## Question #73619, Chemistry / Physical Chemistry / Completed

WHAT ARE POLYPROTIC ACIDES? EXPLAIN WITH THE HELP OF AN EXAMPLE

## **Answer:**

Diprotic acids: H<sub>2</sub>SO<sub>4</sub>, H<sub>2</sub>CO<sub>3</sub>

Triprotic acids: H<sub>3</sub>PO<sub>4</sub>, H<sub>3</sub>PO<sub>3</sub> and so on.

The name "polyprotic" literally means many protons. Therefore, we are observing some specific acids which lose *more than one* proton. Consider a generic triprotic acid H<sub>3</sub>A. In aqueous solution, this acid will be distributed in four different species; the acid and the three conjugate bases.

$$H_2O+H_3A \leftrightarrow H_3O^+ + H_2A^-$$
  
 $H_2O+H_2A^- \leftrightarrow H_3O^+ + HA^{2-}$   
 $H_2O+HA^{2-} \leftrightarrow H_3O^+ + A^{3-}$ 

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