



Accredited Africa Training Institute for Capacity Development

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

Tel: +27 12 004 8389 · Mobile: +27 65 077 6310

Email: apply@aaticd.co.za · Website: www.aaticd.co.za

COURSE BROCHURE

Polished Diamond Quality Improvement Evaluation Through Deep Boiling Training

Manufacturing, Engineering and Technology / Fabrication and Extraction

Unit Standard 115777 · NQF Level 4 · 15 Credits · 12 Days

COURSE OVERVIEW

This course equips participants with the advanced skills to evaluate and improve the quality of polished diamonds through deep boiling techniques. Learners will gain hands-on knowledge to identify inclusions, assess clarity enhancements, and apply industry-standard quality improvement methods, ensuring compliance with SAQA unit standard 115777.

Category	Manufacturing, Engineering and Technology
Subfield	Fabrication and Extraction
Unit Standard	115777
Accreditation	SAQA Accredited · NQF Level 4 · 15 Credits
Duration	12 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply deep boiling techniques to remove inclusions and improve polished diamond clarity.
- Analyze diamond clarity characteristics using magnification and grading tools.
- Evaluate the effectiveness of deep boiling treatments on diamond quality.
- Implement safety protocols and quality control measures during the boiling process.
- Demonstrate compliance with industry standards for diamond treatment and disclosure.

WHO SHOULD ATTEND

- This course is designed for diamond graders, quality controllers, and jewellery manufacturing professionals seeking to enhance their expertise in polished diamond evaluation and treatment processes.

COURSE OUTLINE

Day 1: Introduction to Diamond Quality and Deep Boiling

- Overview of diamond grading: carat, cut, colour, clarity
- Introduction to deep boiling: history and industry relevance
- Safety procedures: PPE, chemical handling, ventilation
- Equipment setup: boiling vessels, temperature control, filtration systems
- Pre-boiling inspection: identifying diamonds suitable for boiling
- Basic chemistry of boiling solutions (acids, alkalis)
- Documentation and record-keeping requirements
- Unit standard outcomes and assessment criteria

Day 2: Diamond Characteristics and Inclusion Types

- Inclusion types: crystals, feathers, clouds, needles, pinpoints
- Blemish types: scratches, nicks, abrasions, burn marks
- Using loupes and microscopes for inspection
- Clarity grading scale (FL to I3) and inclusion visibility
- Mapping inclusions prior to treatment
- Predicting boiling outcomes based on inclusion nature
- Practical exercise: examining sample diamonds
- Recording observations in standard forms

Day 3: Deep Boiling Chemistry and Solution Preparation

- Chemistry of acid boiling (sulphuric, nitric, hydrochloric)
- Alkaline boiling methods and applications
- Solution concentration calculations and measurement
- pH testing and adjustment techniques
- Temperature control: effects on reaction rates
- Neutralization and waste disposal procedures
- Safety data sheets (SDS): interpretation and compliance
- Practical: mixing and testing a boiling solution

Day 4: Boiling Process Parameters and Control

- Boiling cycles: duration and temperature profiles
- Effect of agitation on inclusion removal
- Monitoring solution concentration during boiling
- Troubleshooting common issues: solution degradation, uneven heating
- Process control documentation and logs
- Practical: running a controlled boiling batch
- Post-boiling cooling and rinsing procedures
- Quality checks at intermediate stages

Day 5: Post-Boiling Diamond Cleaning and Inspection

- Cleaning methods: ultrasonic, steam, chemical rinses
- Drying techniques to prevent residue
- Detailed inspection under magnification
- Comparison with pre-boiling records
- Identifying and documenting improvements

- Detecting adverse effects: etching, colour change, fractures
- Practical: cleaning and inspecting a batch
- Updating diamond quality records

Day 6: Advanced Boiling Techniques for Specific Inclusions

- Boiling for crystal inclusions: temperature and time variations
- Feather inclusion treatment: risk of fracture propagation
- Multiple cycle boiling: when and how
- Additives to enhance inclusion removal
- Case studies: challenging inclusion scenarios
- Practical: treating diamonds with specific inclusion types
- Comparative analysis of results
- Decision-making for repeat boiling

Day 7: Quality Control and Assurance in Deep Boiling

- QC checkpoints: pre-boil, during boil, post-boil
- Sampling plans and frequency
- SPC charts: tracking clarity improvement rates
- Root cause analysis for poor outcomes
- Corrective actions: re-boiling, solution adjustment
- Documentation of non-conformances
- Practical: conducting a QC audit on a batch
- Continuous improvement principles

Day 8: Diamond Grading Post-Boiling: Colour and Clarity

- Clarity grading after treatment: rules and exceptions
- Colour grading: detecting shifts in hue and saturation
- Fluorescence evaluation: changes due to boiling
- Combining clarity and colour grades for overall quality
- Certification requirements and reporting
- Practical: grading a set of boiled diamonds
- Inter-laboratory consistency
- Ethical considerations: disclosure of treatment

Day 9: Equipment Maintenance and Troubleshooting

- Daily maintenance checklist: cleaning, inspection
- Identifying wear: heating elements, seals, valves
- Troubleshooting temperature fluctuations
- Pressure system checks and leak detection
- Sensor calibration procedures
- Spare parts inventory management
- Practical: performing maintenance tasks
- Safety lockout/tagout procedures

Day 10: Health, Safety, and Environmental Compliance

- OHS Act and Regulations: duties of employers and employees
- Chemical storage and labelling (SANS 10228)
- Spill containment and cleanup procedures

- Waste disposal: acid neutralization, recycling
- Emergency response: first aid, fire, chemical exposure
- Risk assessment methodology
- Practical: conducting a risk assessment
- Environmental impact mitigation

Day 11: Practical Integration and Batch Processing

- Batch planning: selection of diamonds, solution preparation
- Execution: loading, boiling, cooling, cleaning
- Real-time monitoring and adjustments
- Team coordination and communication
- Documentation throughout the process
- Final inspection and grading
- Practical: full batch processing exercise
- Debrief and performance review

Day 12: Assessment, Review, and Certification Preparation

- Summative practical assessment: boiling and grading
- Written knowledge test
- Portfolio of evidence compilation
- Review of learning outcomes
- Feedback and improvement areas
- Industry best practices and trends
- Certification process overview
- Course evaluation and closing

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 **15 NQF credits** at **NQF Level 4**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 41,000.00	R 41,000.00
1	In-House	R 53,300.00	R 53,300.00
1	On-Campus (Pretoria)	R 61,500.00	R 61,500.00

UPCOMING SESSIONS

Start	End	Method	Venue
04 Aug 2026	19 Aug 2026	On-Campus	Johannesburg, South Africa
05 Aug 2026	20 Aug 2026	On-Campus	Mauritius
06 Aug 2026	21 Aug 2026	On-Campus	Cape Town, South Africa
07 Aug 2026	24 Aug 2026	On-Campus	Dubai, UAE
10 Aug 2026	25 Aug 2026	On-Campus	Abu Dhabi, UAE
11 Aug 2026	26 Aug 2026	On-Campus	Durban, South Africa
11 Aug 2026	26 Aug 2026	On-Campus	Mauritius
12 Aug 2026	27 Aug 2026	On-Campus	Cape Town, South Africa

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 115777) 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.

Accredited Africa Training Institute for Capacity Development

Unit FO409, Hatfield Plaza, 1122 Burnett St, Hatfield 0028, Pretoria, Gauteng, South Africa
Tel: +27 12 004 8389 · WhatsApp: +27 65 077 6310 · apply@aaticd.co.za · www.aaticd.co.za