



## FAT ANALYZER

## ***Precision Soxhlet Extraction Systems for Fat, Oil & Soluble-Compound Analysis***

A Fat Analyzer is a precision laboratory instrument used to determine the fat, oil, and crude-lipid content of food, feed, agricultural, pharmaceutical, and environmental samples. Operating on the time-tested Soxhlet extraction principle, a fat analyzer continuously circulates a heated organic solvent through a sample matrix, dissolving the lipophilic components, condensing the solvent vapors, and returning the purified solvent for repeated extraction cycles. The dissolved fat is then quantified by weight after solvent recovery — delivering the accurate, reproducible, regulator-accepted fat-content data that food manufacturers, nutritionists, agricultural producers, and quality-control laboratories rely on every day.

Modern fat analyzers integrate every step of the traditional Soxhlet workflow — soaking, extraction, leaching, heating, condensation, and solvent recovery — into a single automated instrument. The result is dramatically faster analysis, significantly reduced solvent consumption, improved operator safety, and consistently higher reproducibility compared to manual glassware-based methods. The most advanced systems add multi-method support, full temperature and flow control, automated lifting, integrated leak detection, and one-touch operation, making fat analysis accessible to operators at every experience level.

Torontech offers a complete range of fat analyzers designed for the diverse needs of modern analytical and quality-control laboratories. The Fat Analyzer TT-SOX406 is a semi-automatic, six-sample Soxhlet system with sealed metal-bath heating, intelligent temperature control, triple-alarm safety, and an intuitive 4.3-inch LCD interface — the ideal solution for routine fat-content determination in busy QC laboratories. For laboratories requiring full automation, the Automatic Soxhlet Extractor TT-SOX606 delivers true one-touch operation, five built-in extraction methods (Soxhlet, Soxhlet Hot, Continue-Flow, Hot Extraction, and CH Standard), preset common-reagent libraries, full water-temperature and flow control, and a built-in ether leak-detection system — making it one of the most capable, eco-friendly, and operator-safe automated Soxhlet platforms available.

## **Make Every Fat Analysis Count**

In today's quality-driven food, agriculture, and pharmaceutical industries, accurate fat-content data is non-negotiable. Nutritional labels must be exact. Animal-feed formulations must meet specification. Environmental samples must reveal every soluble contaminant. Pharmaceutical extracts must be precisely quantified. The laboratories that consistently deliver world-class results are the ones equipped with fat analyzers built for accuracy, automation, safety, and long-term reliability — and the Torontech TT-SOX406 and TT-SOX606 give you exactly that.

Whether you are running routine fat determinations in a busy food-QC laboratory, certifying livestock feed for nutritional accuracy, supporting pharmaceutical R&D programs, or analyzing environmental samples for regulatory compliance, Torontech has the fat-analyzer platform engineered to meet your exact needs. From the dependable semi-automatic TT-SOX406 to the fully-automated, multi-method TT-SOX606, every Torontech fat analyzer is built to deliver world-class extraction performance backed by industry-leading service and support.

Don't compromise on the instrument that determines whether your products meet specification — or get rejected by regulators. Equip your laboratory with the fat-analyzer platform trusted by food scientists, agricultural quality teams, pharmaceutical professionals, and environmental laboratories worldwide.

## APPLICATIONS

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### Applications in Industries

Fat analyzers are mission-critical instruments across virtually every sector where the quantification of fats, oils, and soluble organic compounds matters. The Torontech fat-analyzer range supports an extensive list of industrial, regulatory, and research applications, including:

- **Food & Beverage Industry** — Fat-content determination for dairy products, meat, fish, baked goods, snack foods, oils, sauces, and processed foods to support nutritional labeling, quality control, and regulatory compliance.
- **Agricultural & Animal Feed Industry** — Crude-fat analysis of cereals, grains, oilseeds, livestock feed, pet food, and aquaculture feed to verify nutritional value, formulation accuracy, and feed quality standards.

- **Edible Oils & Fats Production** — Quantification of residual oil in oilseed cakes, oil yield determination, and quality control across vegetable-oil, animal-fat, and specialty-oil production lines.
- **Pharmaceutical Industry** — Extraction of soluble organic compounds from active pharmaceutical ingredients, excipients, and finished formulations for research, development, and regulatory-compliance testing.
- **Environmental & Soil Analysis** — Extraction of pollutants, hydrocarbons, oils, and organic contaminants from soil, sludge, sediments, and wastewater samples for environmental monitoring and regulatory reporting.
- **Chemical & Petrochemical Industry** — Quantification of soluble organic compounds in petrochemicals, polymers, cleaners, detergents, and industrial chemical products.
- **Polymer, Rubber & Plastics Industry** — Determination of plasticizers, additives, residual monomers, and soluble compounds extracted from polymers, rubbers, plastics, and fiber products.
- **Textile & Fiber Industry** — Analysis of finishing agents, oils, sizing compounds, and soluble residues in textiles, yarns, and fiber products.
- **Cosmetics & Personal Care** — Quantification of lipid and oil-soluble components in creams, lotions, balms, and cosmetic raw materials for product development and QC.
- **Universities & Research Laboratories** — Method development, fundamental research into lipid chemistry, agricultural science, environmental science, and student training in Soxhlet-based extraction techniques.

## FEATURES

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### Why Choose Torontech for Your Fat-Analysis Needs

With more than two decades of experience supplying advanced analytical instruments to food laboratories, agricultural facilities, pharmaceutical manufacturers, and research institutions across more than 60 countries, Torontech has earned a global reputation as a trusted partner for fat-analysis solutions. Choosing a Torontech fat analyzer means investing in more than just equipment — it means partnering with an organization committed to your laboratory's long-term analytical success.

## **Complete Soxhlet Extraction Portfolio**

Torontech offers fat-analysis platforms spanning the full automation spectrum — from the cost-effective semi-automatic TT-SOX406 ideal for routine QC labs, through the fully-automated multi-method TT-SOX606 for high-throughput and multi-application laboratories. Whatever your workflow, sample matrix, or budget, there is a Torontech fat analyzer engineered to fit.

## **Intelligent Safety Engineering**

Every Torontech fat analyzer is built around comprehensive safety architecture. The TT-SOX406 features over-temperature alarms, triple alarm systems (sound, light, and LCD), and an exclusive air-insulation technique that keeps the instrument case at room temperature even during high-temperature extraction. The TT-SOX606 adds a built-in ether leak-detection device — a critical safety feature when working with volatile organic solvents — alongside full temperature and flow control.

## **Eco-Friendly & Cost-Effective Operation**

Both Torontech fat analyzers are engineered for environmental responsibility and operational economy. Efficient solvent-recovery systems significantly reduce solvent consumption, full temperature and flow control minimize condensed-water usage, and rapid-heat-up metal heating modules cut power consumption — delivering both lower operating costs and reduced environmental impact.

## **Accuracy & Reproducibility**

Torontech fat analyzers are engineered for the consistent, repeatable results that regulatory compliance demands. Customized glass and PTFE construction blocks impurities and ensures high accuracy, integrated PID temperature control delivers precision better than 1 °C, and standardized Soxhlet extraction workflows guarantee that every analysis is performed identically — sample after sample, batch after batch.

## **Intuitive Operation**

Both Torontech platforms feature thoughtful operator-friendly design. The TT-SOX406 includes a 4.3-inch LCD screen with a man-machine dialogue control system that simultaneously displays target temperature, actual temperature, set time, and heating duration. The TT-SOX606 takes ease-of-use further with one-touch operation, preset reagent libraries, five built-in extraction methods, and a magnetic-mount controller that can adhere to any iron surface in the lab.

Expert Application Support

Torontech's team of application specialists is available across multiple time zones to support installation, operator training, method development, calibration, and ongoing technical service. With offices and authorized partners throughout the USA, Canada, UAE, KSA, GCC, EU, India, APAC, Africa, and Latin America, professional support is always within reach.

Cost-Effective Value

Torontech delivers premium-grade fat-analysis performance at a transparent, competitive price point — eliminating the inflated cost structures of legacy brands while maintaining the analytical accuracy, durability, and feature set that demanding professionals require.

TECHNICAL SPECIFICATIONS

Product Comparison Table

Choosing the right fat analyzer depends on your laboratory's automation needs, throughput, method requirements, and budget. The table below provides a side-by-side comparison of the two Torontech fat-analyzer models, helping you identify the right Soxhlet extraction platform for your workflow.

| Specification | TT-SOX406                             | TT-SOX606                                        |
|---------------|---------------------------------------|--------------------------------------------------|
| Class         | Semi-Automatic Fat Analyzer (Soxhlet) | Fully Automatic Soxhlet Extractor / Fat Analyzer |

| Specification                          | TT-SOX406                                                                                                                                     | TT-SOX606                                                                                               |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Extraction Principle</b>            | Soxhlet extraction — gravimetric (weight) method                                                                                              | Soxhlet extraction — gravimetric (weight) method                                                        |
| <b>Integrated Functions</b>            | Soaking, extraction, leaching, heating, condensation, solvent recovery                                                                        | Lifting, pre-heating, extraction, dilution, solvent recovery (one-touch)                                |
| <b>Extraction Methods</b>              | Standard Soxhlet method (semi-automatic workflow)                                                                                             | 5 built-in methods: Soxhlet, Soxhlet Hot, Continue-Flow, Hot Extraction, CH Standard                    |
| <b>Sample Capacity</b>                 | 6 samples per batch (simultaneous)                                                                                                            | 6 samples per batch (simultaneous)                                                                      |
| <b>Heating System</b>                  | Sealed metal-bath heating with automatic temperature control                                                                                  | Full metal heating module — rapid heat-up, low power consumption                                        |
| <b>Temperature Control</b>             | Built-in PID; integral metal heating with wide range & high precision                                                                         | Full water-temperature & flow control (closed-loop)                                                     |
| <b>Display / Interface</b>             | 4.3-inch LCD + microcomputer control with man-machine dialogue                                                                                | Vertical touchscreen with one-click start/pause; magnetic controller mount                              |
| <b>Reagent / Solvent Compatibility</b> | Compatible with common Soxhlet solvents                                                                                                       | Compatible with all organic solvents (glass + PTFE construction)                                        |
| <b>Preset Reagent Library</b>          | Manual parameter entry                                                                                                                        | Preset common-reagent options (one-click repeat trials)                                                 |
| <b>Solvent Recovery</b>                | Soaking, extraction & solvent recovery combined in one step                                                                                   | Efficient automated solvent-recovery system (high recovery efficiency)                                  |
| <b>Automation Level</b>                | Semi-automatic (operator-assisted workflow)                                                                                                   | Full automation — one-touch start completes entire extraction cycle                                     |
| <b>Lifting / Sample Handling</b>       | Linear-bearing lifting mechanism for smooth, comfortable operation                                                                            | Automatic lifting integrated into one-click workflow                                                    |
| <b>Safety Features</b>                 | Isolated electric circuit, isolated timer circuit, over-temp alarm, triple alarms (sound/light/LCD), air insulation keeping case at room temp | Built-in ether leak-detection device, full temperature & flow control, eco-friendly safety architecture |

| Specification   | TT-SOX406                                                                                                                    | TT-SOX606                                                                                                                              |
|-----------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Best Suited For | Routine fat/oil analysis in food, feed, agricultural & QC labs needing reliable Soxhlet results at an accessible price point | High-throughput, multi-method labs needing maximum automation, repeatability & solvent flexibility (food, agri, pharma, environmental) |

In short: choose the TT-SOX406 when your laboratory needs a reliable, accurate, and cost-effective semi-automatic Soxhlet platform for routine fat-content determination. Choose the TT-SOX606 when you need full automation, multiple built-in extraction methods, preset reagent libraries, all-organic-solvent compatibility, and built-in safety features for high-throughput, multi-method analytical workflows.



**Torontech Inc.**

251 Consumers Road, Suite 1200  
Toronto, Ontario, M2J 4R3, Canada 🇨🇦

Phone: +1 416 368 2721 | Fax: +1 416 981 7652  
Email: [info@torontech.com](mailto:info@torontech.com)

**Torontech, LLC**

601 Brickell Key Drive, Suite 700  
Miami, FL 33131, USA 🇺🇸

Toll-Free: 1-866-383-7919  
Email: [sales@torontech.com](mailto:sales@torontech.com)

**Torontech ME FZE**

Meydan Grandstand, 6th Floor,  
Meydan Road, Nad Al Sheba,  
Dubai-261440, UAE 🇦🇪

Phone: +971 488 19252  
Email: [me@torontech.com](mailto:me@torontech.com)

