High-Pressure Processing (HPP) Technology and Applications Training Course

Professional Development Training Course Outline

Category	Food processing and Technology	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

High-Pressure Processing (HPP) is a groundbreaking non-thermal food preservation technology revolutionizing the global food industry by enhancing safety, extending shelf-life, and retaining nutritional and sensory qualities. With rising consumer demand for minimally processed, clean-label, and fresh-tasting products, industries are increasingly adopting HPP as a sustainable solution to meet regulatory standards and market expectations. High-Pressure Processing (HPP) Technology and Applications Training Course is designed to provide participants with in-depth knowledge of HPP principles, equipment operation, safety protocols, and regulatory frameworks while focusing on practical, real-world applications.

This comprehensive course integrates technical knowledge, practical demonstrations, and industry-driven case studies to ensure participants gain a strong foundation in HPP applications across food, beverage, pharmaceutical, and packaging industries. It also emphasizes emerging trends such as automation, sustainability, and advanced packaging solutions, ensuring participants are equipped to adapt to the dynamic needs of the global marketplace.

Programme Curriculum

High-Pressure Processing (HPP) Technology and Applications Training Course

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Course Objectives

1. Understand the fundamental science of High-Pressure Processing.
2. Learn the operational principles of HPP equipment.
3. Explore applications of HPP in food and beverage industries.
4. Identify HPP?ÇÖs role in extending product shelf life.
5. Assess HPP for ensuring food safety and pathogen control.
6. Examine sustainable packaging solutions compatible with HPP.
7. Analyze regulatory compliance and food labeling requirements.
8. Evaluate consumer trends driving HPP adoption.
9. Apply risk management and safety protocols in HPP facilities.
10. Explore advancements in HPP automation and efficiency.
11. Conduct comparative analysis between HPP and other preservation methods.
12. Develop strategies for implementing HPP in commercial operations.
13. Assess case studies of successful HPP adoption across industries.

Organizational Benefits

- Enhanced product safety and quality assurance
- Extended shelf-life for competitive advantage
- Reduced food waste through sustainable processing
- Improved compliance with global food safety regulations
- Increased consumer trust and brand reputation
- Cost-efficiency through innovative processing solutions
- Access to premium markets demanding clean-label foods
- Competitive differentiation through advanced technology adoption
- Strengthened employee technical skills and knowledge
- Future-ready operations aligned with global food trends

Target Audiences

1. Food technologists and quality assurance professionals
2. Beverage industry specialists
3. Pharmaceutical and biotechnology professionals
4. Packaging technologists and designers
5. Research and development managers
6. Food safety and regulatory compliance officers
7. Entrepreneurs and food business owners
8. Supply chain and production managers

Course Duration: 10 days

Course Modules

Module 1: Introduction to High-Pressure Processing (HPP)

- Principles and fundamentals of HPP
- Historical development of HPP technology
- Global adoption and market overview
- Advantages of HPP over thermal processing
- Key limitations and challenges
- Case study: Global adoption trends of HPP in fresh juices

Module 2: HPP Equipment and Technology

- Components of HPP systems
- Design and operation of high-pressure vessels
- Automation and digital monitoring in HPP
- Maintenance and troubleshooting practices
- Energy efficiency considerations
- Case study: Cost efficiency of modern HPP machinery

Module 3: Food Safety and Quality Assurance in HPP

- Pathogen inactivation through HPP
- Microbial stability and shelf-life extension
- Impact on food nutrients and sensory properties
- Regulatory testing requirements
- Hazard analysis and critical control points (HACCP) in HPP
- Case study: Salmonella control in ready-to-eat meals

Module 4: Packaging Solutions for HPP

- Packaging material requirements for HPP
- Compatibility testing for flexible and rigid packaging
- Innovations in sustainable packaging
- Labeling and compliance considerations
- Consumer perception of HPP packaging
- Case study: Packaging optimization in dairy industry

Module 5: Applications of HPP in Beverages

- HPP for fruit juices and smoothies
- Alcoholic beverage preservation
- Functional drinks and probiotics stability
- Regulatory acceptance in beverages
- Nutritional integrity of HPP-treated beverages
- Case study: Commercial success of HPP juices in Europe

Module 6: Applications of HPP in Meat and Seafood

- Extending shelf-life of meat products
- Pathogen reduction in seafood
- Texture and sensory outcomes in animal proteins

- Packaging compatibility with meat products
- Global trade implications for HPP meat exports
- Case study: HPP application in smoked salmon

Module 7: Applications of HPP in Dairy Products

- HPP for cheese and yogurt safety
- Probiotic survival under HPP treatment
- Nutritional retention in dairy
- Packaging requirements for dairy HPP
- Consumer acceptance of HPP dairy products
- Case study: HPP use in premium yogurt brands

Module 8: Applications in Plant-Based Foods

- Preserving freshness in plant-based meats
- Nutritional outcomes in plant-based beverages
- Allergen reduction potential of HPP
- Enhancing food safety in vegan products
- Sensory characteristics of plant-based foods under HPP
- Case study: HPP in global plant-based meat markets

Module 9: HPP in Pharmaceutical and Biotechnology

- Sterility assurance for sensitive products
- Application in biologics and vaccines
- Enhancing pharmaceutical shelf-life
- Regulatory framework for pharmaceutical HPP
- Global market potential in biotechnology
- Case study: HPP in vaccine preservation

Module 10: Global Regulatory Frameworks and Compliance

- International standards for HPP
- FDA and EFSA regulations
- Compliance in labeling and certification
- Challenges in regulatory approval
- Emerging standards in developing regions
- Case study: Regulatory acceptance in Asia

Module 11: Consumer Trends and Market Insights

- Demand for minimally processed foods
- Growth of clean-label markets
- HPP marketing strategies
- Consumer education and awareness
- Market barriers and opportunities
- Case study: Consumer acceptance of HPP in North America

Module 12: Economics of HPP

- Capital investment requirements

- Cost-benefit analysis of HPP adoption
- Return on investment in food businesses
- Supply chain integration
- Energy and resource management
- Case study: ROI for HPP adoption in mid-sized companies

Module 13: Risk Management and Safety Protocols

- Identifying risks in HPP operations
- Emergency response procedures
- Workplace safety measures
- Training and capacity-building for staff
- Environmental considerations in HPP facilities
- Case study: Risk mitigation in beverage HPP plants

Module 14: Future Trends and Innovations in HPP

- Smart HPP systems with AI integration
- Sustainability advancements in HPP technology
- Miniaturization for small businesses
- Future market projections
- Role of HPP in global food security
- Case study: Startups adopting HPP in Asia-Pacific

Module 15: Implementation Strategies for Businesses

- Planning for HPP adoption in operations
- Workforce training and development
- Collaborations with technology providers
- Scaling from pilot to commercial operations
- Continuous improvement strategies
- Case study: Successful integration of HPP in multinational food companies

Training Methodology

- Interactive lectures and multimedia presentations
- Hands-on demonstrations with HPP systems
- Group discussions and knowledge-sharing sessions
- Real-world case study analysis and problem-solving
- Assessments through practical and written evaluations

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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