

### High pH buffer – pH range 9.2 –10.8

Prepare 0.1M solutions of sodium carbonate ( $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ ) (28.62g/l) and sodium hydrogen carbonate ( $\text{NaHCO}_3$ ) (8.4g/l)

Mix these in the volumes shown in the table.

Or dissolve the masses shown and make up to  $100\text{cm}^3$  with water

| pH                    |                       | $\text{Na}_2\text{CO}_3$                  |                              | $\text{NaHCO}_3$                          |                              |
|-----------------------|-----------------------|---|------------------------------|---|------------------------------|
| at $20^\circ\text{C}$ | at $37^\circ\text{C}$ | Volume of 0.1M solution ( $\text{cm}^3$ ) | Mass in $100\text{cm}^3$ (g) | Volume of 0.2M solution ( $\text{cm}^3$ ) | Mass in $100\text{cm}^3$ (g) |
| 9.2                   | 8.8                   | 10  | 0.29                         | 90  | 0.76                         |
| 9.4                   | 9.1                   | 20  | 0.57                         | 80  | 0.67                         |
| 9.5                   | 9.4                   | 30  | 0.86                         | 70  | 0.59                         |
| 9.8                   | 9.5                   | 40  | 1.14                         | 60  | 0.50                         |
| 9.9                   | 9.7                   | 50  | 1.43                         | 50  | 0.42                         |
| 10.1                  | 9.9                   | 60  | 1.72                         | 40  | 0.34                         |
| 10.3                  | 10.1                  | 70  | 2.00                         | 30  | 0.25                         |
| 10.5                  | 10.3                  | 80  | 2.29                         | 20  | 0.17                         |
| 10.8                  | 10.6                  | 90  | 2.58                         | 10  | 0.08                         |

*Delroy & King, Biochem. J. 39, 245 (1945)*