

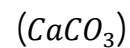
4 April 2016

King Saud University
College of Food and Agric. Sciences
Soil Science Department

Fundamentals of Soil Science

4.5. *pH* of Calcareous Soils

A **calcareous** soil contains calcium carbonate ($CaCO_3$) and, when treated with hydrochloric acid (HCl), a bubbling can be observed representing the evolution of carbon dioxide. Calcium carbonate is relatively insoluble, but when present in soils it creates a constant pressure to saturate the exchange with calcium (see the blackboard). For this reason calcareous soils are 100 percent base saturated and the *pH* is mainly controlled by the hydrolysis of calcium carbonate (see the blackboard). As shown in the blackboard, the greater dissociation of the calcium hydroxide and production of OH^- , as compared to the production of H^+ from the weak carbonic acid, creates an alkaline effect. As a result the *pH* of calcareous soils usually ranges from 7 to a maximum of 8.3.



)

.(

.() *pH*



pH

References

Foth, H. D. 1978. Fundamentals of Soil Science. John Wiley & Sons, New York, USA

. . .
. . .
. . .
. . .
. . .