

## Machine Failure Analysis

### Objectives:

- This course is built on the scientific practical methods in the cement industry which enrich the development of the ideas and behavior of engineers in dealing with many of the problems that occur with confidence which is useful in raising the productive capacity including compatibility with theories and engineering expertise. Trainee will develop the ability to determine the amounts and trends of different loads and stresses of the equipment in the industrial environment.
- Trainee will gain the knowledge of the different properties of the materials they handle or that could arise in the industry, and then predict the behavior of these materials and, consequently, be able to choose the material professionally or find out the reasons on which it is based Selection of materials by manufacturers, which in turn reflects the new prospects for a progressive work environment.
- Developing the knowledge of the various methods and devices in the disclosure of material.
- Being able to detect cracks on rends in the equipment's metal parts, which helps in solving the problems faced by the equipment.
- be a trainee has knowledge of the different properties of the materials they handle or that could arise in the industry, and then predicted the behavior of these materials and, consequently, be able to choose the material professionally or find out the reasons on which it is based selection of materials by manufacturers, which in turn reflects the new prospects for a progressive work environment.

### Participants:

This course addresses Mechanical engineers working in maintenance, preparation office, Inspection, preventive maintenance.

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### Course contents:

#### **Failure Analysis**

- ✚ Stredd analysis
- ✚ Properties of materials
- ✚ Material investigation
- ✚ Cracking mechanism
- ✚ Bearing failure causes
- ✚ Gears failure causes
- ✚ Shaft failure causes
- ✚ Castings failure causes
- ✚ Materials creep
- ✚ Erosion & corrosion
- ✚ Thermal cracking
- ✚ Impact cracking
- ✚ Examples from cement industry

#### **Repair analysis**

- ✚ Parts inspection
- ✚ Engineering judgment
- ✚ Cracks treatment
- ✚ Wear treatment
- ✚ Selection of welding consuables
- ✚ Vertical mill hard facing
- ✚ Kiln tires crack repair
- ✚ Enormous bearing housings repair, “vertical mill rocker arms bearing housings”
- ✚ Heavy duty parts repair
- ✚ Heat treatment