

**Inventors**

*Dr Ming Tung*

**Intellectual Property  
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US patents issued:  
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[US 8,956,595 B2](#)

**Contact**

*Phil Dowd*

Director of Innovation  
American Dental Association  
Science & Research Institute

*Email: [dowdp@ada.org](mailto:dowdp@ada.org)*

# Calcium Peroxyphosphates and Use Thereof in Dental Compositions

ADASRI Case # 04-0015

## Background

Peroxide has been used as an oxidizing agent for whitening teeth as well as for the treatment of various forms of stomatitis and gingivitis. When applied for extended periods at high concentrations, oxidizing agents such as hydrogen peroxide and urea peroxide(carbamide) have proven effective for removing extrinsic and intrinsic stains as well as for brightening the overall shade and color of teeth. Unfortunately, the bleaching process for removing stains can simultaneously reduce the microhardness of enamel and dentin, cause post-treatment tooth sensitivity, and/or increase tooth susceptibility to demineralization.

## Invention Description

ADA researchers have developed new calcium peroxyphosphate compounds, dental compositions comprising these compounds, and methods for the preparation of these compounds, that combine both whitening/stain removal of teeth with remineralization. The calcium peroxyphosphate compounds are capable of releasing, in an aqueous environment (such as exposure to saliva), whitening and remineralization effective amounts of calcium ion, phosphate ion, and active oxygen, that whiten the teeth while simultaneously remineralizing teeth to prevent and/or repair weaknesses including dental caries, exposed dentin tubules, and voids resulting from stain removal.

## Potential Applications

- Toothpaste
- Prophy pastes and polishes
- Topical gels
- Varnishes
- Self-adhesive strips
- Mouthwashes and rinses
- Chewing gums
- Mouthwashes and rinses

## Benefits and Advantages

- Provides simultaneous tooth-whitening and remineralization/desensitization, overcoming challenges associated with other tooth-whitening materials