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Diploma in Pharmacy 1st Year

Social Pharmacy

Experiment

To study the importance of bleaching powder, used for the purification of well and tank.

Aim:

To study the importance of bleaching powder, used for the purification of well and tank.

Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Dr. Sharma Anshu , “ Practical Manual of Social Pharmacy ” Published by Nirali Prakashan , Pg.No 83 - 86

Theory :

The main active ingredient of bleaching powder is calcium hypochlorite with Chemical formula $\text{Ca}(\text{OCI})$. It is an inorganic compound which is also found in chlorine powder or chlorinated lime. Bleaching powder, chlorine powder or chlorinated lime all are used as a bleaching agent and used for purification of water. Calcium hypochlorite is relatively stable, white solid inorganic compound Commercially it appears yellow in colour. The odour of the salt is chlorinated as it decomposes in air. It is soluble in cold water

Synonyms of calcium hypochlorite are hypochlorous acid calcium salt, bleaching powder, calcium oxychloride, chloride of lime.

Production of Calcium Hypochlorite

In industry calcium hypochlorite is produced by reacting lime with chlorine gas.

The reaction is conducted in different stages to produce various compositions of

calcium hypochlorite. Bleaching powder is prepared with slightly moist slaked

lime. It is a mixture containing calcium hypochlorite, dibasic calcium hypochlorite and dibasic calcium chloride.

Calcium hypochlorite is sometimes confused with calcium oxychlorides. The name calcium oxychloride, is used for a mixture of calcium basic chloride compounds which does not react in bleaching powder.

Uses of Bleaching Powder

- 1) Textile industry- It is used for bleaching cotton and linen
- 2) Paper industry- for bleaching wood pulp
- 3) Laundry- for bleaching washed clothes.
- 4) Water supply- used as disinfecting agent to make drinking water potable
- 5) Manufacture of chloroform (CHCl₃).
- 6) It is used for making wool unshrinkable.

Purification of Well

When a well is constructed it should be cleaned properly before use. Disinfectant should be used to kill all harmful bacteria that may be present on the concrete lining or transferred from the pipe used for water transportation which will directly affect the people who consume that water Chlorine can be used as a disinfecting agent to clean the well.

- 1) Determine the volume of water in the well.
- 2) According to the volume of water add sufficient amount of chlorine so that a strong solution of chlorine can be formed.
- 3) 100g of bleaching powder is added to a bucket containing water.
- 4) The solution is added to the well and mixed well to ensure proper mixing of chlorine in the well.
- 5) The resulted solution is kept in the well for 12 to 24 hours.
- 6) After 12 to 24 hours the solution from the well is removed with the help of pump. The solution should be dumped in a minimal area of contact to plant and animals as it is harmful for their health
- 7) The solution removed should be to an extent of 0.7mg/L of the water. In case of drinking water the concentration should be less than 1mg/L

Purification of Water Tank

- 1) The chemical process which is involved in the cleaning of water tank includes the liberation of chlorine gas when bleaching powder is added in water which acts as a disinfectant that kills bacteria
- 2) It takes 10-12 hours for complete reaction to take place. That decides the cleaning period of the tank. An opening or the vent should be provided for the complete removal of the gas can take place.
- 3) Sodium Meta Bisulphate (SMBS) is sometime added in the tank for removing the left over chlorine gas which sometimes result due to over dose of bleaching powder.

Result : The importance of bleaching powder used for the purification of well and tank was studied.

