



Accredited Africa Training Institute for Capacity Development

Unit FO409, Hatfield Plaza · 1122 Burnett St, Hatfield 0028 · Pretoria, Gauteng · South Africa

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COURSE BROCHURE

Rotary Lime Kiln Operation For Unslaked Lime Production Training

Manufacturing, Engineering and Technology / Manufacturing and Assembly

Unit Standard 114264 · NQF Level 3 · 19 Credits · 16 Days

COURSE OVERVIEW

This course equips learners with the theoretical knowledge and practical skills to operate a rotary lime kiln for the production of unslaked lime. It covers pre-start checks, start-up, monitoring, shutdown procedures, and emergency responses, ensuring safe and efficient production.

Category	Manufacturing, Engineering and Technology
Subfield	Manufacturing and Assembly
Unit Standard	114264
Accreditation	SAQA Accredited · NQF Level 3 · 19 Credits
Duration	16 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Demonstrate the ability to perform pre-start checks and start-up procedures on a rotary lime kiln.
- Apply monitoring and control techniques to maintain optimal kiln operation for unslaked lime production.
- Analyze kiln operating parameters and adjust process variables to ensure product quality.
- Evaluate emergency situations and implement appropriate shutdown and corrective actions.
- Implement safety protocols and environmental regulations during kiln operations.

WHO SHOULD ATTEND

- Production supervisors, kiln operators, and process technicians in the lime and cement industries who are responsible for rotary kiln operations.

COURSE OUTLINE

Day 1: Introduction to Unslaked Lime and Rotary Kilns

- What is unslaked lime (calcium oxide)?
- Industrial uses of unslaked lime.
- Overview of the calcination process.
- Main parts of a rotary kiln (shell, refractory, drive, burner).
- Safety in the lime plant.

Day 2: Raw Materials and Pre-Processing

- Limestone composition and size distribution.
- Quarrying and crushing.
- Screening and conveying.
- Storage and reclaim systems.
- Moisture control.

Day 3: Kiln Feed Systems and Preheating

- Feed chutes and air seals.
- Preheater types (vertical, grate).
- Chain systems for heat transfer.
- Dust return systems.
- Feed end temperature control.

Day 4: The Calcination Zone – Chemistry and Temperature

- $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$ reaction.
- Heat of reaction and energy requirements.
- Temperature zones (drying, heating, calcining, cooling).
- Kiln rotational speed and slope.
- Refractory lining selection.

Day 5: Burner Systems and Combustion

- Primary, secondary, and tertiary air.
- Fuel types: coal, gas, oil.
- Burner design and adjustment.
- Flame characteristics and kiln coating.
- Combustion efficiency.

Day 6: Kiln Drive and Rotational Mechanics

- Electric motors and gearboxes.
- Ring gears and pinions.
- Support rollers and thrust rollers.
- Lubrication and cooling.
- Variable speed control.

Day 7: Cooling and Product Handling

- Rotary coolers and grate coolers.
- Heat recovery from clinker.
- Conveyors and bucket elevators.
- Storage silos and dust collection.

- Lime handling safety.

Day 8: Instrumentation and Process Control

- Thermocouples and pyrometers.
- Pressure transmitters and flow meters.
- O₂ and CO analyzers.
- PLC and DCS systems.
- Alarm and interlock systems.

Day 9: Start-Up and Shut-Down Procedures

- Pre-start inspection checklist.
- Heating up the kiln (thermal expansion).
- Feed introduction and stabilization.
- Normal shut-down steps.
- Emergency shut-down due to power failure.

Day 10: Normal Operation and Troubleshooting

- Maintaining temperature profile.
- Ring formation and removal.
- Coating stability.
- Handling feed variations.
- Troubleshooting guides.

Day 11: Quality Control and Product Testing

- Available CaO and reactivity.
- Loss on ignition (LOI).
- Sieve analysis.
- Sampling protocols.
- Quality reports.

Day 12: Maintenance Planning and Refractory Repair

- Preventive maintenance schedules.
- Refractory types and installation.
- Hot and cold repair.
- Kiln shell inspection.
- Tyre and roller maintenance.

Day 13: Environmental Compliance and Safety

- Particulate matter and SO_x/NO_x control.
- Baghouses and electrostatic precipitators.
- Water treatment and CO₂.
- OHS Act and PPE.
- Emergency response.

Day 14: Energy Efficiency and Optimization

- Heat balance calculations.
- Insulation and seal upgrades.
- Oxygen enrichment.
- Waste heat recovery.
- Benchmarking.

Day 15: Advanced Process Control and Automation

- Model predictive control.
- Fuzzy logic and neural networks.
- Real-time optimization.
- Data analytics for predictive maintenance.
- Remote monitoring.

Day 16: Integrated Operation and Final Assessment

- Walk-through of a shift operation.
- Scenario-based problem solving.
- Written and practical exam.
- Course review and feedback.
- Certification.

ASSESSMENT & CERTIFICATION

Delegates are assessed through exercises and a final test. A mark of **50% or above** earns an **AATICD Certificate of Completion**, issued digitally with a unique verification code. This course carries **19 NQF credits** at **NQF Level 3**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 51,200.00	R 51,200.00
1	In-House	R 66,600.00	R 66,600.00
1	On-Campus (Pretoria)	R 76,800.00	R 76,800.00

UPCOMING SESSIONS

Start	End	Method	Venue
07 Aug 2026	28 Aug 2026	On-Campus	Johannesburg, South Africa
10 Aug 2026	31 Aug 2026	On-Campus	Cape Town, South Africa
11 Aug 2026	01 Sep 2026	On-Campus	Dubai, UAE
12 Aug 2026	02 Sep 2026	On-Campus	Pretoria, South Africa
13 Aug 2026	03 Sep 2026	On-Campus	Abu Dhabi, UAE
14 Aug 2026	04 Sep 2026	On-Campus	Durban, South Africa
14 Aug 2026	04 Sep 2026	On-Campus	Mauritius
17 Aug 2026	07 Sep 2026	On-Campus	Dubai, UAE

Contact us if no suitable date is listed – on-demand sessions can be arranged for groups.

HOW TO GET A QUOTE OR APPLY

1. **Get an instant quotation online:** visit www.aaticd.co.za, open the page for this course (Unit Standard 114264) and click **Get A Quote / Apply**. Select your training method and number of delegates – your quotation is generated immediately and emailed to you with the course brochure attached.
2. **Apply by email:** send the course title, your preferred training method (Online, In-House or On-Campus Pretoria), the number of delegates and your preferred dates to apply@aaticd.co.za – our team will reply with a formal quotation.
3. **Apply by phone or WhatsApp:** call **+27 12 004 8389** or WhatsApp **+27 65 077 6310** and we will prepare your quotation and reserve your seats.
4. **Confirm your booking:** accept the quotation and settle the invoice. As soon as payment is confirmed your delegates are enrolled and receive their AATICD LMS login details by email, along with joining instructions for their chosen training method.

Group discounts apply automatically – the more delegates you enrol, the lower the price per delegate. No payment is required to request a quotation.

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