



# TapTone

## APPLICATION NOTES

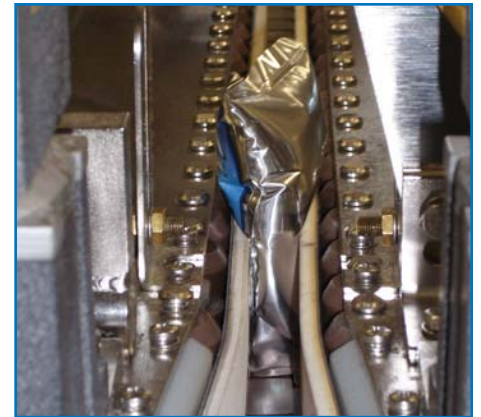
News and information from Teledyne TapTone, a leader in the package inspection industry.

### Leak detection in an aluminum foil drink pouch

**Tested:** Aluminum Foil Drink Pouch

**Tested with:** TapTone 4000 Dual Sensor Compression (DSC) System

The purpose of this test was to prove the effectiveness of the TapTone 4000-DSC Sensor in testing aluminum foil drink pouches for leaks. Leaking pouches can destroy outer packaging and ruin your brand image. More importantly, leaking pouches offer contamination a point of entry into your product, which can cause product spoilage and potential health concerns for your consumers. The TapTone 4000-DSC sensor can test stand-up or gusseted pouches either hot or cold filled. The T4000-DSC Sensor is ideal for finding potential leakers in aluminum foil drink pouches before they leave your processing plant.



An aluminum foil drink pouch passes through the compression belts of the T4000-DSC.

### TECHNOLOGY CORNER *How it works*

The T4000-Dual Sensor Compression system finds and rejects leaking and damaged flexible bottles at production line speeds up to 250 feet per minute. The system is designed with dual parallel belts suspended over the customers' existing conveying system.

As the container passes through the system, the dual parallel belts apply force to the sidewall of the container. This action compresses the headspace of the container which allows a comparative measurement to be taken at both the infeed and the discharge of the system. Comparing the container to itself between the infeed and discharge of the system, eliminates typical variations seen in the production environment (Fill Level, Product Temperature, and Container Density).

Utilizing advanced DSP technology the T4000 controller analyzes the comparative 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.

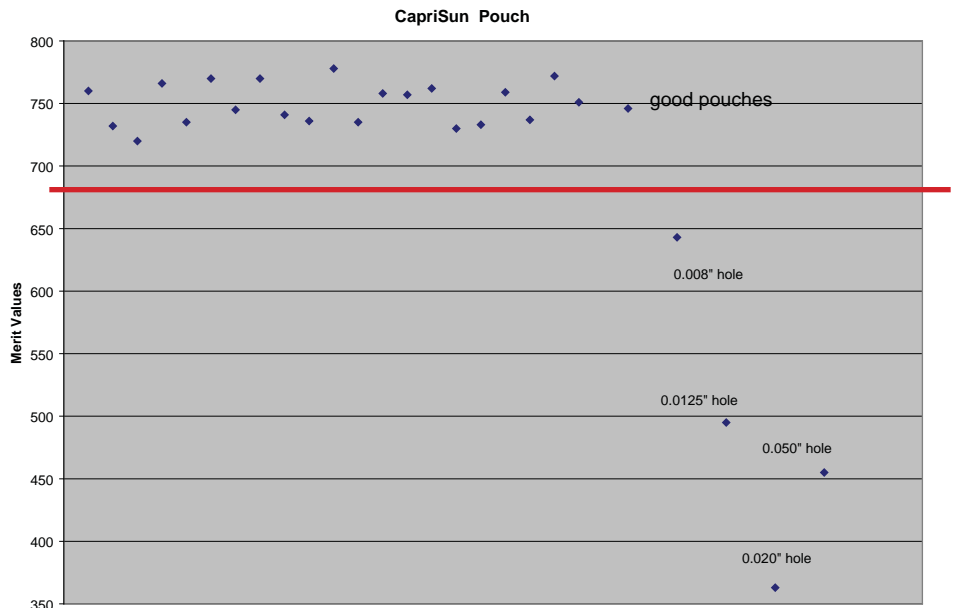
T4000 Dual Sensor Compression (DSC) System. Sensor has a cantilever design that suspends over the existing conveyor.



## TEST

This evaluation compared non-leaking pouches to pouches with leaks. The leaking pouches had hole sizes that ranged from 0.008 to 0.020 inches (0.203 mm to 0.508 mm). The good pouches were tested several times to get a larger population of good readings. The leaking pouches were tested only once because of the loss of head-space, which is limited even in the good pouches.

During the compression cycle the sealed, non-leaking pouches generated an average merit value\* of 750. The leaking pouches all showed good separation in values from the population of good pouches. The smallest hole size of 0.008" (0.203 mm) had a merit value of 643, which was 77 merit value points below a good, non-leaking pouch and was easily distinguishable from the values of the good pouches.



\* 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 test shows that the TapTone 4000 Dual Sensor Compression (DSC) system can successfully detect leaks as small as 0.008 inches (0.203 mm) in aluminum foil drink pouches.



49 Edgerton Drive • North Falmouth, MA 02556 USA  
 P: 508.563.1000 F: 508.564.9945 E-Mail: [taptone@teledyne.com](mailto:taptone@teledyne.com)

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