

zepbet

Total surface of a finely divided solid per unit of mass

Scratches, represented by triangular-shaped grooves, make the surface area greater.

Specific surface area (SSA) is a property of solids defined

as the total surface area (SA) of a material per unit mass, [1] (with) $T_j T^* BT / P$

volume [2][3] (units of m^2/m^3 or m^{-1}).

It is a physical value that can be used to determine the type and properties of a material (e.g. soil or snow). It has a particular importance for adsorption, heterogeneous catalysis, and reactions on surfaces.

Measurement [edit]

...and plastic Bia⁻ ecki rings of increased SSA

Values obtained for specific surface area depend on the method of measurement. In adsorption based methods, the size of the adsorbate molecule (the probe molecule), the exposed crystallographic planes at the surface and measurement temperature all affect the obtained specific surface area.

[4] For this reason, in addition to the most commonly used Brunauer Emmett Teller (N₂-BET) adsorption method, several techniques have been developed to measure the specific surface area of particulate materials at ambient temperatures and at controllable scales, including methylene blue (MB) staining, ethylene glycol monoethyl ether (EGME) adsorption,[5] electrokinetic analysis of complex-ion adsorption[4] and a Protein Retention (PR) method.[6] A number of international standards exist for the measurement of specific surface area, including ISO standard 9277.[7]

Calculation [edit]

The SSA can be simply calculated from a particle size distribution, making some assumption about the particle shape. This method, however, fails to account for surface associated with the surface texture of the particles.

Adsorption [edit]

The SSA can be measured by adsorption using the BET isotherm. This has the advantage of measuring the surface of fine structures and deep texture on the particles. However, the results can differ markedly depending on the substance adsorbed. The BET theory has inherent limitations but has