

TapTone

APPLICATION NOTES

News and information from Teledyne TapTone, a leader in the package inspection industry.

Leak detection in aerosol cans of air freshener

Tested: High pressure aerosol cans

Tested with: TapTone 4000-FS Force System

The purpose of this test was to prove the effectiveness of the TapTone 4000-FS Force System in testing high pressure aerosol cans for leaks. Leaking containers can result in reduced or zero product delivery leaving customers dissatisfied and ruining your brand image. Leaks can originate from faulty valves, broken valve stems or missing valve cup gaskets, and misaligned or misapplied valve cups. The T4000-FS was specifically designed to handle the higher internal pressures of aerosol containers up to 140 psi or 9.6 bar. The TapTone 4000-FS is a non-destructive leak inspection system that will test 100% of your containers on-line at production line speeds. The system is ideal for finding potential leakers in aerosol containers before they leave your processing plant.



TECHNOLOGY CORNER *How it works*

Detects leaks and low pressure in aerosol containers, LN2 dosed beverage containers, and carbonated beverage containers. Parallel belts transport the container past a sensor that measures the tension on the sidewall of the container. This action allows the system to measure the pressure inside the container. Utilizing DSP technology, the controller analyzes the measurement and assigns a merit value to each container. If the merit value is outside of the acceptable range, a reject signal activates a remote reject system.

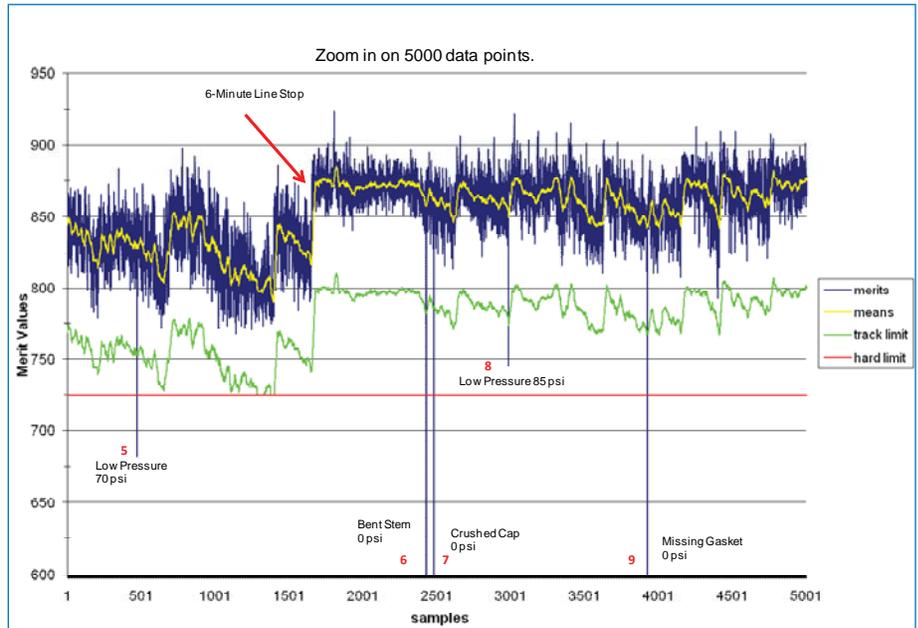


T4000-FS Force System. All stainless steel construction and reinforced side plates make it the perfect solution for testing aerosol cans.



TEST

The dark blue lines on the graph show a run of 5,000 containers from a total run of 39,000 containers that were analyzed over a 5 hour period on a production line. The yellow line is the mean value of the containers and the green line is the autotrack limit, which was set 100 merit value points below the mean to adjust for production line variations such as temperature. The red arrow shows a stop in the production line as the fill level of the product was adjusted back to normal after being accidentally set too low. The system was able to detect the lower pressures which resulted from the lower fill level.



The system also detected 22 failed containers. Each container was examined after it was rejected. All 22 containers were confirmed failures. The system had no false rejects during the run period. Failures included 7 cans with bent valve stems, 4 cans with crushed valve cups, 5 cans with missing valve cup gaskets, 4 cans with bad crimps on the closure, and 2 low pressure cans with no discernible mechanical failures.

* Merit value is a calculated number determined using an algorithm to compute a resultant from a set of data values. Test results achieved in the test laboratory may be different from results seen in the production environment.

SUMMARY

The TapTone 4000-FS was successful in differentiating low and zero pressure cans from full pressure aerosol cans. It was also successful in identifying faulty product that would not have been detected by other methods (water bath or visual inspection). All containers in this data set were tested after the water bath. Containers should be tested at a point in the production line where sufficient pressure has built in the container.



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