Food Laboratory Services Guide

FDA Import Detention Services

Food Adulteration, GMO & Quality Control

Food Allergens

Food Chemistry

Food Microbiology

Natural Toxins

Nutritional Analysis

Packaging Analysis

Shelf Life Studies

Specialty Chemistry Analysis

Vitamins & Minerals

LA TESTING

The LA TESTING Standard

LA Testing is part of a national network of laboratories located in key cities and regions throughout the United States and Canada. Established in 1981, the parent company has expanded its analytical services and capabilities and now operates more than thirty-one locations all striving for excellence in providing quality laboratory services in a timely and cost competitive manner.

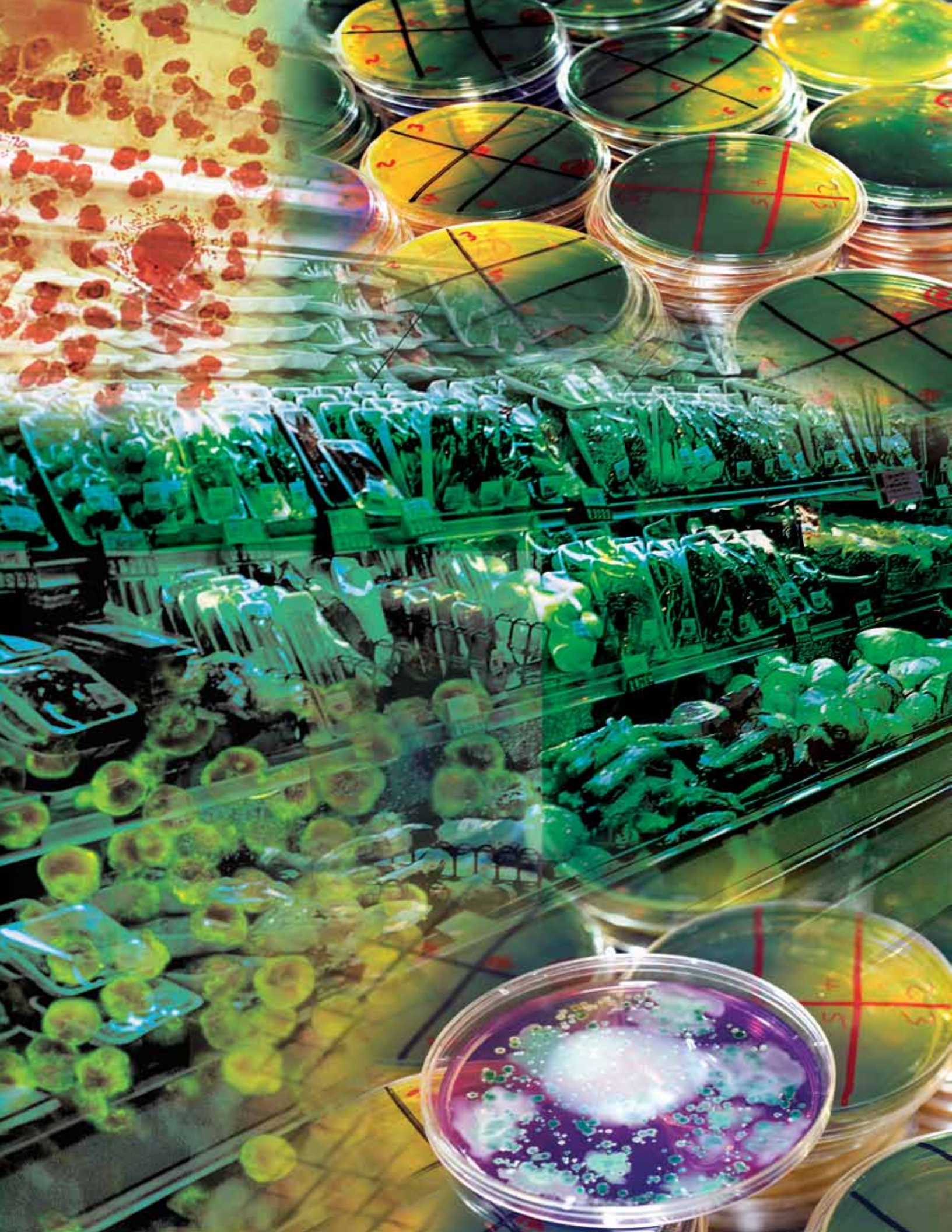
The parent companys staff of over 585 employees includes a wide range of expertise, educational background and capabilities. These dedicated and capable employees follow the lead and standard of care demonstrated by the owner and founder of the company, Dr. Peter Frasca, who, as a hands on owner maintains daily involvement in our laboratory operations, and dictates that our work is consistent with his Diamond Standard. This "Diamond Standard" includes the following:

- ***Quality Data*** **-** Strict Adherence to our Quality programs and regulatory requirements which comply with the ISO 17025 guidelines so that our data is tracked, managed, reported, and verified to be accurate and reliable.
- ***Customer Dedication*** **-** We strive to create lasting, mutually beneficial relationships with all clients. We solicit feedback from our clients and we are committed to responding quickly to any questions or concerns that may arise before, during, or after an assignment.
- ***Analytical Expertise*** - We employ highly qualified and experienced chemists, geologists, physicists, mycologists, microbiologists, biologists, materials scientists and industrial hygienists to enhance our analytical abilities and expertise.
- ***Integrity and Ethics*** **-** We insist that our employees uphold the highest ethics and standards. We maintain a "no-compromise" policy as it pertains to any ethical issue.
- ***Responsiveness*** **-** We recognize that the timeliness of a report is as important as the quality of the data. We will not however, allow deadlines or the rush needs of a project to adversely impact our quality objectives.
- ***Technology*** **-** We recognize the importance of new technology to better enable us to provide improved service. Extranet access to your data, customized reports, Laboratory Information Management Systems, and analytical instrumentation are continuously upgraded to enable continuous improvement of our service and capabilities.
- ***Value*** **–** We believe that a business relationship with LAT provides you with an excellent value. We provide you with a complete value package that includes all the components of the EMSL Diamond Standard.

LA Testing offers a comprehensive line of analytical testing services for the food industry. LA Testing offers Quality Analysis, Superior Customer Service, and Flexible Turn Around Time approaches to meet our client's diverse needs.

Food Testing Laboratory

LA TESTING



Food Microbiology

LA Testing offers reliable microbiological analysis of food, beverage, and environmental samples. Methods offered include: FDA / BAM, USDA, USP, AOAC, CMMEF.

LA Testing offers an extensive selection of microbial analysis options. We specialize in both routine microbiology analysis as well as Special Projects and Method Validation & Development. Please contact LA Testing for more information.

Test Parameter *Submit 50g (2oz) sample per analyte requested*

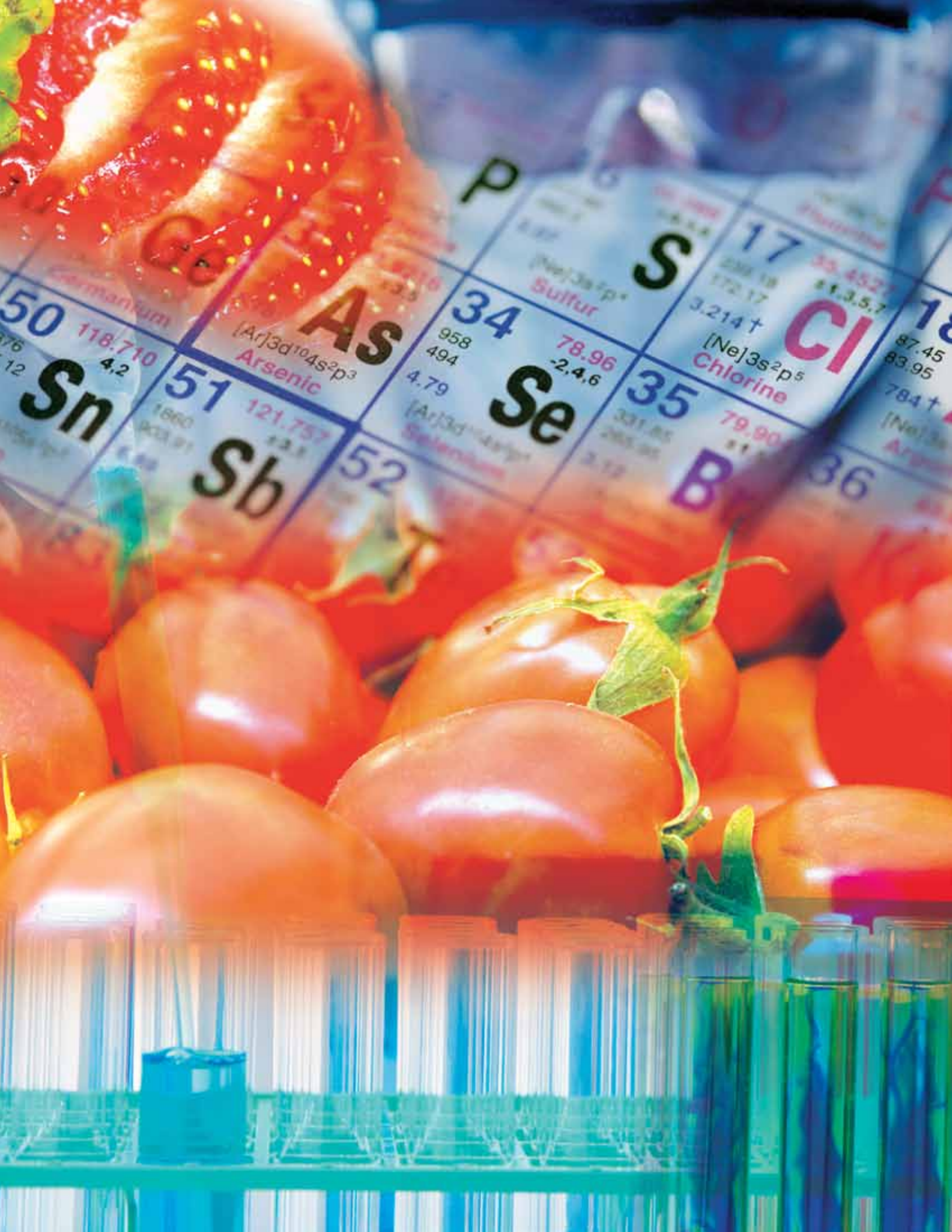
Standard Panel (includes Aerobic Plate Count, Total Coliform / E. coli, Staphylococcus aureus and Yeast & Mold)
Aerobic Plate Count
Yeast & Mold
Total Coliform / E. coli
*Staphylococcus aureus**
Salmonella (P/A) - RUSH Service Available*
Listeria (P/A) - RUSH Service Available*
E. coli O157:H7 (P/A) - RUSH Service Available*
Non-O157 Shiga-toxin Producing E. coli (STEC) – 026, 045, 0103, 0111, 012, 0145
Pathogen Confirmation
*Pseudomonas aeruginosa**
Enterobacteriaceae
*Campylobacter (P/A)**
*Bacillus cereus**
Anaerobic Plate Count
Aerobic Spore Former Count
Lactic Acid Bacteria Count
Lactobacillus species Count
Isolate Identification – Bacterial
Isolate Identification - Fungal
Canner's Test
Shigella by qPCR & Culture (RUSH available. Please call)
Anaerobic Spore Former Count
Thermophilic Aerobic Spore Former Count
Thermophilic Anaerobic Spore Former Count
Food DNA Authentication
GMO Analysis
Meat Speciation by PCR
Cyclospora (P/A)
Somatic Cell Count by Direct Microscopy
Matrix Specific Method Validation‡

† Unless otherwise stated, prices reflect "Standard" TAT which may vary depending on methodology, matrix and availability, no longer than 10 business days. RUSH Analysis should be selected when priority or expedited analysis is needed, but is subject to method restrictions. Contact the laboratory for RUSHTAT options. Final results will only be released when all test parameters for the report are completed. Preliminary reports available upon request. TAT does not include confirmation. Reports and analysis not in accordance with FDA Import Detention reporting requirements unless explicitly stated and requested.

**Additional confirmation fee may apply at client discretion. Speciation of Listeria available upon request.*

***375g analysis in accordance with USDA requirements. Must be specifically requested upon sample submittal. Composite fee may apply.*

‡All standard and modified methods have been validated against internal standards for performance. Matrix-specific validation is available upon request. Price and TAT may be adjusted based on method, matrix, and parameters requested.


Ge
Germanium
50
118.710
4,2
Sn
As
[Ar]3d10 4s2 p3
Arsenic
51
121.757
Sb
P
S
Sulfur
34
958
494
4.79
78.96
-2,4,6
Se
17
3.214 †
Cl
[Ne]3s2 p5
Chlorine
35
B
52
36

Food Chemistry

LA Testing has an extensive selection of Turn Around Times (TAT) available. Some analytical results can be delivered as quickly as sameday from our Nationwide Laboratory Network. Please discuss our flexible TAT's and volume pricing with your expert representative, or call us directly at (800) 303.0047.

LA Testing offers a wide array of Food Chemistry Analysis. Our chemical analyses are reliable, accurate and cost-effective. We are experts in testing for the standard nutrition label requirements as well as specialty fibers, antioxidants, sugar alcohols and other components. Our laboratory professionals can guide you in choosing the right tests and interpreting results.

Antioxidative Capacity *Submit 5 oz sample per analyte requested*

- Anti-Oxidant - ORAC (hydro only)
- Anti-Oxidant - ORAC (hydrophilic & lipophilic)
- Anti-Oxidant - ORAC oil
- Polyphenols, total - no correction for Vit C & reducing sugars
- Polyphenols, total - with correction for Vit C & reducing sugars
- Tannins, total

Amino Acids *Submit 5 oz sample per analyte requested*

- Free amino acids
- Amino Acid Profile - Acid Stable Amino Acids Package (alanine, arginine, aspartic acid, cysteine, glutamic acid, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, proline, serine, threonine, tyrosine, valine, and hydroxyproline)
- Amino Acids Profile Package (methionine, cysteine, tryptophan, aspartic, threonine, glutamic, proline, glycine, alanine, valine, methionine, serine, leucine, isoleucine; tyrosine; phenylalanine; histidine; lysine; arginine)
- Cysteine, methionine
- Tryptophan
- L-Carnitine
- Creatine & Creatinine

Carotenoids *Submit 5 oz sample per analyte requested*

- beta-Carotene
- Carotenoids
- Total Carotenoids (spectrophotometric)
- Astaxanthin

Color Analysis *Submit 4 oz sample per analyte requested*

- ICUMSA
- L*a*b color
- SRM, EBC (spectrophotometric)

**Fatty acids C8-C22: applicable to most food products ~ C8-C24: applicable to products with marine lipids ~ C4-C24: applicable to dairy products.*

Food Chemistry

Contaminants

Submit 5 oz sample per analyte requested

- Sterols (specify single analyte)
- Acrylamide
- Heavy metals by ICP; per element
- Heavy Metals: (Ag, Al, As, Ba, Be, Cd, Co, Cu, Fe, Hg, Mn, Ni, Pb, Sb, Se, Sn), package
- Heavy Metals by ICP/MS, low LOD <1 ppm; per element
- Arsenic speciation (organic & inorganic)
- Heavy Metals Speciation (Pb, Hg, Sn, Cr, Se – organic & inorganic
- Mercury (CVAA)
- Hexane
- Lead in Food by ICP
- Melamine by LC/MS
- Multi-Residue-Analysis (MRA) for Pesticides
- Patulin
- Pesticides, N-Methyl Carbamates
- Pesticides, Organochlorinated
- Pesticides, organonitrogen other than triazines and N-Methyl Carbamates
- Pesticides, Organophosphates
- Pesticides, single residue
- Pesticides, Triazines
- Petroleum Products Dispersants
- Polyaromatic Hydrocarbons (PAH)
- Polychlorinated biphenyl (PCB)
- Total Petroleum Hydrocarbons (TPH)
- TPH & PAH Package

Enzymes and Proteins

Submit 5 oz sample per analyte requested

- Bromelain (matrix specific)
- Casein (total)
- Enzymes (protease, lipase, phosphatase, beta-amylase, cellulase, gamma-amylase, alpha-amylase) price per compound
- Prolactin
- Total Whey Protein (Alpha Lactoalbumin, Beta Lactoglobulin) price per compound

Fat and Fatty Acids

Submit 5 oz sample per analyte requested

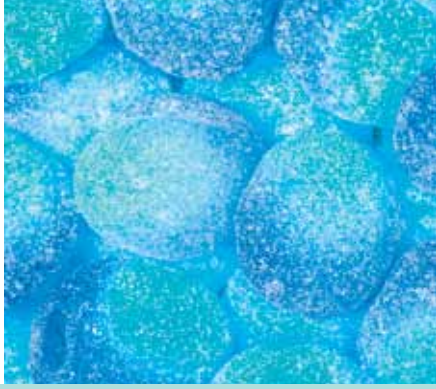
- Fatty acids profile*
- Omega-3 fatty Acids
- Omega-6, Omega-9 Fatty Acids
- Fatty acids, free (by titration)
- Milk Fat
- Total (crude) fat by acid hydrolysis
- Fat (Soxhlet)

Food Additives & Preservatives

Submit 5 oz sample per analyte requested

- Artificial Sweeteners - specify compound (price per compound)
- Artificial Sweeteners approved by FDA (sucralose, acesulfame K, aspartame, cyclamate, saccharin), package
- Artificial Sweeteners non-approved by FDA (cyclamate, alitame, dulcin) - specify compound. price per compound.
- Color additives, approved for use in Food (Select up to 4 colors): FD&C Blue #1, FD&C Blue #2, FD&C Green #3, FD&C Red #3, FD&C Red #40, FD&C Yellow #5, FD&C Yellow #6, Citrus Red #2 Orange B-for oranges or sausage casings only
- Color additives, artificial non-approved by FDA – specify compound
- Color additives of natural origin approved for Use in Human Food (carmine, turmeric (curcumine), annato, other - inquire)
- Preservatives - Parabens package (Methyl, ethyl, propyl, butyl, isobutyl, parahydroxybenzoates)
- Preservatives: 1-2 Parabens - specify compound
- Preservatives: Sorbate & Benzoate
- Antioxidants - BHA/BHT – First Sample in Batch
- - Antioxidants - BHA/BHT – Additional Samples in Batch
- Etoxyquin (Santoquin)
- Glycerols & Glycols
- Alcohol Content (Ethanol)
- Soluble Salt (Sodium Chloride)

Food Chemistry



Hormones

Submit 1 oz sample per analyte requested

- Estradiol
- Hormone Analysis (Testosterone, Progesterone, Estrogen) price per compound
- Sterols (beta sitosterol, campesterol, stigmasterol, brassicasterol) Package

Organic Acids

Submit 5 oz sample per analyte requested

- Organic acids, Citric Acid, Malic Acid, & Lactic Acid
- Organic acids, Oxalic Acid
- Organic acids, Propionic Acid
- Organic acids, Sorbic & Benzoic Acid
- Organic acids, Succinic Acid & Fumaric Acid
- Phenolic acids: Chicoric acid – First Sample in Batch
- - Phenolic acids: Chicoric acid – Additional Samples in Batch
- Phenolic acids: Echinacoside – First Sample in Batch
- - Phenolic acids: Echinacoside – Additional Samples in Batch
- Volatile organic acids

Rancidity

Submit 5 oz sample per analyte requested

- Fatty acids, free (by titration)
- Hexanal
- Oxidative Stability Index
- p-Anisidine value
- Peroxide value
- TBA, thiobarbituric acid value

Sugars and Polysaccharides

Submit 5 oz sample per analyte requested

- Sugar Profile (fructose, sucrose, glucose, maltose, lactose, mannose, other- inquire)
- Sugar profile, low level
- Sugar alcohols
- Fructan (fructo-oligosaccharides and Inulin), HPLC
- Fructan (fructo-oligosaccharides and Inulin), spectrophotometric
- Nisin (fructant)
- Reducing Sugars
- Glucosamine
- Chondroitin
- Beta Glucan
- Amylose


Balanced Diet
Complete
Multi Vitamins
and Minerals A-Z
One A Day
A-Z

Vitamins & Minerals

LA Testing offers a variety of advanced vitamin and mineral analysis for your food and beverage testing needs. LA Testing has a collection of experienced microbiologists, chemists, and material scientists that utilize standard industry methods.

Vitamin Analysis

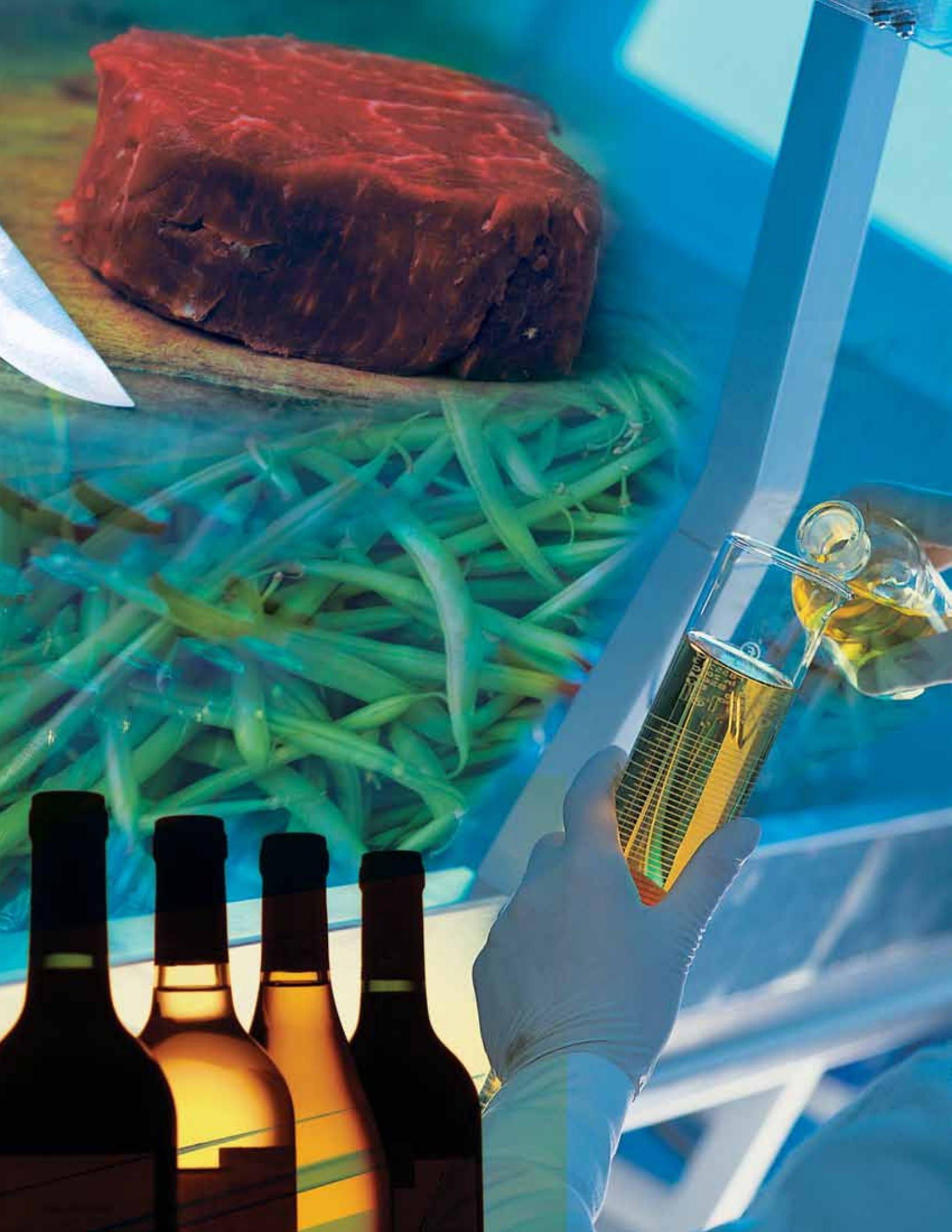
Submit 4 oz sample per analyte requested

Vitamin B profile by USP (B1, B2, B3, B5, B6, B12), package
Vitamin B profile by USP (B1, B2, B3, B5, B6, B12), 2 vitamins (specify)
Vitamin B profile by USP (B1, B2, B3, B5, B6, B12), 3 vitamins (specify)
Vitamin B profile by USP (B1, B2, B3, B5, B6, B12), 4 vitamins (specify)
Vitamin B1 - Thiamine
Vitamin B2 - Riboflavin
Vitamin B3 - Niacin
Vitamin B5 - Calcium Pantothenate
Panthenol (provitamin B5)
Vitamin B6 - Pyridoxine HCL
Vitamin B7 - Biotin, Vitamin H
Folic acid, Vitamin B9
Vitamin B12 (cyanocobalamin)
Para-aminobenzoic acid, (PABA)
Vitamin K - Phytonadione
Vitamin A (retinol)
Vitamin A (beta-carotene)
Total Vitamin A (retinol and beta-carotene)
Vitamin C
Vitamin E
Vitamin D
Coenzyme Q-10

Mineral Analysis

Submit 4 oz sample per analyte requested

ICP Mineral Screen (Al, B, Ba, Bi, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, S, Sc, Se, Si, Sn, Ti, V, W, Zn, other - inquire), price per element
ICP Mineral Screen (Ca, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, Zn), package
ICP Mineral Screen (Al, B, Ba, Bi, Ca, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, S, Sc, Se, Si, Sn, Ti, V, W, Zn, other - inquire), package
Sodium
Calcium
Iron



Specialty Food Chemistry

LA Testing offers extensive specialty and advanced analysis for food, beverage, and environmental samples. LA Testing has a collection of experienced microbiologists, chemists, and material scientists that utilize standard methods and modified project specific methods.

Specialty Food Analysis

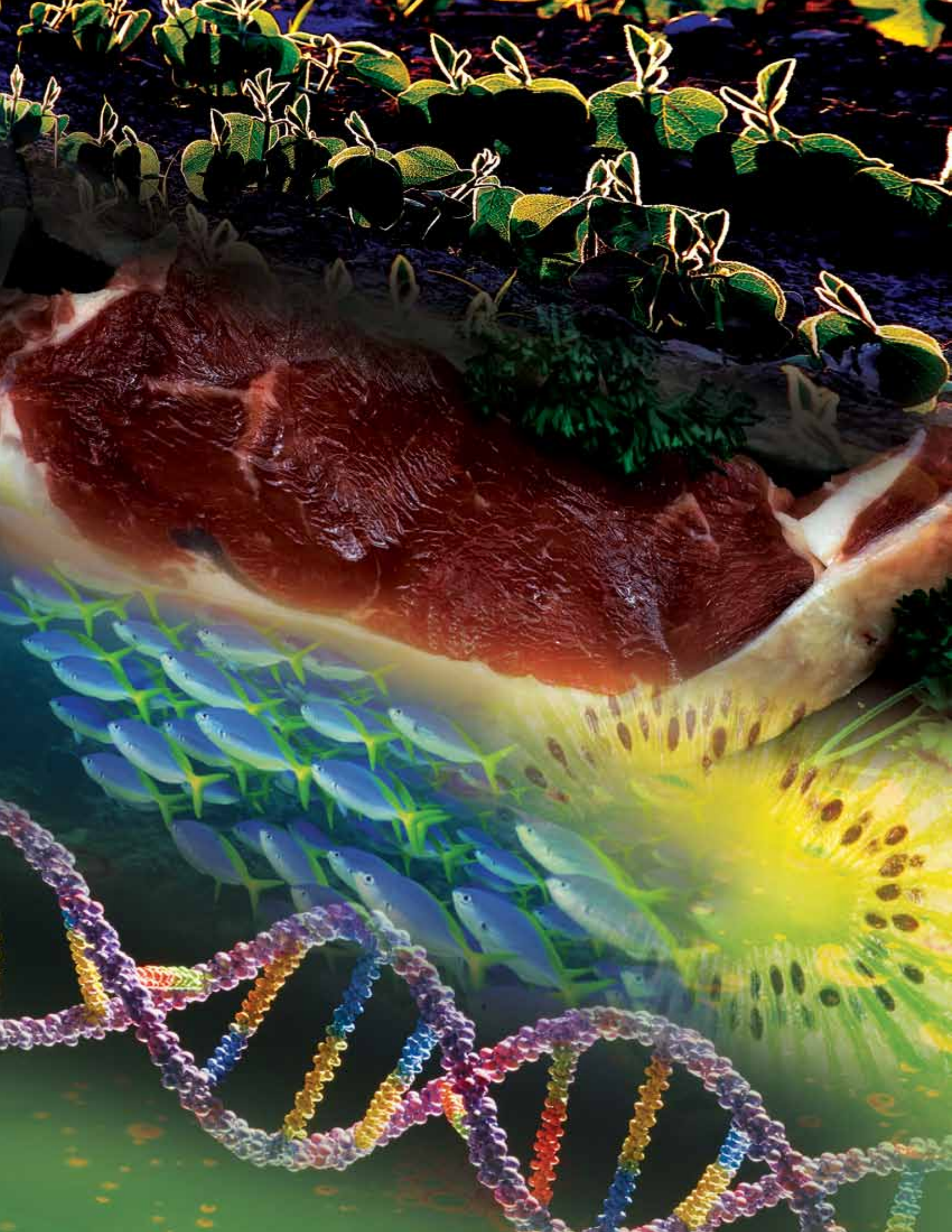
Submit 5 oz sample per analyte requested

- Absorptive Capacity
- Acid Soluble Matter
- Acrylamide
- Amnesic Shellfish (Domoic Acid)
- Anions Scan Package (Sulfate, Nitrite, Nitrate, Phosphate, Chloride)
- ASTA color – Spices
- ASTA extractable dyes – Spices
- Beta Glucan
- Bomb Calorimetry
- Brix (Sugar)
- Caffeine
- Chloramphenicol in Shrimp
- Chlorogenic acid
- Chocolate properties by DSC
- Cocoa Mass
- Cold Test – Oils
- Cyanide
- Deformulation Analysis - confirmation of ingredients present in product
- Density
- FDA 21 CFR - Food Contact Items Evaluation
- Filth Analysis (Macroscopic Examination)
- Flunixin in Milk
- Food DNA Authentication
- Gamma-oryzanol
- GMO Analysis
- Isoflavones (daidzein, glycitein, genistein, daizin, glycitin, genistin)
- Lecithin phospholipids
- Meat Speciation by PCR
- Methanol – First Sample in Batch
- Methanol – Additional Samples in Batch
- Microscopic Exam (Extraneous Material)
- Milk Thistle – First Sample in Batch
- - Milk Thistle – Additional Samples in Batch
- Moisture - Karl Fisher
- Moisture & Volatile Matter by Hot Plate Method - Oils
- Moisture, 100 C vacuum oven
- Moisture, 60C vacuum oven
- Nitrite / Nitrate
- Nucleotides: ATP, citicoline, other - specify
- Osmolality
- Pasta Quality Control – Common Wheat Adulteration
- Peroxide Value (PV) - Oils
- Pfund color (honey) – Absorbance
- Pfund color (honey) – Visual
- pH of food
- Phthalates
- Powder Finesse
- Residual Carbon Dioxide (Head Space)
- Residual Oxygen (Head Space)
- Scoville Heat Test (Capsaicinoids)
- Soluble / Insoluble Fiber
- Specialty Chemistry Analysis
- Starch – Quantitative
- Starch (juices) – Qualitative
- Sulfites
- Titratable acidity
- Total Solids
- Unknown / Foreign Particle Identification
- Vanillin, ethyl vanillin (FCC)
- Vanillin, ethyl vanillin in food
- Viscosity
- Viscosity (Rheology)
- Water Activity (aW)
- X-Ray Diffraction (crystalline product)

Pet Nutritional

Submit 5 oz sample per analyte requested

- Pet Food Nutritional Analysis – Specifically for Pet Food Guaranteed Nutritional Analysis and AAFCO compliant labeling Includes: Protein (min %), Moisture (max %), Crude Fat (min %), Crude Fiber (max %)
- Pet Food Nutritional Analysis –Nutritional Analysis (Results expressed in %) Includes: Protein, Moisture, Crude Fat, Crude Fiber
- Taurine
- Etoxyquin (Santoquin)



Food Adulteration, GMO & Quality Control

LA Testing offers a variety of specific food analysis to determine adulteration and quality control of specific products and food types. In addition to the allergen screens offered (see Allergen Testing section), LA Testing can provide quality analysis for GMO testing, Pasta Quality, Dairy Residue Shrimp and Seafood, and a variety of Meat Speciation. LA Testing can also customize an Adulteration & Quality Control package for your specific product and industry using advanced DNA-based PCR technology.

Test Parameter

Submit 3 oz sample per analyte requested

Food DNA Authentication
GMO Analysis
Meat Speciation by PCR
Pasta Quality Control – Common Wheat Adulteration
Flunixin in Milk
Chloramphenicol in Shrimp
Amnesic Shellfish (Domoic Acid)
Cyclospora (P/A)


Nutrition Facts
Serving Size 2 pieces (3g)
Servings 6
Calories 5
Total Fat
Sodium
Total Carb. 2g
Sugars 0g
Sugar Alcohol 2g
Protein 0g
Not a significant source of other nutrients.
Nutrition Facts

Nutritional Analysis & Food Labeling

LA Testing offers full Nutritional Labeling services. The two most common methods for determining the nutritional content of a product are Laboratory Based Analysis and Database Analysis.

Laboratory Based Analysis

This method simply requires the client to send in the product(s) to be tested (minimum of 500g of sample needed). The laboratory utilizes scientific methods and equipment to physically analyze your sample for the various components that make up the nutritional information needed. Virtually any food sample can be analyzed with the laboratory based method.

Database Analysis

This method requires that the client sends in detailed information about each product such as recipe, nutritional facts per 100g of each ingredient, and pre and post processing weights. Not all food types are appropriate for the Database method. The Database method is conducted strictly via paperwork (email, fax, phone etc), no physical sample is required for analysis.

Camera Ready Nutrition Facts Panel

When the appropriate analysis is selected and performed LA Testing can provide a camera ready nutrition facts panel, ready for labeling, based on the data derived from analysis. Several formats to display your Nutritional Facts are available. Contact LA Testing to arrange for the Complete Nutritional Analysis package that is right for you.

Nutrition Facts
Serving Size 1 cookie (32g)
Servings Per Container 3

Amount Per Serving

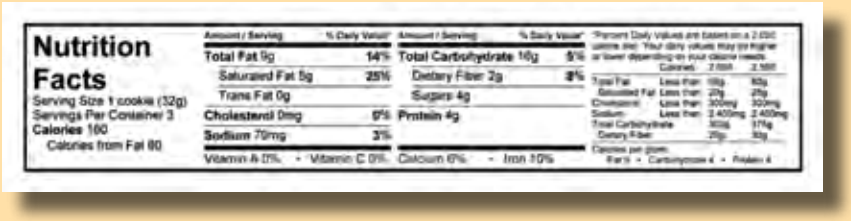
Calories 160	Calories from Fat 80
	% Daily Value*
Total Fat 9g	14%
Saturated Fat 5g	25%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 70mg	3%
Total Carbohydrate 16g	5%
Dietary Fiber 2g	8%
Sugars 4g	
Protein 4g	

Vitamin A 0% • Vitamin C 0%
Calcium 6% • Iron 10%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4



Nutrition Facts
Serving Size 1 cookie (32g)
Servings Per Container 3
Calories 160
Calories from Fat 80

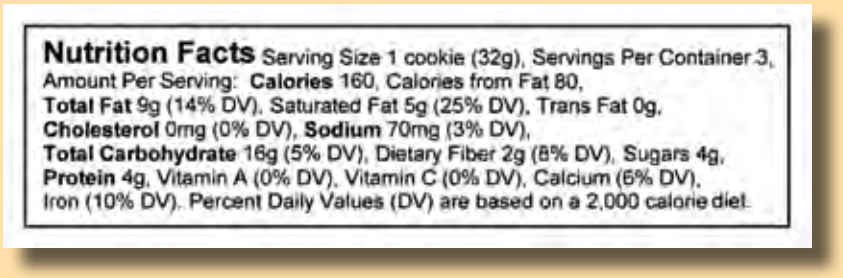
Amount / Serving	% Daily Value*	Amount / Serving	% Daily Value*
Total Fat 9g	14%	**Total Carbohydrate** 16g	5%
Saturated Fat 5g	25%	Dietary Fiber 2g	8%
Trans Fat 0g		Sugars 4g	
Cholesterol 0mg	0%	**Protein** 4g	
Sodium 70mg	3%		

Vitamin A 0% • Vitamin C 0% • Calcium 6% • Iron 10%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4



Nutrition Facts Serving Size 1 cookie (32g), Servings Per Container 3,
Amount Per Serving: **Calories** 160, Calories from Fat 80,
Total Fat 9g (14% DV), Saturated Fat 5g (25% DV), Trans Fat 0g,
Cholesterol 0mg (0% DV), **Sodium** 70mg (3% DV),
Total Carbohydrate 16g (5% DV), Dietary Fiber 2g (8% DV), Sugars 4g,
Protein 4g, Vitamin A (0% DV), Vitamin C (0% DV), Calcium (6% DV),
Iron (10% DV). Percent Daily Values (DV) are based on a 2,000 calorie diet.

Laboratory Based Nutritional Analysis

LA Testing offers Laboratory based Nutritional analysis compliant with FDA Labeling Laws. Laboratory based nutritional analysis methods require a physical sample of the product(s) be sent to the laboratory. The samples are then prepped and analyzed in the laboratory using various scientific instruments and techniques to yield data that is specific and unique to the product. Laboratory based nutritional analysis can be used for virtually any food type.
This method can be used for:

- General Nutritional Labeling needs
- Validating manufacturer / supplier nutritional information
- Validating data generated from software based database analysis
- Product contains unique or exotic ingredients or processing techniques
- Analyzing food for animals (pet foods and agricultural feeds)
- Accurate nutrient per 100g values are needed for CofA's or Database inclusion

Reports will feature values per 100g and per serving size (when provided) of the product. Where applicable, % RDI and % DV values will also be provided. Additional voluntary nutrients are available – please inquire.

Complete Nutritional Analysis

Submit 5 oz sample per analyte requested

- Protein
- Moisture
- Ash
- Fat Profile (Includes Total, sat, mono, poly and trans fat)
- Sugar Profile (Includes fructose, sucrose, glucose, maltose, lactose)
- Total Dietary Fiber
- Sodium
- Calcium
- Iron
- Cholesterol
- Vitamin A
- Vitamin C
- Carbohydrates by calculation*
- Calories by calculation*
- Calories from fat

Nutritional Analysis - Average Data Package

Complete Nutritional Analysis of 3 units of product. Data can be used to determine average nutrient value to account for inherent product variance

Restaurant Nutrient Package

In accordance with Section 4205 of the Patient Protection and Affordable Care Act of 2010. Includes Calories, Fat, Sat Fat, Cholesterol, Sodium, Carbohydrates, Sugars, Fiber and Protein.

Camera Ready Nutrition Facts Panel

Requires Complete Nutritional Analysis and serving size information.

Pet Food Nutritional Analysis

Specifically for Pet Food Guaranteed Nutritional Analysis. Results expressed in %. Includes: Protein, Moisture, Crude Fat, Crude Fiber.

Pet Food Nutritional Analysis – AAFCO

Specifically for Pet Food Guaranteed Analysis and AAFCO compliant labeling. Includes: Protein (min %), Moisture (max%), Crude Fat (min%), Crude Fiber (max%).

**Carbohydrate and Calorie content require analysis of: Protein, Moisture, Fat, and Ash. Will be charged separately.*

Nutritional Database Analysis

LA Testing offers Nutritional Database analysis compliant with FDA Labeling Laws. We utilize the prestigious Genesis® SQL Database produced by Esha Research.

Nutritional Database analysis requires that the formula for the product, along with detailed information about each ingredient and product processing information, be submitted in writing to the analyzing laboratory. Typically, no physical sample is required to be submitted. Database analysis can be used for products that have common ingredients and products that have minimal processing, cooking, baking or drying.

Database analysis is not recommended when validation of nutrients is needed, for products that have unique or exotic ingredients, for products with ingredients for which there is no nutritional data available, or for products that undergo extensive processing. This method can only be used for human foods.

Comprehensive Database Analysis

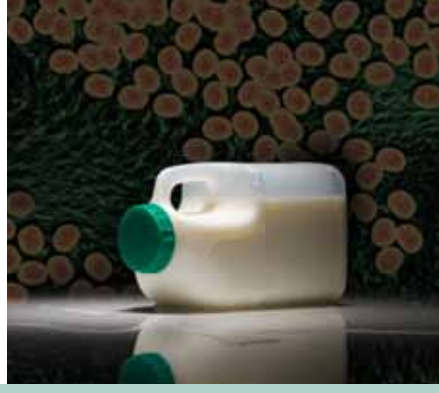
Nutritional Database Analysis Report Options Include:

- Recipe Overview
- Ingredient Statement
- Allergen Statement (optional)
- Nutrient Content Claims
- Nutrient Value per Serving
- Camera Ready Nutrition Facts Panel

NOTE: To avoid ingredient research surcharge and testing delays, please be prepared to submit the nutritional data, per 100g, for each ingredient in the product formula. Additionally, provide all measurements in weight units (g or oz). If volume units are used please provide weight to volume conversions. Serving sizes must be provided by weight, household measurements can be included, but are optional. Serving per container information may be submitted, but is optional. If product undergoes heated processing, pre-processing and post-processing weights should be included. Not all products are appropriate for database analysis. ***Contact your laboratory prior to sample submittal for availability and restrictions.***


ORGANIC
DRY ROASTED
PISTACHIO
SALTED
$8.99 LB.
40
0.65
10
0.25

Food Allergens



LA Testing's Food Allergen Testing program can be used when there is a need to confirm or deny the presence of a specific regulated food allergen. LA testing offers analysis for detection of the most common food allergens of concern. Additional food allergens may be available upon request.

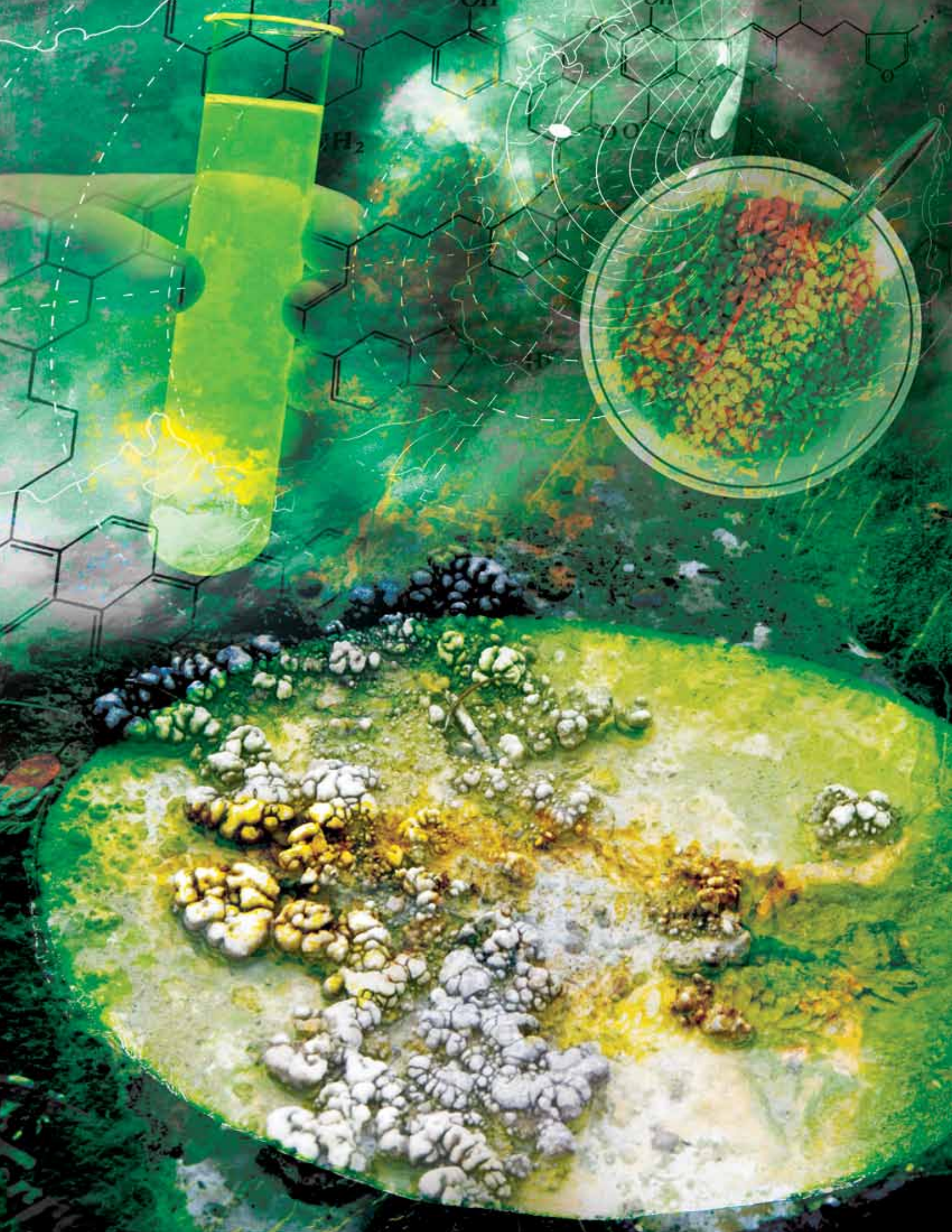
Test Parameter

Submit 1 oz sample per analyte requested

- Food Allergen - Specialty
- Peanut Allergen
- Almond Allergen
- Egg Allergen
- Hazelnut Allergen
- Total Milk Allergen
- Soy Flour Allergen
- Gliadin (Gluten) Allergen
- Walnut Allergen
- Shellfish Allergen
- Soy Allergen
- Lupine Allergen
- Mustard Allergen
- Sesame Allergen
- Casein Allergen
- Brazil Nut Allergen
- Cashew Allergen
- Pistachio Allergen
- Macadamia Allergen
- Crustacea Allergen

Environmental Allergens

- Latex Allergen
- Cat Allergen
- Dog Allergen
- Cockroach Allergen
- Dust Mites Allergen
- Mouse and/or Rat Allergens
- Fungal Allergen



Natural Toxins

Various toxins can be present in different food types and commodities that can cause adverse affects on products, animals, and humans. Mycotoxins (Fumosin, T2, Zearalenone, Ochratoxin A, DON, and Aflatoxins) are derived from various mold types that can contaminate cereals, feeds, grains and other food types. Histamine primarily affects fish products and can cause scromboid poisoning in humans. The EPA and FDA have set various action levels and limits for Natural Toxins in food and feeds.

LA Testing offers a variety of options to test products for various toxins. Methods are based on ELISA, or LC/MS methodology, depending on sample matrix, sensitivity requirements, and regulatory needs. Contact LA Testing for more information.

Test Parameter

Submit 2 oz sample per analyte requested

Food Toxins
Histamine
Fumosin FB1, FB2
T-2 Toxin
Zearalenone
Ochratoxin A
DON (Vomitoxin)
Aflatoxin –B1, B2, G1, G2

** Contact prior to sample submittal for availability.*

FDA Import Detention Services

LA Testing offers full service assistance in the event of product detention by the FDA during importation. Our dedicated project managers will coordinate sample collection and analysis, working directly with the FDA to determine exactly what is needed. We offer fast sampling and testing turn around times and can deliver a custom Import Detention Resolution Packet (IDRP) directly to the FDA compliance officer.

The FDA has very specific rules and criteria that must be adhered to, maintaining proper chain of custody and integrity of product and analysis. LA Testing works with a team of highly trained and experienced personnel to properly collect, transport, analyze and report samples.

FDA Import Detention Services are highly customized, based on product and country of origin. For a personalized quote please contact LA Testing with the following to initiate:

- General Nutritional Labeling needs
- Validating manufacturer / supplier nutritional information
- Validating data generated from software based database analysis

Once the above information is received, a formal proposal will be submitted and a project manager assigned. LA Testing will coordinate all sampling, transport, analysis and reporting needed.

Examples of possible analysis required

Natural Toxins

Artificial Colors

Sweeteners

Bacterial Pathogens

Filth Analysis / Extraneous Material

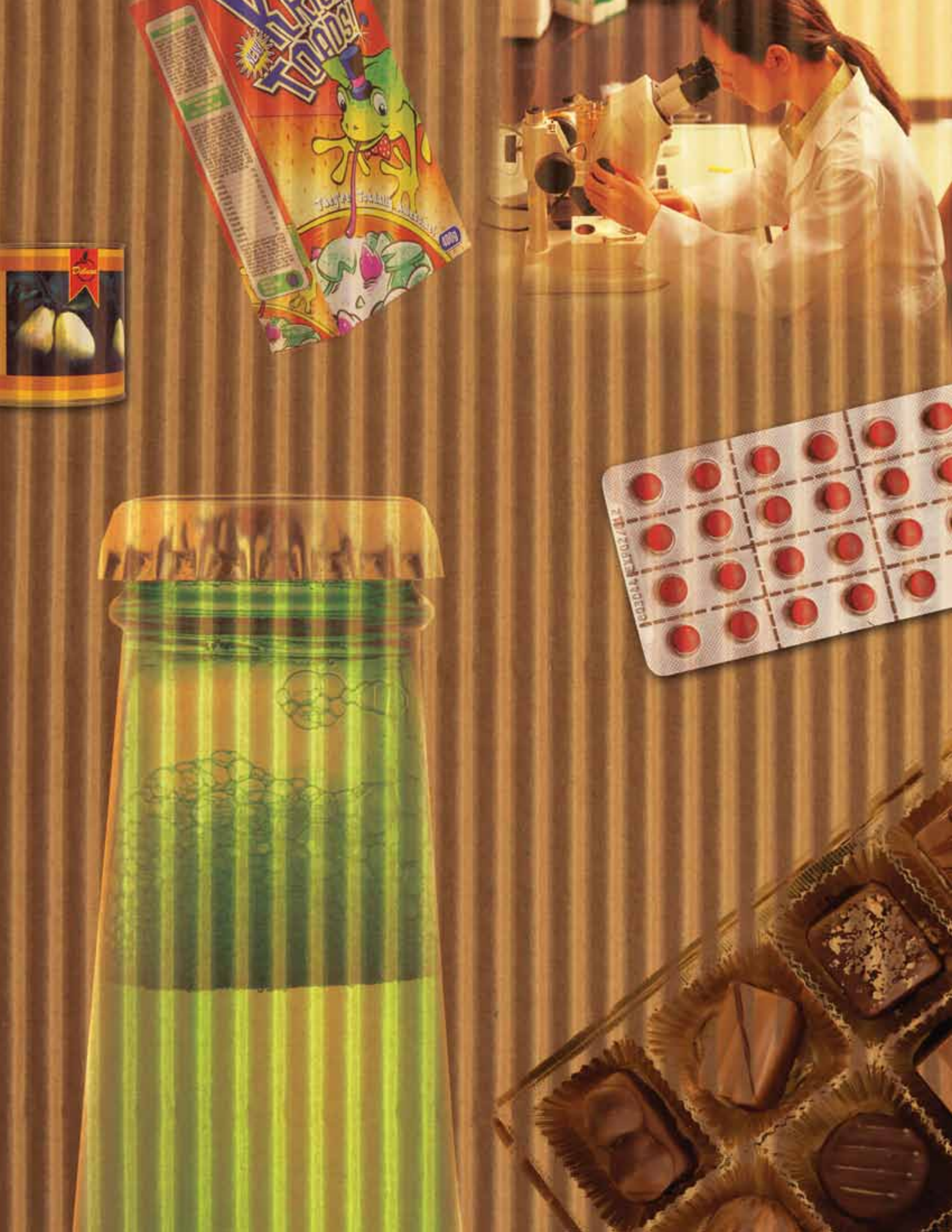
Leachable Lead & Cadmium

Mercury Analysis

Pesticide Residue

Melamine

Fluoride


Toads

Packaging Analysis – Permeation Testing

LA Testing offers extensive package testing capability to include a broad variety of substrates and components: flexible structures, rigid bottles, foil seals, pouches, aseptic boxes, trays and more. The analysis is based on ASTM E96, ASTM E398, ASTM D6701, ASTM F1249, ASTM D3985, ASTM F1307, ASTM F2266, and ASTM F1927 and can consist of the following:

- Water Vapor Transmission Rate (WVTR)
- Oxygen Transmission Rate(OTR)

Packaging Analysis for permeation testing is useful for finished packaging of food, beverages, pharmaceuticals, and raw materials. This analysis provides good insight to the behavior of the packaging during transport and throughout the shelf life of a product.

Film Testing*

Conditions		WVTR		OTR	
Thickness	**Temperature**				
Up to 5mm, film	Room Temp	**Standard and cGMP Testing Packages Available**	2 weeks and 1 week TAT Options	**Standard and cGMP Testing Packages Available**	2 weeks and 1 week TAT Options
5-10 mm, film	Room Temp				
> 10 mm, film	Room Temp				
Non-film (Coated paper, Metalized Structures, Cardboard)	Room Temp				

Package Testing**

Conditions		WVTR		OTR	
Package Type	**Temperature**				
Containers, Bottles trays, Closures, Blisters, Flexible Pouches	Room Temp	**Standard and cGMP Testing Packages Available**	2 weeks and 1 week TAT Options	**Standard and cGMP Testing Packages Available**	2 weeks and 1 week TAT Options

** All samples run in duplicates, price is per sample; two results for each sample will be reported*
*** Samples run as individual samples, price is per sample; one result per sample will be reported*
Note: Testing will be performed for max 100 hours. If the sample analysis exceeds 100 hours, client will be contacted. Additional charge will apply if extended analysis is requested.

Shelf Life Studies

LA Testing offers generalized base packages for shelf life studies to provide a basic picture of the microbial activity of the product over a period of time. Six base packages are available for a set price; they vary based on length of study – 90 days or 1 year – and storage temperature of product – ambient, refrigerated, or frozen.

Base Packages for Real Time Studies

	Package I	Package II	Package III
Storage Conditions*	Ambient (Room Temp.)	Refrigerated	Frozen
Time Points*	Day 0, Day 30, Day 60, Day 90	Day 0, Day 30, Day 60, Day 90	Day 0, Day 30, Day 60, Day 90
Total Study Length	**90 Days**	**90 Days**	**90 Days**
Tests Included	Aerobic Plate Count, Yeast & Mold, Coliform / *E. coli*	Aerobic Plate Count, Yeast & Mold, Coliform / *E. coli*	Aerobic Plate Count, Yeast & Mold, Coliform / *E. coli*
Sample Submittal Requirements	4 Fresh Units of sample at start of study. Unit must be at least 100g (3.5 oz)	4 Fresh Units of sample at start of study. Unit must be at least 100g (3.5 oz)	4 Fresh Units of sample at start of study. Unit must be at least 100g (3.5 oz)

	Package IV	Package V	Package VI
Storage Conditions*	Ambient (Room Temp.)	Refrigerated	Frozen
Time Points*	Day 0, 3 Month, 6 Month, 9 Month, 12 Month	Day 0, 3 Month, 6 Month, 9 Month, 12 Month	Day 0, 3 Month, 6 Month, 9 Month, 12 Month
Total Study Length	**1 Year**	**1 Year**	**1 Year**
Tests Included	Aerobic Plate Count, Yeast & Mold, Coliform / *E. coli*	Aerobic Plate Count, Yeast & Mold, Coliform / *E. coli*	Aerobic Plate Count, Yeast & Mold, Coliform / *E. coli*
Sample Submittal Requirements	5 Fresh Units of sample at start of study. Unit must be at least 100g (3.5 oz)	5 Fresh Units of sample at start of study. Unit must be at least 100g (3.5 oz)	5 Fresh Units of sample at start of study. Unit must be at least 100g (3.5 oz)

* *Ambient Humidity. If specific humidity conditions required please contact sales rep for a custom proposal. Time points are equivalent, final time points will be determined by laboratory schedule and staffing availability. Actual time points will be noted on final report. Base packages studies based on single replicate analysis. Multiple replicate analysis is available through customized Shelf Life Studies. Please Inquire.*

- *Additional time points can be added for extra charge at client request.*
- *Additional test parameters may be added, multiply test price by "add-on multiplier" and add that to study total.*
- *Accelerated studies are available upon request. Contact sales rep for a custom proposal. Not recommended for products with shelf life less than one year, or for products that cannot withstand temperatures above 35oC.*

LA Testing is an analytical testing laboratory, and provides analytical results based on the testing parameters requested by our clients. It is the client's responsibility to interpret these results using their own experts and expertise concerning their product to determine safety, efficacy and performance. Any and all product claims or endorsements are the sole responsibility of the client and made strictly at the client's own risk.

Shelf Life Studies

In addition to the basic shelf life base-packages, LA Testing offers highly customized studies that can provide a variety of data to help determine the shelf life of a product. These studies are based on product specifications, estimated shelf life, product storage conditions, parameters of interest for analysis, as well as budget and time requirements.
A combination of several tests and storage conditions can be utilized to create a custom shelf life study for each product. These tests and conditions can include (but are not limited to) the following. These parameters can also be added, a la carte, to the shelf life base-packages that LA Testing offers.

Test/Condition

Aerobic Plate Count
Yeast & Mold
Coliform / E. coli
Staphylococcus aureus
Salmonella (P/A)
E. coli O157:H7 (P/A)
Listeria (P/A)
Color
Texture / Viscosity
*Appearance Evaluation**
Packaging Evaluation
Moisture / Weight Loss
Fat Profile
Sugar Profile
Total Dietary Fiber
Cholesterol
Vitamin A
Vitamin C
Calories by calculation (requires Protein, Moisture, Fat & Ash analysis)
pH
Water Activity
Soluble Salt (Sodium Chloride)
Fatty Acid Profile
Antioxidants (ORAC)
Rancidity
Allergens
Toxins (must specify)
Room Temperature Storage Conditions & Preparation
Refrigerated Temperature Storage Conditions & Preparations
*Accelerated Temperature Storage Conditions & Preparation***

These tests are add on's to the Six Base Packages listed on page 29. They can also be used to create a custom shelf life study package which is recommended.

* *Appearance evaluation will be based on rudimentary "layman" or "consumer" standards. Pictures will be included. Comparisons will be made of changes over time and may include: color, odor, consistency*
** *Accelerated Study not recommended for products with a real time shelf life of less than 1 year, or for products that cannot withstand temperatures above 35oC*
Due to the customized nature of these studies we recommend that a Shelf Life Study Request for Proposal (RFP) from be filled out and submitted for each product in question.
LA Testing is an analytical testing laboratory, and provides analytical results based on the testing parameters requested by our clients. It is the client's responsibility to interpret these results using their own experts and expertise concerning their product to determine safety, efficacy and performance. Any and all product claims or endorsements are the sole responsibility of the client and made strictly at the client's own risk.

Frequently Asked Questions & Sample Shipping Guidelines

Frequently Asked Questions

Q: Why choose LA Testing?
A: LA Testings parent company EMSL Analytical, Inc. has been providing quality analytical services since 1981 and is the 4th largest environmental, food, and consumer products testing firm. With a network of over 37 laboratories, service centers, and partner facilities in North America and Canada. With leading industry experts, multiple locations, and a wide range of testing options LA Testing is poised to be your one-stop-shop for all your analytical needs.

Q: What services can LA Testing provide?
A: LA Testing is a comprehensive third party testing lab. We have experts in a multitude of scientific disciplines. LA Testing also boasts a dedicated Special Projects Team with inter-disciplinary experts to help design and execute client's specific project needs.

Q: Is LA Testing a certified/approved laboratory for food testing?
A: LA Testing does have an ISO 17025 certified quality system that ensures your samples will be analyzed and treated with the highest quality of scientific analysis and integrity. When available and appropriate LA Testing uses AOAC, FDA, USDA, and USP approved methods for analysis.

Q: I want to know what is in this product. Does LA Testing perform Deformulation Analysis?
A: Deformulation analysis, also referred to as reverse engineering, provides a component breakdown of a product. Due to the complex chemical nature of most food products this is not always possible to achieve using conventional analytical techniques. Pricing starts at $5,000 per product. Please contact your LA Testing representative for more details.

Q: I have a new product I want to get to market. Where do I start?
A: The first step is to check with Federal, State, and Local regulatory authorities to see what is required of your product. This will vary depending on product type, customer base, business size, and jurisdiction. Also take into consideration any testing your customer may also require. Once you have determined the analytical services needed contact your LA Testing representative to make testing arrangements.

Q: I need a nutritional label, which method should I use?
A: LA Testing offers two methods for nutritional analysis: Laboratory Based and Database analysis. Laboratory Based Analysis can be used on all food types and requires an actual sample be sent in for analysis. Database Analysis can only be used on human foods with common ingredients and limited processing, a sample is not required to be sent in for this analysis. For more details see the nutritional sections of the food price guide or contact your LA Testing representative.

Q: I would like to have a Shelf Life Study performed on my product. Where do I start?
A: LA Testing Shelf Life Studies are highly customized, based on your product specifications, estimated shelf life, storage conditions, parameters of analysis, and your budget and time requirements. To help us put together a study that meets your needs we ask that you submit a Shelf Life RFP (Request for Proposal) Form which can be found at www.ShelfLifeStudy.com or by contacting your LA Testing representative.

Q: I am ready to submit samples for testing. What do I need to do?
A: Once you have determined the analytical tests needed and have received a quote from an LA Testing representative you will submit a Chain of Custody (sample submittal form, provided to you by your LA Testing representative), appropriate amount of sample, and if necessary, payment to the analyzing laboratory. Contact your LA Testing representative for more details.

Sample Shipping Guidelines

When shipping samples to the laboratory for analysis please use the following guidelines:

- Submit adequate amount of sample.
  - Contact your LA Testing Sales Representative or analyzing laboratory for specifics. Refer to Food Pricing Guide for sample quantity guidelines. Insufficient sample amount will lead to delays in analysis.
- Submit samples in sealed packaging or containers
  - Package in such a way as to prevent samples from leaking, spilling, breaking, or otherwise compromise the integrity of the samples
- Include a completed Chain of Custody with samples
  - In a separate plastic bag, to ensure it doesn't get wet or damaged
- Ship samples in a cooler, with ice packs, for overnight delivery to the analyzing laboratory
  - Do not use ice cubes
  - Do not use dry ice, unless specifically instructed
- Identify sample type on the outside of the package simply by clearly noting "FOOD SAMPLE"
  - This will ensure that the sample gets to the proper department upon receipt, and notify receiving staff to institute proper food sample handling procedures.

Improper packaging during shipment may compromise the quality and integrity of laboratory generated data. LA Testing reserves the right to reject samples if sample integrity or staff safety is in question.

LA TESTING

www.LATesting.com
Tel: 800.303.0047

LABORATORY | PRODUCTS | TRAINING

Delivering Unmatched Quality

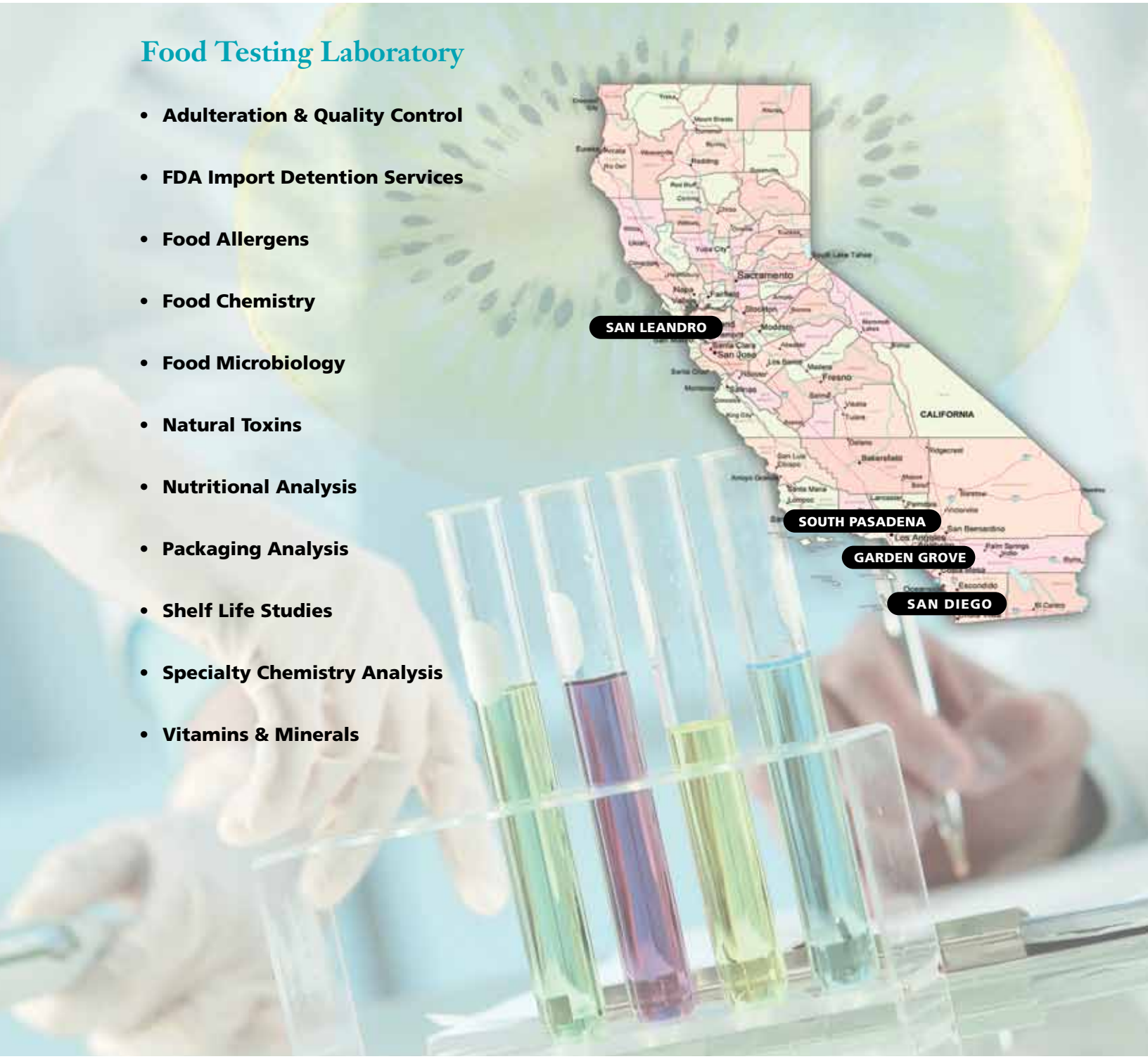
CALIFORNIA TESTING LABS

Southern California
South Pasadena, CA
Garden Grove, CA
San Diego, CA*

Northern California
San Leandro, CA*

Food Testing Laboratory

- **Adulteration & Quality Control**
- **FDA Import Detention Services**
- **Food Allergens**
- **Food Chemistry**
- **Food Microbiology**
- **Natural Toxins**
- **Nutritional Analysis**
- **Packaging Analysis**
- **Shelf Life Studies**
- **Specialty Chemistry Analysis**
- **Vitamins & Minerals**



*Operated as EMSL Analytical, Inc.