

## hysteresis

**Also contains definition of:** electrode memory

1. Regarding a material quantity or instrument's reading; the dependence of a value on the direction of change from a previous characteristic value. It may be quantified by the difference between the upscale and downscale variation starting from fixed lower and upper measurement points (inversion).

**Source:**

PAC, 1990, 62, 2167 (*Glossary of atmospheric chemistry terms (Recommendations 1990)*) on page 2196

2. (*in solid-state transitions*) The difference in temperature or pressure for the transition of one phase to another in the forward and reverse directions. It also refers to the corresponding difference in magnetic, electric or stress field in reversing the sense of magnetic, electric or strain polarization in ferromagnetic, ferroelectric or ferroelastic materials.

**Source:**

PAC, 1994, 66, 577 (*Definitions of terms relating to phase transitions of the solid state (IUPAC Recommendations 1994)*) on page 583

3. (*in electroanalytical chemistry*) Hysteresis (electrode memory) occurs when there is a difference between the emf first observed in a solution containing a concentration of A and a second observation of the emf in the same solution after exposing the electrode to a different concentration of A. The systematic error is generally in the direction of the concentration of the solution in which the electrode was previously immersed. Hysteresis is thought to be a kinetic process. Normal, reversible responses are expected when sufficient time is allowed for the system to return to its initial condition.

**See also:** electrode memory

**Source:**

PAC, 1994, 66, 2527 (*Recommendations for nomenclature of ionselective electrodes (IUPAC Recommendations 1994)*) on page 2530