dissociative adsorption (dissociative chemisorption)

Also contains definition of: associative desorption

Adsorption with dissociation into two or more fragments, both or all of which are bound to the surface of the adsorbent The process may be homolytic, as in the chemisorption of hydrogen:

$$H_2 + 2 * \rightarrow 2H^*$$

where * represents a surface site, or heterolytic, as in:

$$H_2 + M^{n+} + O^{2-} \rightarrow H^- M^{n+} + HO^-$$

where M^{n+} and O^{2-} are surface sites in which the ions are of lower coordination than the ions in the bulk phase. Associative desorption is the reverse of dissociative adsorption.

Source:

PAC, 1976, 46, 71 (Manual of Symbols and Terminology for Physicochemical Quantities and Units - Appendix II. Definitions, Terminology and Symbols in Colloid and Surface Chemistry. Part II: Heterogeneous Catalysis) on page 76 PAC, 1976, 46, 71 (Manual of Symbols and Terminology for Physicochemical Quantities and Units - Appendix II. Definitions, Terminology and Symbols in Colloid and Surface Chemistry. Part II: Heterogeneous Catalysis) on page 84