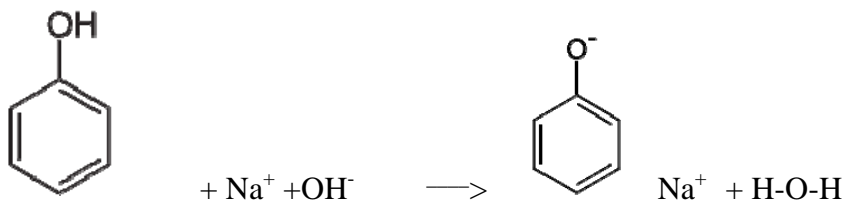


6.2 PHENOL AND ITS ACIDIC PROPERTIES. Phenol is used in Chloroseptic for its bacteriocidal properties and for its local anesthetic effect which reduces the pain of sore throats. It can cause damage to the throat if used routinely for long periods of time and the label recommends that one not use it for a period of more than *one week*. It is also used in facial peels, and embalming fluid. It is an unusual alcohol in that it is acidic. Alcohol groups on aromatic (benzene) rings are acidic, but alcohol groups on alkane chains generally are not. (This is because the extra pair of electrons on the O of the phenolate ion combines with the delocalized pi electrons of the benzene ring, spreading the cloud of electrons still further, which stabilizes the ionic phenolate or phenoxide ion.)



Phenol can undergo a **neutralization** reaction:



The ionic salt, sodium phenolate (or sodium phenoxide), is more soluble in water than phenol itself and is used in Chloroseptic, probably to increase the concentration (since phenol is not very water soluble) and to reduce the acidity caused by the phenol itself. A variety of molecules containing a phenol group are used for their antiseptic activity. Adding alkyl, phenyl, or halogen groups to a phenol molecule makes the phenol more bacteriocidal.



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