

- Briefly explain why a radionuclide used in diagnostic work should have a short half-life.

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The half life should be short enough to rid the body of radioactivity before damage occurs. (It must also be long enough to allow the compound containing the radionuclide to be made and administered).

- Briefly explain why alpha emitters are not used in diagnostic work.

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Because of their high mass and charge, alpha particles interact strongly with tissue and cause potentially damaging ionization if inside the body.