

Training - Non-Destructive Testing for Petrochemical Industries



NDTIW-EN-P



Face-to-face only



5 days

This course explains basic and advanced non-destructive testing methods used in the Oil & Gas industry as well as the chemical industry

Level

Knowledge

Public

Experienced operation and maintenance engineers, managers and technicians involved in the technical aspects of the Oil & Gas, refineries and chemical industries

Objectives

Attendees will be able to implement the following skills:

- Identify available non-destructive examination methods
- Select effective non-destructive examination methods based on the type of degradation, equipment and material
- Evaluate external on stream NDT and internal NDT during plant shutdown
- Understand maintenance work linked to NDT applications

Pedagogical & technical resources

- Case studies to identify capabilities and limitations of each NDT
- Practical demonstration of non-destructive examination in a workshop

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

BASIC & ADVANCED NDT TECHNIQUES

2 days

Visual test, Liquid Penetrant test (PT), Magnetic Test (MT), Radiographic Test (RT), Ultrasonic Testing (UT, TOFD, Phased Array, IRIS), Leak Testing (LT), Electromagnetic testing (ET), Positive Material Identification (PMI), Infrared Thermography (IR), Hardness, Acoustic Emission, Magnetic Flux Leakage.

For each technique, study:

- The basic physical principles.
- The type of degradation to be detected.
- The limitations and exclusions.
- The pros and cons compared to other NDT.
- Safety and health features.

NDT certification according to ISO and ASNT. Dates of expiration and re-issue.

PRACTICAL APPLICATION

3 days

Visual:

- Identify local or generalized corrosion, read color and aspect of rust/corrosion compound to obtain preliminary clues about the degradation type.
- Select appropriate light intensity.

Penetrant test and magnetic test:

- Surface preparation methods, different types of penetrants and developers.
- Observation of the cracks.

Thickness UT, shear wave, TOFD:

- Surface preparation, types of probes.
- Analysis of the various signals.

Radiography - X rays and gamma rays:

- Understand the relationship between energy and time exposure.
- Review safety issues during field or shop choosing.
- Read radiographic films to analyze remaining thickness and cracks.
- Discover new developments such as digital radiography.

IR thermography: after appropriate tuning, manipulate the camera to see hot spots.

Hardness:

- Practice Brinell, Rockwell or Vickers methods; compare results for carbon steel and stainless steel.
- Practice test on base metal, heat affected zone, and weld and infer the tensile strength.

PMI: practice the method on different metallurgies.

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