P&G Oral Presentations

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A Simplified pH Stat Enamel Solubility Reduction/Demineralization Resistance Test

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Historically, a key measure of fluoride anticaries effects has been to examine post treatment influences of topical ingredients on enamel solubilization in mineral or organic acids (Enamel Solubility Reduction - ESR). The application of modern pH stat or Constant Composition dissolution methods could provide useful improvements to ESR testing - in particular with focus toward reduction in demineralization potential (as opposed to sink solubility). Powdered HAP mineral (Clarkson Chrom.) was treated directly with 25 % wt/wt toothpaste/water supernates prepared from slurry and centrifugation. Following 1 minute treatments at solid/supernate ratios of 19.4 mg/ml, powders were centrifuged, supernate decanted and 3x water washed. Treated powders were pH stat demineralized at pH 4.5 in 0.10 M/L lactic acid 50 % pre saturated with HAP, in 0.10 M NaCl background electrolyte using 25 mM HCL as titrant. Demineralization was assessed in terms of % reduction in demineralization (titrant or sampled calcium (AA) reductions) vs. control over 40 minutes. The efficacy of commercial dentifrice treatments (duplicate) averaged [% solubility decrease at 40 minutes post treat]: NaF/Silica (Crest,) - 77.5 %; SMFP/DCPD Colgate, - 53.9 %; SnF_2/Silica (Crest, Gum Care) - 94.1 %; NaF/Silica (Crest, Tartar Control) 77.5 %. **Results demonstrated substantial demineralization protection for all commercial fluoride sources and for cosmetic modified variants of fluoride sources (e.g. Crest, Tartar Control with pyrophosphate added to NaF caries system). This simplified and improved ESR may prove useful in routine product screening - as pH stat equipment has become commonplace.**

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Comparative Intraoral Tolerance of Polyphosphate and Pyrophosphate Antitartar Dentifrices

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Use of antitartar agents may be associated with mild-to-moderate oral soft tissue irritation among selected individuals. New dentifrice formulations using polyphosphates (PP_n - e.g. poly'pyro'phosphates) may provide important antitartar benefits with improved oral tolerance profiles. To evaluate these effects, a randomized and controlled 4 day clinical trial was conducted to assess acute oral tolerance of a novel tartar control dentifrice containing 5.0% polyphosphate. A total of 159 healthy adult volunteers were randomized to the 5.0% polyphosphate dentifrice group or to a widely-marketed 5.0% pyrophosphate (PP_i) control. Symptoms and signs were collected by questionnaire and detailed oral examination at baseline and each day thereafter, with clinical status documented by standard and specific photographs of oral soft tissues and oral lesions. All assessments were conducted blind to treatment identity, and to limit bias, new findings after baseline were considered as possibly causally-related. Twenty-four subjects (15% of the population) had new symptoms/signs after baseline. By treatment, 91% of subjects in the polyphosphate group had no new findings, compared to 78% of subjects in the pyrophosphate group, and these groups differed statistically (p = 0.027, two-sided) in occurrence. In addition, events were less frequent in the polyphosphate group (with findings on 5% of days versus 10%), and clinical presentation was generally milder compared to the pyrophosphate control. Overall, findings were minor, as only 1 subject (in the pyrophosphate group) discontinued treatment early due to oral intolerance. **The antitartar dentifrice containing 5.0% polyphosphate was exceedingly well-tolerated in this study, with significantly fewer symptoms and superior overall tolerance compared to the marketed antitartar dentifrice control.**

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