



**STERIS Corporation Comments to Tentative Final Monograph  
for Healthcare Antiseptic Drug Products; Docket #75N-183H  
Public Comment Notice of May 27, 2003**

STERIS Corporation hereby submits comments to the public docket for this drug monograph to support the classification of isopropyl alcohol as a safe and effective active ingredient when formulated at a level of 60-95% v/v into a Surgical Scrub or Healthcare Personnel Handwash product. During the previous opening of the docket for public comments in 1995 and 1996, STERIS Corporation (previously ConvaTec) filed comments and data in support of isopropyl alcohol safety and effectiveness. The comments incorporated in this submission contain substantially new and pertinent information and data to further support the classification of isopropyl alcohol as a safe and effective active ingredient for formulation into surgical scrub and healthcare personnel handwash products at a level of 60-95% v/v.

Additionally, STERIS Corporation has included clinical data results in this filing for the support of ethyl alcohol as an effective active ingredient in surgical scrub products when formulated at a level of 62% v/v.

**I. Clinical studies:**

**Healthcare Personnel Handwash:**

STERIS Corporation conducted two clinical studies in support of isopropyl alcohol as an effective active ingredient to be used in a healthcare personnel handwash. The results and protocols for these studies are included in Section II. of this submission. The first study was a four-arm study conducted using a foamed 62% ethyl alcohol handrub (EtOH), a 0.5 % triclosan handwash product, a 4% chlorhexidine gluconate handwash (CHG) product and a 63% isopropyl alcohol (IPA) handrub. The products were tested by the methodology outlined in the Food and Drug Administration (FDA) Tentative Final Monograph (Vol. 59, No. 116, June 17, 1994, FR 31402). A second study four-arm study with the identical products was conducted using the ASTM Standard Test Method for Evaluation of Health Care Personnel Handwash Formulations (E 1174-00).

In both healthcare personnel handwash studies, 63% isopropyl alcohol provided a substantial log reduction from baseline of *Serratia marcesens* after the first application (3.86 and 3.69) and a slight decrease in log reductions after multiple applications (2.82 and 3.24). Both isopropyl alcohol and ethanol provided substantial log reductions after a single application in each study. In both studies, there is a decline from the first hand application to the tenth and eleventh hand applications. The downward trend from first to last (10<sup>th</sup>) hand applications is more dramatic in the TFM test method versus the ASTM test method. The decrease in log reductions from wash one (1) to wash ten (10) is a phenomenon observed in other published studies<sup>1</sup> with leave-on alcohol-based products. This trend is reproducible and influenced by test methodology and its design for wash-off products.

The results of these studies show that isopropyl alcohol provides immediate and significant log reductions in a healthcare personnel handwash application and continue to provide significant log reductions over multiple applications. The effectiveness of isopropyl alcohol as a healthcare personnel handwash were also shown to be comparable to a 62% ethanol based product tested in the studies. The results of these studies support the inclusion of 60-95% isopropyl alcohol in the Final Monograph for Healthcare Antiseptic Drug Products as a safe and effective active ingredient for healthcare personnel handwashes.

### **Surgical Scrubs:**

STERIS Corporation conducted a single clinical study in support of isopropyl alcohol as an effective active ingredient to be used in a surgical scrub. The results and protocol for this study is included in Section II. of this submission. A three-arm study was conducted using a 63% isopropyl alcohol (IPA) handrub under two distinct application regimens and a 4% chlorhexidine gluconate (CHG) handwash product. The products were tested in a surgical scrub procedure published in the Food and Drug Administration (FDA) Tentative Final Monograph (Vol. 59, No. 116, June 17, 1994, FR 31402).

The results of this study show that 63% isopropyl alcohol when formulated into a surgical scrub product provided substantial reduction of the resident flora of subject hands on days 1, 2, and 5 of the study. Although the isopropyl alcohol product did not meet the proposed 3 log reduction criteria for day 5 of the study, it did meet the criteria for days 1 (2.60/2.85 log reduction and no return to baseline in 6 hours) and 2 (2.65/2.98 log reduction) as proposed in the Tentative Final Monograph (Vol. 59, No. 116, June 17, 1994, FR 31402). The control product (4%CHG) also met the day 1 and 2 performance criteria and marginally met the day 5 performance criteria. Based on the results of this study, isopropyl alcohol formulated at 63% performed comparably to a 4% CHG surgical scrub product. The results of this study were also compared to a study conducted on a 62% Ethanol surgical scrub product (results previously submitted to the public docket for the Tentative Final Monograph in 1996 by ConvaTec Inc.). The results and comparison to this study is summarized in Section II. of this filing. The comparison shows that isopropyl alcohol provides comparable effectiveness to that of the 62% ethyl alcohol surgical scrub. The results of this study support the inclusion of 60-95% isopropyl alcohol in the Final Monograph for Healthcare Antiseptic Drug Products as a safe and effective active ingredient for surgical scrubs.

An additional study was conducted with 62% ethyl alcohol based handrub to further support its use in a surgical scrub active ingredient. A three-arm study was conducted using a 62% ethyl alcohol (EtOH) handrub under two separate application regimens and a 4% chlorhexidine gluconate (CHG) handwash product as a control product. The products were tested in a surgical scrub procedure published in the Food and Drug Administration (FDA) Tentative Final Monograph (Vol. 59, No. 116, June 17, 1994, FR 31402).

The results of this study show that 62% ethyl alcohol when formulated into a surgical scrub product provided substantial reduction of the resident flora of subject hands on days 1, 2, and 5 of the study and met the criteria of no return to baseline after 6 hours on the first day. The ethyl alcohol based product showed comparable activity to the 4% CHG control product. The results of this study are summarized in Section II of this filing.

## **II. In vitro Data**

In vitro time kill studies were submitted to the public docket for the Tentative Final Monograph (Vol. 59, No. 116, June 17, 1994, FR 31402) by ConvaTec Inc. in 1995 to support the in vitro spectrum of activity of isopropyl alcohol. No additional information is being provided in this submission to supplement the well established broad spectrum activity of isopropyl alcohol.

## **III. Literature References**

A literature search was conducted by STERIS Corporation for key articles published since 1996 that support the effectiveness of isopropyl alcohol as a healthcare personnel handwash and surgical scrub. The search was limited to this timeframe to utilize only those articles that have not been previously submitted and summarized in support of isopropyl alcohol. Key articles and references have been summarized in Section III. of this filing. Numerous articles have been published in the last 7 years supporting the use of isopropyl alcohol and ethyl alcohol as effective active ingredients when formulated into no-rinse products with emollients and moisturizers to minimize drying and irritation potential. In addition, the CDC has reinforced the use of alcohol based products in its recent Guideline For Hand Hygiene in Healthcare Settings. Isopropyl use in the United States and Europe has increased dramatically in the last decade based on the extensive publication of literature supporting its use. STERIS Corporation believes the published literature on the use of isopropyl alcohol for hand antisepsis provides additional support to its inclusion as a Category I Safe and Effective active ingredient for surgical scrubbing and healthcare personnel handwash applications.