

tracer

A foreign substance mixed with or attached to a given substance to enable the distribution or location of the latter to be determined subsequently. There are several types of tracers which are used: (i) A physical tracer is one that is attached by physical means to the object being traced; (ii) A chemical tracer is a chemical with properties similar to those of the substance being traced with which it is mixed homogeneously; (iii) An isotopic tracer is a unique isotope, either radioactive or an enriched, uncommon stable isotope, of the element to be traced; (iv) A radioactive tracer is a physical or chemical tracer having radioactivity as its distinctive property which allows detection at small concentrations and hence after large transport distances. The composition of aerosols in the troposphere has been used as a qualitative tracer of air masses. The elemental analyses (determined by neutron activation, X-ray fluorescence, etc.) of the aerosols transported from various sources or source regions sometimes have characteristic patterns which are used to define qualitatively the origin of tropospheric aerosols collected in other geographical regions.

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