MANUFACTURING AND PRODUCTION

Adhesives and Sealants Formulation and Production

3 day course Classroom, online or in-house

Course overview

An adhesive joint fails at the interface far more often than in the adhesive itself, so most bonding problems are surface problems that a formulator is asked to solve with chemistry. This course covers both. Delegates work through adhesion mechanisms and surface energy, and why a substrate must be prepared rather than merely cleaned. Adhesive families follow: water based emulsions, hot melts, solvent systems, reactive epoxies, polyurethanes and cyanoacrylates, each matched to substrate and service condition. Sealant chemistry is covered for silicone and polyurethane systems with their movement capability. Production is addressed across mixing, heating, dispersion and the viscosity control that determines application behaviour. Open time, set time and cure are covered as the properties a user actually experiences. Testing follows through lap shear, peel, tack and creep. Packaging and shelf life are addressed, including moisture sensitivity. The course closes on troubleshooting a bond failure and on matching product to an application.

What you will learn

- Explain adhesion mechanisms and the role of surface energy
- Prepare substrates rather than merely cleaning them
- Match adhesive family to substrate and service condition
- Formulate silicone and polyurethane sealants for movement
- Produce to a viscosity that gives the intended application behaviour
- Control open time, set time and cure
- Test by lap shear, peel and creep, and troubleshoot bond failures

Who should attend

- Adhesive and sealant formulators
- Production supervisors in adhesive manufacture
- Quality control staff testing bonded joints
- Technical support staff advising users
- Manufacturers using adhesives in assembly

Course outline

01 Failure at the interface
02 Adhesion mechanisms and surface energy
03 Substrate preparation
04 Emulsion, hot melt and solvent systems
05 Epoxies, polyurethanes and cyanoacrylates
06 Silicone sealants and movement capability
07 Mixing, dispersion and viscosity control
08 Open time, cure, testing and bond failure diagnosis

Upcoming dates

Dates	Venue	Format	Fee per delegate
26 to 28 October 2026	Johannesburg, South Africa	Classroom	R14,950
16 to 18 November 2026	Cape Town, South Africa	Classroom	R14,950
16 to 18 December 2026	Online	Online	R6,500
24 to 26 February 2027	Pretoria, South Africa	Classroom	R14,950

Fees and how to register

This 3 day course is **R6,500** per delegate online, **R14,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 995** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit **www.afrisciencegroup.com**, email **info@afriscience.co.za**, or WhatsApp us on **+27 63 479 1136**.

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