



Small Oven Isolator Testing

The Small Oven Isolator is designed to provide complete operator and environmental protection during potent compound and API drying of small batch sizes.

The isolator is of fully welded 7 gauge 316L stainless steel construction, with 5/8 inch corner radiuses, and laminated safety glass. It operates in a negative pressure mode with HEPA filtered turbulent airflow. The inlet and outlet HEPA filters are "push-push" type with safe change ability. Negative pressure inside the isolator is provided by a blower with a variable frequency drive maintained by a single loop pressure control system.



A 15" I.D. wide X 12" I.D. tall X 15" I.D. deep oven is also of 316L stainless steel and includes 1" of thermo wool insulation in the cover and 2" around the sides and back. Heat transfer is accomplished by one dimple zone welded to the sides which is designed and ASME code "UM" code stamped for 100 psig @ 250°F. A Mokon heating system circulates hot water through the oven via 1" tri-clamp ferrules at the inlet and outlet. This heats the 1" x 10" x 12" 316L stainless steel product tray to the desired temperature.

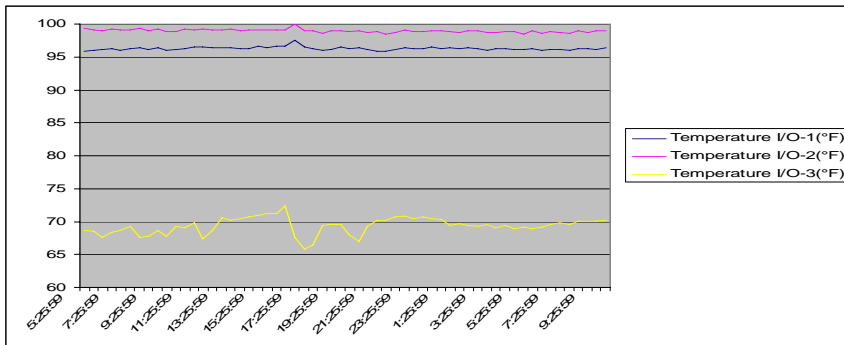
A 270mm RTP alpha flange and beta container are provided to move finished dried product out of the isolator with breaking containment. A Spray wand is used by the operator to clean the tray and isolator upon completion. Waste liquid exits the isolator via a diaphragm drain valve.

Available options include a PLC based control systems with automated valves and wash liquid collection tank.

Process Description:

Isolator is opened and sealed container of wet product is entered. Wet product may contain small amounts of propanol, N-butanol or acetone. Next, the isolator is sealed and negative pressure system started. The operator opens wet product container and scoops the product into a single tray via gloveports in the front window of the isolator. The operator then places tray of wet product into the dry heat oven and starts the oven heating cycle. The oven cycle has been designed to maintain a product tray temperature of 35-40°C (95-104°F) for a 12 hour cycle. Maximum temperature is not to exceed 80°C (176°F). The oven has an outlet connection which will be piped into the isolator, containing any exhaust air inside the isolator. At the conclusion of oven cycle, the oven door is opened and the tray is removed. Dry powder is scooped for trays and placed into other packaging. Dry product packages removed from isolator via 270mm RTP container. Isolator and tray are cleaned before isolator is opened for next batch by using the isolator spray wand.

Performance Data: (T1 = tray, T2 = oven, T3 = room)



Conclusion:

The tray temperature is easily maintained to +/- 2 °F for the duration of the drying cycle, making this small oven appropriate for small batch drying of highly potent compounds.