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1.A radioactive tracer is a chemical compound in which one or more atom have been replaced by a radionuclide so by virtue of its radioactive decay . It can be used to explore the mechanism of chemical reaction by tracing the path that the radioisotope follows from reactant to products.

It can be used to determine the location of fracture created by hydraulic fracturing in gas production. It can also be used as basic of a variety of imaging system , such as pet scan spect scan .

It is also the spontaneous degradation of nuclear and transmission of one element to another with consequent emission of ray or particles.

General guideline procedure for Radioactive

- a. Designated and label areas working with radioactive materials
- b.label all containers with a radioactive material label and specify the isotope
- c. Do not eat,drink or smoke in the laboratory
- d. Do not use mouth to pipette any radioactive material.

2.In medicine , tracer are applied in a number of test such as ^{99m}Tc auto radiography and nuclear medicine, including single photon emission computed tomography (spect) , positron emission tomography (pet) and scintigraphy .

Nuclear medicine is a medical specialty that use radioactive tracer (radio pharmaceutical) to assess bodily function and to diagnose and treat disease such as technetium ^{99m}Tc take orally or is injected or inhale in the body the therapeutic application of radioisotope typically are intended to destroy the target cell.

In hydraulic fracturing radioactive tracer isotopes are injected with hydraulic fracturing fluid to determine the injection profile and location of created fracture.