

Tooth Whitening

Tooth whitening uses the bleaching effect of either hydrogen peroxide or carbamide peroxide, both of which will diffuse through the tooth enamel into the dentine and lighten the colour of the tooth. Whitening /bleaching is most effective for teeth with a yellow discolouration within the tooth.

When comparing the bleaching effectiveness of carbamide peroxide to hydrogen peroxide, 10% carbamide peroxide is equivalent to 3.5% hydrogen peroxide. In other words hydrogen peroxide is around 3 times as effective as carbamide peroxide at the same concentration.

The Law

Only registered dental practitioners should use teeth whitening (bleaching) agents, and they should be able to provide patients with whitening agents of up to 20% hydrogen peroxide or equivalent for home use under the practitioners guidance (*Australian Dental Association Policy Statement 2.2.8*).

The irreversible bleaching of teeth is defined by the national law (*Health Practitioner Regulation National Law Acts 2009*) as the practice of dentistry. This law prohibits the practice of dentistry by any person other than a registered dental practitioner. Tooth bleaching by other persons who are not registered dental practitioners with suitable training is therefore illegal in order to protect the public from the risks of tooth whitening and potential harm.

Limitations and restrictions

The bleaching effect only works on natural tooth substance and has no effect on fillings, crowns or veneers. Teeth that have darkened after having been root filled will benefit very little from surface tooth whitening. Such teeth need to have the bleaching agent placed inside the tooth to bleach from within the dentine. This can be very effective but may have to be repeated a few times to achieve the desired shade.

There are regulations and standards that govern the use of these bleaching products. The gels used in dental surgeries by dental practitioners contain a far higher concentration of hydrogen peroxide (in the range from 15% up to 38%) than those available in over the counter products from the pharmacy or supermarket.

Such stronger gels are not suitable to be sold to patients to use at home as they can cause a number of side effects. The Poisons Standard 2008 recognises hydrogen peroxide 3-6% as a Schedule 5 substance (Caution) while those products containing hydrogen peroxide over 6% are classified as Schedule 6 (Poison). For Carbamide Peroxide 9-18% is Schedule 5 (Caution) and over 18% is Schedule 6 (Poison).

“In-office” bleaching

Dentist led, in-office tooth whitening is generally performed using a gel that contains hydrogen peroxide rather than carbamide peroxide as it is more

effective and works more quickly. Additional use of heat or light may contribute to even faster activation of the bleaching chemical achieving the colour change more quickly.

Only a dentist or dental hygienist may use these more concentrated products that require the soft tissues of the mouth to be isolated and protected from the corrosive effects of the gels.

These higher professional concentrations are not appropriate for all patients especially those with temperature sensitivity of the teeth as their use would leave those patients suffering pain, increased tooth sensitivity and even death of the pulps of teeth that then may require root canal therapy. Other patients with a dry mouth from autoimmune disease or induced by medications may also not be suitable to receive tooth whitening with these stronger gels.

“Home” bleaching

Whitening mouthwashes and toothpastes have relatively little whitening activity. Some whitening toothpaste only works by using mild abrasives to remove tooth surface stain. Some tooth pastes designed for smokers are highly abrasive and cause damage to the tooth surface and should not be used regularly.

Dental tooth whitening products containing up to a maximum of 6% hydrogen peroxide or 18% carbamide peroxide can safely be sold to patients commercially for home bleaching but they should be used in custom-made trays to confine the gel to the tooth surface and avoid prolonged contact with the gum or other oral soft tissues. Only a small amount should be dispensed into the custom tray to avoid overflow from the tray that might damage soft tissues.

Kits obtained over the counter in a pharmacy or from supermarkets are not recommended. They have a lower concentration of the active peroxide ingredient, and do not come with a custom-made tray, therefore gel can diffuse around the mouth and is consequently inactivated by saliva and may be swallowed.

Is it safe to bleach teeth?

There are risks or unwanted side effects that you should consider before deciding if tooth bleaching is right for you. It is worth discussing these risks with your dental practitioner before you decide to proceed.

Some of the risks are outlined below:

- Bleached teeth can experience discomfort for several days following the whitening process. Patients who have sensitive teeth are advised not to attempt tooth whitening, as their sensitivity may become even worse.
- The irritant effect of the bleaching agent can burn or cause discomfort in the gums and soft tissue with which it comes into contact. During bleaching in the dental clinic, the gums must be protected from the corrosive effect of the peroxide gel if it is stronger than 6% hydrogen peroxide (*or 18% carbamide peroxide*).

- Saliva is the body's natural defensive "coating" in the mouth, so patients suffering from a chronically dry mouth known as Xerostomia, may experience greater soft tissue irritation and discomfort when using bleaching gels at home than someone with normal quality and normal volume of saliva protecting the soft tissues.
- Only dentists and dental hygienists can perform professional tooth whitening. Neither Beauty therapists nor other healthcare workers can legally provide this treatment as it is classified as the practice of dentistry.
- Patients have to be assessed as being suitable for this procedure, and only a dentist is trained to diagnose and take into account the patient's oral health, medications, medical health and personal factors to determine if they are suitable for "in office" bleaching at the dental surgery or home tooth bleaching.
- Some professionally led tooth-whitening uses additional heat, light or laser activated whitening. The basic chemistry remains unchanged but various methods can be used to activate the peroxide ingredient to obtain a quicker bleaching or whitening effect. Heat provided by different light sources, including coloured visible light, are often used while true lasers are less commonly employed. *The use of a laser requires specific additional training and licensing.*

Do the effects of tooth bleaching last?

External stains may re-form on teeth depending on the dietary inclusion of pigments. Staining drinks like coffee, tea, red wine and staining foods like soy sauce, beetroot, or staining spices used in cooking may re-introduce stain to the tooth surface and into areas of tooth porosity. Internal stains can build up with time, both from aging as well as from trauma to teeth. Bleaching can be repeated to maintain a lighter colour.

TOOTH WHITENING (BLEACHING) KITS and APPLICATION TIMES

P/F = with added Potassium nitrate (to counteract sensitivity) and Fluoride to remineralise the tooth surface and strengthen the tooth against acid attack/decay.

Hydrogen Peroxide is generally active for a period of around 30-60 mins being a relatively unstable substance.

Carbamide Peroxide is generally active for longer, in the order of 60-120 mins but works more slowly being a more stable form of peroxide

*More than 6% Hydrogen Peroxide or 18% Carbamide Peroxide requires that the **SOFT TISSUES ARE PROTECTED** using in office protectant or custom trays at home. These higher concentration agents are classified as Schedule 6 (Poison) under the Poison Standard 2008.*

<u>Hydrogen Peroxide</u>	<u>Carbamide Peroxide</u>	<u>TIME</u>
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IN OFFICE

40% (P/F)	<i>Definite Sensitivity**</i>	20 mins (<u>Dentist only</u>)
	35% (P/F)	<i>Sensitivity</i>
		30 mins (<u>Dentist only</u>)

HOME WHITENING

<6%	<i>Rare Sensitivity</i>	90 mins plus
6%	<i>Some Sensitivity</i>	60 mins
7.5%	<i>Some Sensitivity</i>	45-60 mins
9.5%	<i>Sensitivity</i> Higher risk of side effects	45 mins
15%	<i>Sensitivity</i> Higher risk of side effects	20-30 mins
<i>(must be provided by a dentist after assessment of patients suitability)</i>		

	10% <i>Rare Sensitivity</i>	8-10 hours (over night)
	16% <i>Some sensitivity</i>	4-6 hours
	20% <i>Sensitivity</i>	2-4 hours

DENTIST ONLY - IN OFFICE BLEACHING

POLA OFFICE (P/F)

Single use in office 35% Hydrogen Peroxide **30 mins** **Definite Sensitivity***

OPAESCENCE BOOST (P/F) Utradent

Single use in office 40% Hydrogen Peroxide **Definite Sensitivity****

TAKE HOME KITS AVAILABLE

***Legal limit to the concentration of take-home kits imposed by Dental Board of Australia:**

Hydrogen peroxidide 6% max

Carbamide peroxide 18% max

OPAESCENCE (P/F) Hydrogen peroxide 10% 16% 20% (35%)

POLA DAY Hydrogen Peroxide (P/F) (from 30 mins per day) 3% 6% 7.5% (9.5%)

POLA NIGHT Carbamide peroxide +F (from 45 mins per day) 10% 16% 18%) 22%

While a colour coding system has been provided to give an estimation of the degree of risk of tooth sensitivity developing, there is great variation between patients. These risk assessments are only a very approximate guide and must not be relied upon.

PATIENT CONSENT TO TOOTH WHITENING (BLEACHING)

NAME DATE OF BIRTH
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I have been given the practice leaflet on tooth whitening, also known as tooth bleaching, and I understand that there are risks, as explained in the above leaflet that most commonly include tooth sensitivity, discomfort when drinking cold or even hot drinks or eating very cold or hot food.

I also understand that the guidance of the degree of risk assigned to various concentrations of both hydrogen peroxide and carbamide peroxide are only an approximate guide and cannot be relied upon due the vast variation in patient experience with the different products available.

I also understand that bleaching varies in its effectiveness in different patients and there is no way to predict the degree of whitening I will experience.

I understand that if I experience any side effects I should stop using the bleaching product and contact the practice for advice.

Signature of patient to undergo tooth whitening
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Date

The Australian Dental Association has published a Policy Statement 2.2.8 – Community Oral Health Promotion: Teeth Whitening (Bleaching) By Persons Other Than Dental Practitioners adopted by ADA Federal Council April 2008 and subsequently amended in 2009, 2012, 2013, 2016 and 2017. The ADA policy conforms to the Health Practitioner Regulation National Law Acts 2009.