

proper

PROFESSIONAL INFORMATION REPORT 90-1

COMPARISON OF ALERT-O.A.D.[®] to the Standard Bowie & Dick Towel Pack

*Thomas A. Augurt, Ph.D.
Vice President, Product Development
Propper Manufacturing Co., Inc.
Long Island City, New York 11101*

August 1990

Comparison of ALERT-O.A.D.[®] to the Standard Bowie and Dick Test Pack¹

The purpose of this study was to evaluate the accuracy and reproducibility of the **ALERT-O.A.D.[®]** Test Pack compared to the standard (A.A.M.I.¹) Bowie & Dick Test Packs². The Bowie & Dick type test for prevacuum steam sterilizers was performed with each pack type. Test cycles were carried out to simulate correctly functioning and incorrectly functioning sterilizers. The color changes on the Bowie & Dick chemical indicators were graded and compared between the two Test Pack types.

MATERIALS AND METHODS

To perform the comparison twenty four **ALERT-O.A.D.[®]** Test Packs were randomly selected from a single lot of product, and twenty four **ONCE-A-DAY[®]** Test Sheets were also randomly selected from a single lot. The **ONCE-A-DAY[®]** Test Sheets were placed in the center of conventional towel test packs. The packs were constructed as described by A.A.M.I.¹ of huckaback towels folded to 9x12 in., stacked 10-11 high, and loosely wrapped.

All tests were conducted in a specially modified 225 liter prevacuum steam autoclave with the additional capability of generating defects in a precise and reproducible manner. A correct cycle consisted of successive evacuations and steam pulses, resulting in amounts of air residuals less than 100 ml. Incorrect cycles, incorporating faults in air removal, consisted of similar vacuum-steam pulses, but fewer in number and/or lesser in vacuum during the evacuation phase. The large fault cycle resulted in the entrapment of 880 ml of air, the fault cycle designated as small in 530 ml, and the marginal cycle in 230 ml. Six samples of each type were tested at each exposure level.

Color changes on the chemical indicators were evaluated visually and graded on a four point scale: **4+** signified a complete color change to black; **3+** signified a less than complete color change that was just detectable; **2+** was a readily detectable incomplete color change; and **1+** was the most obvious incomplete color change—resulting in a tan or beige color.

¹ RECOMMENDED PRACTICE: GOOD HOSPITAL PRACTICE: STEAM STERILIZATION AND STERILITY, ASSURANCE, 1988, Association for the Advancement of Medical Instrumentation, Arlington, VA.

² Bowie, J.H., Kelsey, J.C., Thompson, G.R., THE BOWIE AND DICK AUTOCLAVE TAPE TEST, Lancet I: 1215, 1963

RESULTS

Incomplete air removal caused distinct and readily visible indications of incomplete color changes in the indicators. The color of the incompletely changed area ranged from dark brown to light brown to beige. The results of the evaluations are summarized in Table 1:

Table 1

VISUAL EXAMINATION*

	ALERT-O.A.D.	Standard A.A.M.I. Pack
Large Fault	+	+
Small Fault	++	++
Marginal Fault	+++	+++
Correct Cycle	++++	++++

* KEY
++++ = Complete color change to black
+++ = Incomplete color change just visible
++ = Distinct incomplete color change
+ = Largest fault indication

The variability of the results within each test group was minimal, indicating good reproducibility from sample to sample.

CONCLUSIONS

The experiment described above clearly illustrates that the **ALERT-O.A.D.** Bowie & Dick Test Pack is equivalent in its performance and sterilizer air leak detecting ability to the standard, towel based Bowie & Dick Test Pack as described by Bowie² and in the A.A.M.I. **RECOMMENDED PRACTICES**¹. Both test packs detect faults in the same way, with the same sensitivity, and with similar reproducibility.

For any questions concerning the performance of this product—or any other aspect of sterilization procedure—please telephone the **Propper Sterilization Hotline: 1-800-221-2280.**

COMPARISON OF TEST METHODS

The purpose of this study was to compare the results of the visual examination method with the results of the ultrasonic method. The results of the evaluation are summarized in Table 1.

Table 1

Defect Type	Visual Examination	Ultrasonic Examination
Large Flaw	++	++
Small Flaw	+++	+++
Marginal Flaw	+++	+++
Correct Cycle	+++	+++

The results of the visual examination method were compared with the results of the ultrasonic method. The results of the evaluation are summarized in Table 1. The results of the visual examination method were compared with the results of the ultrasonic method. The results of the evaluation are summarized in Table 1.

CONCLUSIONS

The results of the visual examination method were compared with the results of the ultrasonic method. The results of the evaluation are summarized in Table 1. The results of the visual examination method were compared with the results of the ultrasonic method. The results of the evaluation are summarized in Table 1.

For a complete copy of this report, contact the Proper Manufacturing Company, Inc. at (718) 392-6650.

Propper Manufacturing Company, Inc.
36-04 Skillman Avenue, Long Island City, New York 11101 • (718) 392-6650