The company
A leading manufacturer of high performance weatherproofing systems for concrete balcony structures.

The problem
Balconies and walkways like all other parts of a property require maintenance. Most of these balconies and walkways consist of concrete elements where, for a lack of efficient protection, water can penetrate causing structural weakness and leading to leaks, stalactite formations and the delamination of paint on the underside of the balconies.

As a result, the company wanted to develop a range of balcony systems specifically designed to protect balconies against the challenges presented by the elements.

The main functional requirements of the coatings were:
- One component - for ease of use
- Crack bridging capabilities
- Elastomeric – allowing for thermal movement
- Hard wearing
- Seamless technology – no seams or joints
- Water vapour permeable
- UV resistance and resistance to yellowing

The solution
The company developed a waterproofing system based on moisture triggered chemistry. This system incorporates Incozol 4 which uses atmospheric moisture to trigger the curing process. This means the waterproofing membranes are capable of curing in a wide range of conditions without any subsequent loss of performance or durability. Soon after application the freshly applied membrane will show no adverse reaction to water.

The addition of Incozol 4 promotes fast through-cure but without any CO₂ gas evolution. It also allows the formulator to reduce the isocyanate level which could lead to a reduction in toxicity of the finished product.

The benefits
Incozol 4 is used in a wide variety of coating, adhesive and sealant applications. It is particularly advantageous where high build properties are desirable, for example, waterproof balcony coatings.

In a traditional moisture cure reaction, moisture reacts directly with the terminal isocyanate of the prepolymer generating gaseous carbon dioxide. In a moisture triggered system, moisture reacts preferentially with the oxazolidine (Incozol 4) rather than with the prepolymer’s terminal isocyanate groups. This results in greater crosslinking (faster through-cure) but without the carbon dioxide gas evolution that would lead to bubbling, pinholing and downglossing.

Incorporating Incozol 4 into the system also allows the formulator to reduce the isocyanate level and, therefore, the toxicity level without adversely affecting the cure rate. For example, a standard commercial aliphatic prepolymer with typically 15% NCO content can be significantly reduced to typically 3% NCO with the addition of Incozol 4.