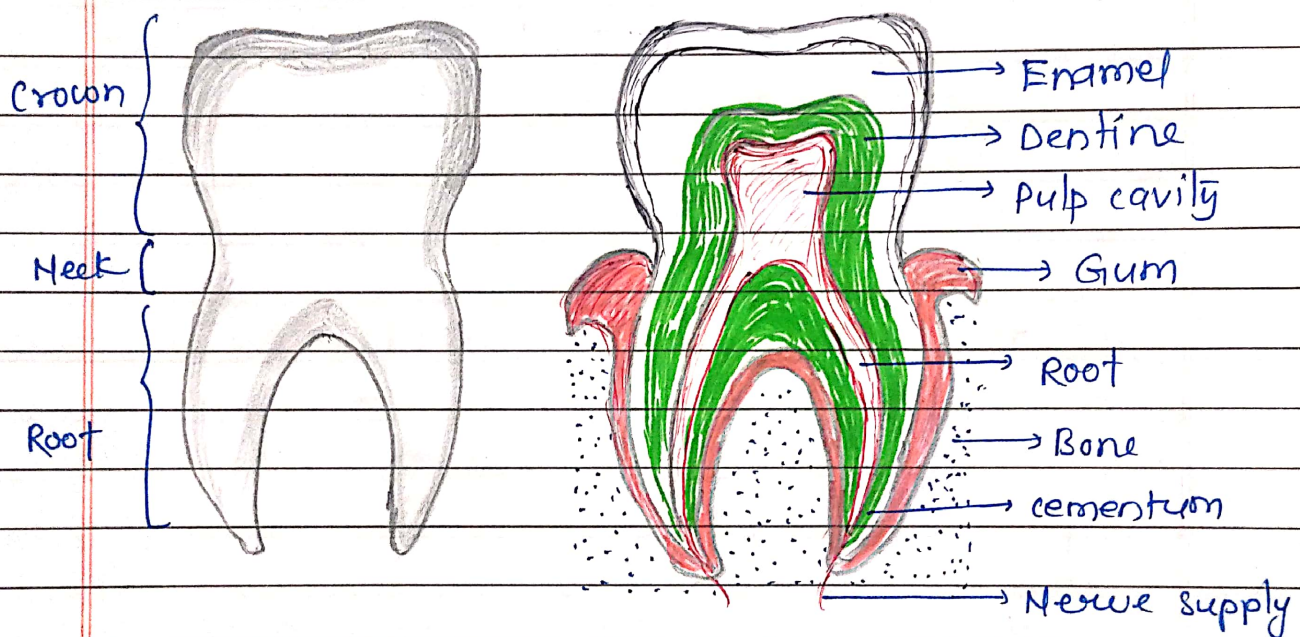


# Dental Product

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Dental products are those substance which prevent dental caries, dental decay and give freshness and cleanness to mouth and teeth.

## Anatomy of Teeth



### 3 layer

(1) Enamel : It is white outermost covering present on tooth projecting above gum.  
→ It contains 98% mineral & it's very dense.

(2) Cementum : A layer covering the portion of tooth lying buried in the gum.

(3) Dentine : Surrounds pulp cavity and extended throughout entire portion of tooth.

## Problem Related to tooth

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- (1) Tooth cavity
- (2) Gum problem
- (3) Bad breath
- (4) Oral cancer
- (5) Tooth sensitivity
- (6) Tooth erosion
- (7) Tooth Ache
- (8)

So Dental product prevents

- Dental decay
- Dental caries
- give freshness.

### CLASSIFICATION OF DENTAL PRODUCT

#### (I) Anticaries Agent

Ex.

- 1) sodium fluoride
- 2)  $\text{SnCl}_2$
- 3) sod. mono fluoro-phosphate

#### (II) Desensitizing Agent

- Ex.  $\text{ZnO}$   
 $\text{ZnCl}_2$   
 strontium chloride  
 ( $\text{SrCl}_2$ )

#### (III) Dentifrices



- Ex. i)  $\text{CaCO}_3$   
 ii) di calcium  $\text{PO}_4$   
 iii) sod. meta.  $\text{PO}_4$   
 iv) Calcium pyrophosphate

# Anti-Caries Agent

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→ Agent that help to prevent dental decay.

ex: sod. flouride,  $\text{SnCl}_2$ , sod. mono phosphate

## Causes

- Some pathogenic bacteria produce acid that destroy tooth enamel & dentine.
- People consuming high carbohydrates.

## Prevention

- Brushing prevent food loading on tooth surface.

## Flouride (F)

→ Inorganic compound that are used to fill cavity.

→ Lactic acid on tooth building up plaque.

→ Mechanism of F may be due to ↓ acid solubility of enamel and bacterial inhibition.

## Role of flouride

- F is anticarcinogenic.
- It inhibits demineralization and promotes remineralization.
- 'F' present in drinking  $\text{H}_2\text{O}$ , tooth paste work through this mechanism.

# Sodium fluoride (NaF)

Date: / / Page no: \_\_\_\_\_

→ It is inorganic chemical  $\bar{c}$  protect teeth from demineralization during bacterial growth.

→ It provide the teeth from acid decay.

→ Minor quantity is used in drinking water.

## Property

→ white powder

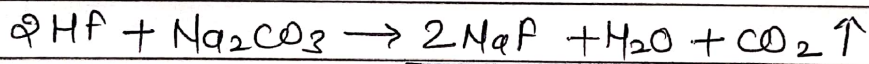
→ odourless

→ soluble in  $H_2O$ , insoluble in alcohol.

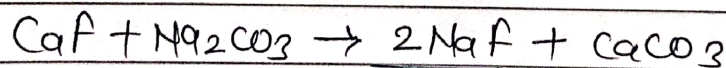
→ m. wt.  $\rightarrow$  41.99

## Preparation

→ Prepared by neutralization of hydrofluoric acid (HF)  $\bar{c}$   $Na_2CO_3$



→ By double decomposition of Calcium fluoride  $\bar{c}$   $Na_2CO_3$



## USES

1) It makes teeth more resistant to decay from bacteria.

2) It is antibacterial, but too toxic to used as wound antiseptic.

3) Mono sodium salt of NaF L-glutamic acid used for encephalopathies.

4) Used as insecticide.

# Dentifrices

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→ It is a substance used ~~as~~ with a tooth brush for cleaning the teeth surface.

• e.g.  $\text{CaCO}_3$ , Dicalcium phosphate, Sod. metaphosphate, Calcium Pyrophosphate.

→ Dentifrices contain agent for cleaning tooth surface & polishing effect.

→ These agent are abrasive in nature.

→ They remove plaque & debris.

→ These are applied as powders or pastes.

## $\text{CaCO}_3$ [Calcium Carbonate]

→ It is most abundant and widely distributed calcium salt.

→ It occurs as chalk, marble, calcite, corals, pearl and limestone.

→ Medicinally it is used as an antacid or as calcium salt supplement.

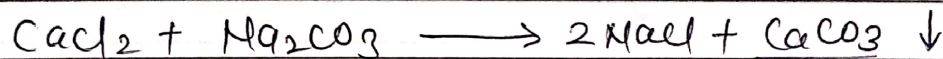
→ Also used as filler cosmetics.

## Property

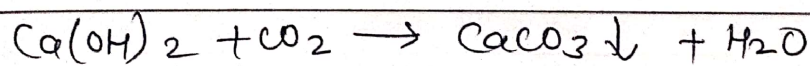
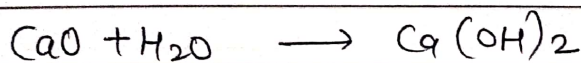
- It is colourless crystalline powder.
- odourless salty powder in taste.
- soluble in  $H_2O$ , insoluble in alcohol.
- Pharmaceutical preparations as Tablet, Solution, Drops, toothpaste.

## Preparation

- Prepared by mixing the boiling solution of  $CaCl_2$  &  $Na_2CO_3$ .



- Reaction of  $CaO$  &  $H_2O$  &  $CO_2$



## USES

- 1) Used as dentifrices
- 2) Used for dental cleaning & polishing agent
- 3) Used as calcium supplement
- 4) Used in manufacturing of paper, paints, plastics.

# Desensitizing Agent

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- These are used to reduce the sensitivity of teeth to hot and cold.
- used as local anaesthetics.

→ Ex. I)  $ZnO$  II)  $ZnCl_2$  III)  $SnCl_2$

## $ZnO$ (zinc oxide)

- It is considered as a best cementing material in dental practice.
- It is created by combination of  $ZnO$  & eugenol.
- It is used as temporary cement filling.