

**SnF<sub>2</sub> Plaque Effects**



- 3.A. *New clinical data establishes that SnF<sub>2</sub> formulations are effective in reducing plaque mass, plaque virulence, and plaque composition. On the basis of these new data, we request that the monograph include an “antiplaque” statement of identity and an unqualified “antiplaque” indication in the labeling for SnF<sub>2</sub> products.*

Data previously submitted and presented to the Subcommittee demonstrate a clinically and statistically significant effect of SnF<sub>2</sub> against gingivitis. In addition, the data show a significant *ex vivo* PGRM effect by SnF<sub>2</sub> in reducing plaque virulence and plaque bacterial composition, either of which can cause harmful effects (induction of inflammation) to the gums.

Based on these data, the ANPR specified an “antigingivitis” statement of identity for SnF<sub>2</sub>, but not an “antiplaque” statement of identity as recommended for the other Category I active ingredients, CPC and essential oils. The ANPR instead, acknowledges the significant effect by SnF<sub>2</sub> in reducing plaque virulence and composition that were consistently shown in the Plaque Glycolysis and Regrowth Model (PGRM). In recognition of this effect, the Subcommittee recommended the inclusion of a qualified “antiplaque” indication in the labeling for SnF<sub>2</sub> dentifrice, i.e. “*helps interfere with the harmful effects of plaque associated with gingivitis*”<sup>45</sup> [proposed 21CFR §356.65 (b)(2)] but did not recommend any type of antiplaque statement of identity for SnF<sub>2</sub> containing dentifrice.

It should be noted that during the Subcommittee proceedings, Procter & Gamble presented short-term (21 days) Digital Plaque Imaging Analysis (DPIA) data demonstrating a plaque mass reduction benefit for SnF<sub>2</sub> dentifrice. Procter & Gamble also reported that measurements of clinical plaque mass reduction in 6-month clinical trials, that utilize subjective plaque indices, were confounded by

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<sup>45</sup> Federal Register: 68 (103): May 29, 2003 at page 32286.

extrinsic tooth staining and increased pellicle formation. These challenges in plaque grading were also reported in independent studies (Tinnanof<sup>46,47</sup>) with SnF<sub>2</sub> dentifrice.

In this submission we report on studies developed since the time of the Subcommittee deliberations. Notably, three 6-month clinical studies on improved SnF<sub>2</sub> formulations have been carried out in which significant plaque mass benefits have been measured. These results complement additional short-term studies on like formulations using Digital Plaque Imaging which also demonstrate significant efficacy for stannous fluoride dentifrices in the control of supragingival plaque formation. Also reported here are the results of plaque assessments carried out during a short-term experimental gingivitis (EG) evaluation with SnF<sub>2</sub> dentifrice, where again significant efficacy was observed in reducing dental plaque accumulations. With respect to this submission, two of the 6-month clinical studies are reported in the literature whereas the third 6-month clinical study, conducted by Procter & Gamble has not yet been published but is included in this submission. The Digital Plaque Imaging studies were conducted by Procter & Gamble in their Health Care Research Center laboratories and are in preparation for publication. Data from these studies and a summary of the methodology and protocols are provided herein.

We believe these data adequately demonstrate an antiplaque benefit which is consistent with the antiplaque benefits of the other two Category I antigingivitis/antiplaque active ingredients, CPC and essential oils.

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<sup>46</sup> Tinnanof, N.: Review of Antimicrobial Action of Stannous Fluoride. *J. Clin. Dent.* II (1), 22-27, 1990.

<sup>47</sup> Tinnanof, N.: Stannous Fluoride in Clinical Dentistry. *Clinical Uses of Fluoride*, Chapter 3, 25-34, 1985.