



## 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

# Liquid Solvent Extraction Technique For Solute Separation Training

Manufacturing, Engineering and Technology / Fabrication and Extraction

Unit Standard 110197 · NQF Level 3 · 5 Credits · 2 Days

## COURSE OVERVIEW

This course equips learners with the theoretical knowledge and practical skills to perform liquid solvent extraction techniques for separating solutes from mixtures. It covers the principles, equipment, and safety protocols essential for effective solute separation in industrial and laboratory settings.

|                 |                                           |
|-----------------|-------------------------------------------|
| Category        | Manufacturing, Engineering and Technology |
| Subfield        | Fabrication and Extraction                |
| Unit Standard   | 110197                                    |
| Accreditation   | SAQA Accredited · NQF Level 3 · 5 Credits |
| Duration        | 2 days                                    |
| Training Method | Online, On-Campus, In-House               |
| Certificate     | Issued via AATICD LMS – verifiable online |

## LEARNING OUTCOMES

- Apply the principles of liquid solvent extraction to separate solutes from mixtures.
- Demonstrate the correct setup and operation of extraction equipment.
- Analyze the factors affecting extraction efficiency, including solvent selection and phase ratios.
- Evaluate safety and environmental considerations in solvent extraction processes.
- Perform calculations related to mass transfer and extraction yields.
- Implement quality control measures to ensure consistent separation results.

## WHO SHOULD ATTEND

- This course is designed for laboratory technicians, process operators, and quality control personnel involved in chemical separation processes in industries such as mining, pharmaceuticals, and petrochemicals.

## COURSE OUTLINE

### Day 1: Fundamentals of Liquid Solvent Extraction

- Introduction to liquid solvent extraction and its applications in solute separation
- The Nernst distribution law and partition coefficient
- Factors influencing extraction: solvent properties, temperature, pH, and solute concentration
- Types of extraction equipment: mixer-settlers, columns, and centrifugal extractors
- Calculation of extraction efficiency and number of stages
- Safety protocols: handling flammable solvents, PPE, and waste disposal
- Environmental impact and solvent recovery

### Day 2: Advanced Techniques and Practical Application

- Multi-stage extraction and countercurrent operation
- Solvent selection criteria: polarity, selectivity, and miscibility
- Emulsion formation and prevention methods
- Process optimization: solvent-to-feed ratio, contact time, and temperature
- Analytical methods for solute quantification (e.g., titration, spectrophotometry)
- Scale-up considerations from lab to industrial scale
- Case studies in mining, pharmaceutical, and wastewater treatment

## 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 **5 NQF credits** at **NQF Level 3**.

## PRICING (PER DELEGATE, EX-VAT)

| Delegates | Training Method      | Price per Delegate | Total       |
|-----------|----------------------|--------------------|-------------|
| 1         | Online               | R 15,400.00        | R 15,400.00 |
| 1         | In-House             | R 20,000.00        | R 20,000.00 |
| 1         | On-Campus (Pretoria) | R 23,100.00        | R 23,100.00 |

## UPCOMING SESSIONS

| Start       | End         | Method    | Venue                      |
|-------------|-------------|-----------|----------------------------|
| 03 Aug 2026 | 04 Aug 2026 | On-Campus | Pretoria, South Africa     |
| 03 Aug 2026 | 04 Aug 2026 | On-Campus | Cape Town, South Africa    |
| 03 Aug 2026 | 04 Aug 2026 | On-Campus | Johannesburg, South Africa |
| 05 Aug 2026 | 06 Aug 2026 | On-Campus | Dubai, UAE                 |
| 05 Aug 2026 | 06 Aug 2026 | On-Campus | Mauritius                  |
| 05 Aug 2026 | 06 Aug 2026 | On-Campus | Lagos, Nigeria             |
| 11 Aug 2026 | 12 Aug 2026 | On-Campus | Cape Town, South Africa    |
| 11 Aug 2026 | 12 Aug 2026 | On-Campus | Pretoria, 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](http://www.aaticd.co.za), open the page for this course (Unit Standard 110197) 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](mailto: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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