

## **REACH QUALITY RANKS WITH ADVANCED INSPECTIONS**

# API 936 REFRACTORY PERSONNEL

FUNDAMENTAL REFRACTORY INSTALLATION & QUALITY CONTROL METHODS

**REFRACTORY PERSONNEL IN PETROCLEUM, PETROCHEMICAL & CHEMICAL INDUSTRIES CONCERNED WITH INSTALLATION, INSOECTION, TESTING AND REPAIR OF REFRACTORY SYSTEMS.** 

### PART TIME & FULL TIME AVAILABLE

Course	Seminar & Exam Fee
API 936	2400 SGD + 7% GST
	(Course Materials & Standard Codes)



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**Training Duration: 32 hours Examination: 4 hours Closed Book** 

#### **Brief:**

Candidates can expect to learn about Refractory materials & their properties, Laboratory Testing Procedures, Installation, Quality Control, Post-installation Inspection and Acceptance of the Refractory Lining as per usage in Refineries, Power generation stations, Petrochemical facilities and chemical industries & referenced standards like ACI and ASTM.

Design, installation, inspection, and repair of refractory systems in Pressure vessels, Exchangers, Piping, Boilers, and Fired equipment will also be covered.

#### Modules:

- 1 What are Refractories, Various refractory materials Technical terms and definitions, API 936 Overview 13 2 Desirable properties of refractory materials 14 Laboratory Testing Procedures, Material Qualification 15 Test methods and related calculations 3 specimens Refractory Installation methods (e.g. gunning, casting, 4 16 Sampling and sample preparation procedures ramming, and hand packing) Procedures for determining optimal water content and Environmental factors (minimum and maximum 5 17 mixing temperatures) 6 Surface preparation and cleanliness requirements Anchor: welding, layouts, patterns, materials 18 Frequency and methods of production sampling: gunning, Water addition: quantity and temperature, mixing 7 19 casting, hand packing procedures Casting procedures and equipment (e.g. air vibrator, 8 Gunite procedures and equipment 20 vibrator frequency, vibrator sizing, forming, setup) Visual and non-destructive test methods and qualification Ramming/Hand packed procedures and equipment 9 21 testing methods Application/limitation for various inspection techniques 10 22 Curing and dry out procedures Placement of temperature sensing probes 11
- 12 Lining integrity inspection techniques

- Testing equipment, sample preparation techniques, test

- Recommended heat up and cool down schedules 23

## LOCATION

**PIONEER JUNCTION #03-19 3 SOON LEE STREET** S(627606)