

Training - Boilers Safe Operation and Optimization

**BOILER-EN-P****Face-to-face only****4 days**

This course provides in-depth knowledge of boilers operating conditions and constraints for a safe and reliable operation

Level

Skilled

Public

- Operators, panel operators, supervisors and plant managers involved in steam production facilities operation and optimization
- Maintenance, instrumentation technicians and supervisors working on boilers

Objectives

Attendees will be able to implement the following skills:

- Describe the main types of industrial boilers and their components, including their operating conditions
- Explain how the main control loops work
- List the main phases of a safe boot procedure

Pedagogical & technical resources

- Use of case studies or exercises based on actual cases from the industry
- Special emphasis on safety issues and abnormal situations that can lead to accidents

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsible

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BOILER DESCRIPTION & OPERATING CONDITIONS

0.75 day

Different types of boilers and their characteristics. Operating conditions. Fuel consumption. Distribution of the heat supply as a function of the steam pressure and temperature. Construction of the vaporization and superheating tube bundles, the economizer and the drum.

Application: calculation of heat distribution between water wall, superheaters, economizer and air preheater.

COMBUSTION - BURNERS**1.5 days**

Combustion conditions: fuel characteristics.

Conventional and low NOx burner technology and operation.

Combustion quality: analysis of oxygen and unburned material in the flue gases.

Safe combustion: flame detection, control and safety devices on the fuel circuits.

Air and flue gas circulation. Flue gas pressure profile in the boiler, draft control.

Application: flue gas composition calculation, air and flue gas pressure profile drawing.

STEAM PRODUCTION**0.75 day**

Water preparation: drawbacks arising from the impurities in the water, water quality measurement, characteristics of feed water and water in the boiler, thermal degassing, water chemical conditioning.

Control loop systems: steam pressure, feed water flow rate, superheated steam temperature, disruptions and control principles.

BOILER OPERATION**1 day**

Steam generation inside tube coil and steam superheating.

Heat flux, parameters influencing heat transfer, impact of fuel type, fouling impact.

On-stream boiler operations: routine monitoring, operating condition changes, analysis of disturbances, soot blowers, drains, etc.

Start-up and shutdown: preparation, ignition procedures, pressure build-up, connection to network, normal or emergency shutdown.

Application: study of start-up and shutdown procedure. Accident case studies.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.

Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com