

fractal dimension, d

Also contains definitions of: Hausdorff dimension, mass fractal dimension

Also contains definition of: surface fractal dimension

Parameter that provides a mathematical description of the fractal structure of a polymer network, an aggregated particulate sol, or of the particles that comprise them.

Notes:

1. $m \propto r^d$ in which m is the mass contained within a radius, r , measured from any site or bond within a fractal structure.
2. For a Euclidean object of constant density, $d = 3$, but for a fractal object, $d < 3$, such that its density decreases as the object gets larger.
3. For the surface area of a fractal object, $s \propto r^{d'}$ in which s is the surface area contained within a radius, r , measured from any site or bond and d' is termed the surface fractal dimension.

Source:

PAC, 2007, 79, 1801 (*Definitions of terms relating to the structure and processing of sols, gels, networks, and inorganic-organic hybrid materials (IUPAC Recommendations 2007)*) on page 1811