodities.*
- *Studies of the effects of consumer practices (rinsing, cooking, etc.) on residues of agrochemicals on fruits and vegetables.*
- *Studies of the effects of commercial food processing on agrochemical residues.*

- *Studies of pest control residues in food handling establishments. (Food Additive Tolerance studies).*
- *Supportive analysis for animal health product development: efficacy, potential human exposure, and toxicology.*
- *On-site Quality Assurance and Analytical Field Support.*
- *Industrial Hemp and Hemp Products Testing (DEA Licensed).*

CLIENTELE

Our clients include many of the major worldwide developers of new agrochemicals and veterinary medicines. Products studied have included organophosphates, triazines, triazoles, sulfonylureas, pyrethrins, phenoxy herbicides, anti-inflammatories, antibiotics, larvicides, and other common veterinary, and crop and animal pest control agents.

ORGANIZATION AND STAFF

Our technical staff consists of highly trained and experienced scientists with a total of over one hundred years of laboratory and analytical project management experience.

EN-CAS is organized into four functional sections:

(1) The Analytical and Residue Studies Section

The project teams in this section perform GLP analytical and residue studies according to defined protocols and generate final EPA- and FDA- submission format analytical study reports. The project teams are as follows:

- *Primary Analytical Studies Group;*
- *Methods Development and Assistance (MD&A) Group;*
- *Data and Instrument Systems (DIS) Groups;*
- *Technical Writing (TW) Group.*

(2) The Quality Assurance Section

Our Quality Assurance Unit (QAU) reports to the President and ensures that laboratory procedures and technical documentation are performed according to Good Laboratory Practices and good scientific principles. Each of our Quality Assurance personnel has had extensive experience in laboratory testing and procedures prior to joining the QAU.

(3) The Logistics and Administrative Support Services Section

This section oversees the shipping, receiving, pre-preparation, and proper storage of samples and materials, as well as general purchasing and the maintenance of EN-CAS facilities.

(4) The Financial and Personnel Services Section

This section administers the company's financial and personnel functions.

FACILITIES AND EQUIPMENT

The EN-CAS facilities are equipped on site with numerous free-standing freezers/refrigerators. We also retain a secure local off-site frozen storage facility for overflow and long-term sample storage.

A list of some of our major laboratory equipment follows:

- API 4000 Triple Quadrupole LC/MS/MS System (Turbo IonSpray and APCI Sources) with UPLC frontend;***
- Hewlett Packard 5973N Series GC/MS system with EI, CI, and NCI Sources;***
- Four capillary and packed column gas chromatography systems (GC detectors include FID, TCD, FPD, NPD, and ECD);***
- Headspace GC/FID System;***
- Four liquid chromatography systems equipped with UV, Fluorescence, Electrochemical, Refractive Index and Conductivity detectors;***
- Postcolumn derivatization for Glyphosate, Carbamate, or Phenol Urea Analyses;***
- UPLC System with PDA Detector;***
- Environmental Chamber with ICH conditions (25°C/60% RH, 40°C/75% RH);***
- Tablet Dissolution Test equipment;***
- Waters 6000 preparative HPLC system.;***
- Gel permeation preparative chromatography system;***
- Two Dupont / Sorvall RC5B Superspeed refrigerated centrifuges;***
- C14 handling, combustion, and liquid scintillation counting equipment;***
- A Water's Empower2 client-server chromatography data system;***

GLP/QA

We have a fully compliant GLP/QA program in place. For GLP studies, 100% of the data and reports generated are audited. In addition, critical phase GLP in-lab and, where appropriate, field site audits are conducted by our QAU. We are regularly audited by client, third party, and regulatory agency auditors (including unannounced audits) and have been given high marks for our QA program in all instances.

Our most recent agency audit, March 26, 2014, was performed by the U.S. Environmental Protection Agency which resulted in no adverse findings noted in either the facility phase or in the three studies which were inspected during the audit.

COMMITMENT TO EXCELLENCE

Since its inception in 1976, EN-CAS has earned a reputation for analytical excellence and exceptional client service. Our continuing goal is to produce studies that will exemplify good science, will stand up to regulatory scrutiny, and that both we and our clients can take pride in.