



## Floor Life Reset Cabinets

### Increased process control and multiple batch management of components

Depending upon ambient humidity and temperature, components can be safely used only within a limited time period, as classified by the IPC/JEDEC J-Std- 033C.

There are eight different levels of moisture sensitivity, (MSL) expressed in hours of available floor life ranging from unlimited -- to less than 24 hours. It is imperative that floor life exposure be known at all times, in order to prevent moisture induced damage. It is possible to “reset” device floor life by removing the moisture, but it must be done under carefully controlled conditions in order to retain its solder-ability and usefulness. For instance, oxidation and intermetallic growth are both detrimental to the interconnection process and both are induced by traditional high temperature baking to remove moisture.



When a component has exceeded the allowed exposure time the component can be dried and made safe again through a baking process, traditionally done at 125C. The component should be processed especially carefully after that. A repeated absorption of humidity must be avoided because the baking process should not be repeated. Even one exposure to baking at these temperatures induces oxidation and inter-metallic growth, which reduces the wetting ability of the connection surfaces. Intermetallic thickness has been shown to increase by approximately 50% when baking at 125C for 4 days. Thicker inter-metallic layers lead to a reduction in solder joint integrity and reduce solder ability.

Historically, to fight these well-known effects, a reduction of oxygen by means of a Nitrogen atmosphere or vacuum was added during the drying process, but brought considerable costs for Nitrogen, and only a low rest-oxygen content of less than 13 ppm stops the oxidation.

Over the decades that passed since the J-STD-033 standard was created, new technologies were developed and proven to safely reset component floor life using low temperatures and

ultra-low humidity without requiring extensive time. These 40-60C and <1% methods were first adopted in Europe, and their recognition and use has now spread to North America.

The ever increasing needs for complete traceability have driven the implementation of software driven component tracking methods, whether in fully automated and climate controlled warehouses such as the [Dry Tower](#)<sup>®</sup> or manually handled from factory floor to safe storage and/or reset cabinets (e.g. MSL 2.0). This level of tracking and process control implementation is not yet as widespread as the adoption of low temp/low RH floor reset cabinets, leading to haphazard component drying, particularly when multiple batches of different MSL level parts need to be accommodated.

New Floor Life Reset Cabinets from Super Dry<sup>®</sup> bring an increased level of process control and multiple batch management to operations that do not have tracking software such as MSL 2.0 implemented. These cabinets incorporate, within their control systems, key elements of the [MSL 2.0 knowledge base](#). They can independently track the timing of 4 separate batches of components being reset at the same time...and with two separate chambers that enable two different temperatures to be utilized in the same cabinet. Component batch ID and MSL level are entered directly at the cabinet, and standardized reset times are either automatically calculated and timed, or entered manually per internally developed procedures.

[Learn more about Super Dry Totech Floor Life Reset Cabinets >](#)