

## ANTACIDS:

Antacids are chemical agents used to neutralize excess acid in the stomach. (The normal pH range of gastric juice is 1.5-1.8). The excess acid can cause hyperacidity, and Ulcers in GIT (esophageal, gastric, peptic, etc.)

**Official preparation: 1. Aluminium hydroxide Gel**

**2. Magnesium hydroxide**

**3. Sodium bicarbonate**

**Classification:**

Class	example	structure
1. Calcium salts	Calcium carbonate	$\text{Ca CO}_3$
2. Sodium salts	Sodium bicarbonate	$\text{Na HCO}_3$
3. Magnesium salts	Magnesium hydroxide Magnesium oxide Magnesium trisilicate (MTS)	$\text{Mg(OH)}_2$ <b>MgO</b> <b><math>\text{Mg}_2 \text{Si}_3 \text{O}_8 \cdot n\text{H}_2\text{O}</math></b>
4. Aluminium salts	Aluminium hydroxide Aluminium hydroxide gel	$\text{Al(OH)}_3$

:

Also categorized as

A. **Absorbable Antacids** –Sodium bicarbonate

B. **Non-absorbable antacids** Aluminium hydroxide, Magnesium hydroxide

Antacids (official pp<sub>5</sub>)

Rps

- I Aluminium hydroxide gel - (a non-systemic weak antacid) (no-systemic alkalosis problem)
- II Sodium Bi Carbonate
- III Magnesium hydroxide mixture

01 Aluminium hydroxide gel (Colloidal Aluminium hydroxide) - Altersagel  
 (78.00) /  $Al(OH)_3$ : a suspension each 100g contains the  
 (77.99) Equivalent of 3.6 - 4.4g of Aluminium oxide  $Al_2O_3 = 101.96$   
 in the form of Aluminium hydroxide + hydrated oxide.

- Preparation:
1. 100g of  $Na_2CO_3 \cdot 10H_2O$  in 400 ml of water and filter.
  2. Dissolve 800g of Ammonium Alum in 2000 ml of water & filter into the carbonate sol<sup>n</sup> = constant stirring.
  3. Then add 4000 ml of Hot water & remove all gel.
  4. Dilute to 80,000 ml of Cold water.
  5. Effect & wash the ppt and suspend it in 2000 ml of purified water flavoured with 0.01 ml % peppermint oil & preserve with 0.1% of Sod. benzoate.
- ↓ Homogenize the resulting gel.
- Uses:
- antacid to manage
  - peptic ulcer
  - Gastritis
  - esophagitis +
  - as skin protectant & mild astringent
  - s/e - Constipating
  - des. abs. of TC
  - ↓ simethicone defoam

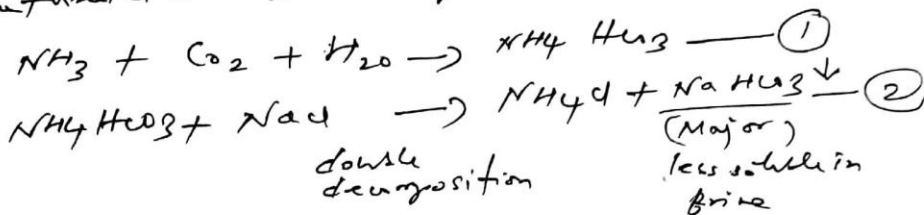
## ② Sodium Bicarbonate

84.01

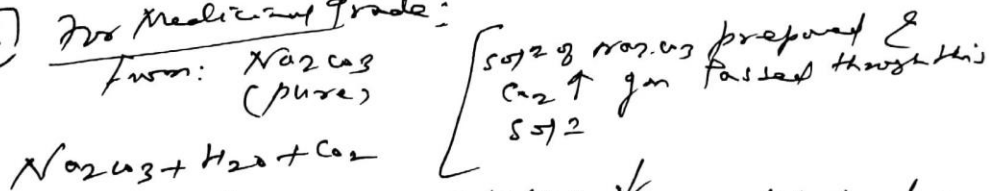
- Soda bicarb  $\text{NaHCO}_3$  - Backing soda / Common Name
- (Highly) water soluble antacid / quick onset of action & short doc
- Mittha soda
- Sod. acid carbonate

pp<sup>n</sup> "solvay process" / Amm. Soda Process

**(A) Commercial**  
 step-1:  $\text{NH}_4\text{HCO}_3$   
 step-2:  $\text{NaHCO}_3$   
 Brine (str-sol<sup>2</sup> react) containing high conc.  $\text{NH}_3$  passed through Carbonating Tower where it is saturated w/  $\text{CO}_2$  under pressure.



**(B) For Medicinal Grade:**



- prop: - crystalline / odourless) saline taste - powder
- freely soluble in water
  - practically insoluble in  $\text{Al}(\text{OH})_3$
  - rapidly absorp. moisture & decomposes
- $\text{NaHCO}_3$
- X det. pts. of TC

Storage: Well closed container

use: ✓ Antacid (systemic) sharp ↑ pH ↑ or ↓

✓ neutralizer: acid  $\text{NaHCO}_3 + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O} + \text{CO}_2 \uparrow$

Doc: 350-2g acid

300-16g/daily

✓ for specific to systemic Acidosis

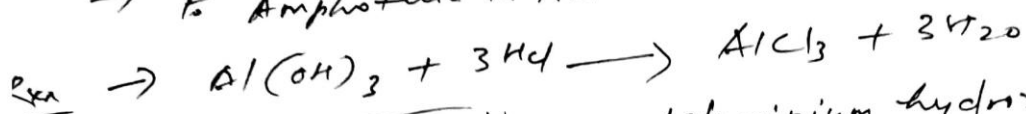
5% sol<sup>2</sup> remove ear wax

3% sol<sup>2</sup> on eye lotion

✓ 1% sol<sup>2</sup> on hand? ant. par. tub

✓ 1% sol<sup>2</sup> on hand? ant. par. tub

→ Aluminium hydroxide gel ideal buffer <sup>pH</sup> 3.5 - due to Amphoteric in nature.



\* (Dried)  $\text{Al(OH)}_3$  gel:  $\frac{\text{syn. y}}{\text{powder}}$  Aluminium hydroxide  
= Amorphous powder  
- when ignited yield not less than 47.0%  $\text{Al}_2\text{O}_3$

Storage: not exceed  $25^\circ\text{C}$  / should not allow to freeze

Use: - non absorbable antacid  
do not produce little systemic effect  
c/I deficiency

Ext: - Mild Astringent & desiccant / dusty powder / protein  
in diarrhoea

Dose: 15ml 4-6 times / day  $\equiv$  300mg

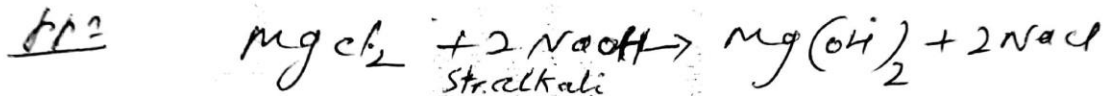
Range: 5-30ml  $\equiv$  (300mg - 5g) silicosis ??

## Magnesium Hydroxide



7-8.5% = oral suspension

STM: Milk of Magnesia / Cream of Magnesia



properties:

- Very fine, bulky powder, slowly absorb  $\text{CO}_2$  on exposed to air
- practically insoluble in water & in alcohol. Dissolve in acids

Uses:

1. Laxative
2. Antacids (acid neutralizing capacity less than  $\text{MgO}$ )
3. mild cathartics

Storage: stored in lightly closed containers not to be kept in cold place.

Dose:

- Antacid 5ml (qid)
- Cathartic 15 - 30ml

Assay: Acid-base titration.  
(back titration with std alkali)