

Minncare® and Actril® Cold Sterilants

Research Report: Residuals of Peroxide on Surfaces After Minncare & Actril Evaporates

Introduction

Minncare or Actril can be used to disinfect surfaces and leaves the surface wet at first. After drying, there is a question as to whether there is any residual of the components left behind. Both Minncare and Actril contain hydrogen peroxide, peracetic acid, and acetic acid. The degradation (in air) is fairly rapid as the material dries with the main product being oxygen. Since it's possible that some of the acetic acid might remain (as acetates), a short study was done to extract the dried coupons and extract them to analyze for residuals. Representative plastic and metal coupons were soaked in Minncare or Actril, allowed to dry, and then extracted with DI water. The extracts were analyzed for residual peroxide, peracetic acid, and acetic acid.

Experimental Design

- 1) Test Materials (2 types of coupons):
 - a. Representative Plastic: Polypropylene coupons are 7.642 cm x 2.547 cm x 0.153 cm for a total surface area of 42.046 cm².
 - b. Representative Metal: Aluminum alloy 6061 anodized type 2 coupons are 7.624 cm x 1.284 cm x 0.161 cm for a total surface area of 22.446 cm².
- 2) Sample Size: 3 coupons for each chemical (Minncare or Actril).
- 3) Dip entire coupon into chemical. Soak for 1 minute.
- 4) Allow to dry.
- 5) Soak in small defined volume (5 ml) of water for 10 minutes.
- 6) Analyze extract water for residual levels of peroxide, peracetic acid, and acetic acid.
- 7) Calculate total mg of residual (if any) and normalize to surface area.

Results

The results from the testing on the extracts from Minncare exposed coupons is shown in table 1:

Table 1. Analytical results from extracts of Minncare exposed coupons

Material	Coupon #	Peroxide, ppm	PAA, ppm	Acetic Acid, ppm
Polypropylene	1	< 1	< 1	< 2.5
Polypropylene	2	< 1	< 1	< 2.5
Polypropylene	3	< 1	< 1	< 2.5
Aluminum	1	< 1	< 1	< 2.5
Aluminum	2	< 1	< 1	< 2.5

The results from the testing on the extracts from Actril exposed coupons is shown in table 2:

Table 1. Analytical results from extracts of Actril exposed coupons

Material	Coupon #	Peroxide, ppm	PAA, ppm	Acetic Acid, ppm
Polypropylene	1	< 1	< 1	< 2.5
Polypropylene	2	< 1	< 1	< 2.5
Polypropylene	3	< 1	< 1	< 2.5
Aluminum	1	< 1	< 1	< 2.5
Aluminum	2	< 1	< 1	< 2.5
Aluminum	3	< 1	< 1	< 2.5

None of the coupons showed any residuals remaining from the Minncare or Actril.

Results continued on next page...

Results (Continued)

When normalized to surface area, the results (less than values) are:

Table 3. Extractable Minncare components from surface of coupons.

Material	Coupon #	Peroxide, ppm	PAA, ppm	Acetic Acid, ppm
Polypropylene	1	< 0.03	< 0.03	< 0.06
Polypropylene	2	< 0.03	< 0.03	< 0.06
Polypropylene	3	< 0.03	< 0.03	< 0.06
Aluminum	1	< 0.05	< 0.05	< 0.11
Aluminum	2	< 0.05	< 0.05	< 0.11

Summary

No residuals from any of the components of Minncare or Actril were found. This indicates that little or no residue is left behind after exposure to these disinfectants.

Table 4. Extractable Actril components from surface of coupons.

Material	Coupon #	Peroxide, ppm	PAA, ppm	Acetic Acid, ppm
Polypropylene	1	< 0.03	< 0.03	< 0.06
Polypropylene	2	< 0.03	< 0.03	< 0.06
Polypropylene	3	< 0.03	< 0.03	< 0.06
Aluminum	1	< 0.05	< 0.05	< 0.11
Aluminum	2	< 0.05	< 0.05	< 0.11

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