

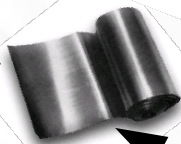
Uranium Dinnerware (Well, it is pretty...)

Early uses of uranium...

- The beautiful orange glaze of Fiestaware was achieved using uranium oxide.
- The invention of the atom bomb stopped Fiestaware production (they needed the uranium for bombs).
- Later, they used depleted uranium to make the orange Fiestaware (until 1973).

An alpha particle is a bound state of two protons and two neutrons. Alpha particles show up in the ATLAS experiment in the “jets” created by very high energy quarks.

lead shielding like at the dentist's office



Are you sure it's an alpha particle? An alpha particle doesn't need lead to be stopped. It should interact with most materials, even a sheet of paper. So are you exposed to alpha particles at the dentist's office?



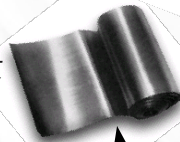
Uranium Dinnerware (Not so safe...)

If it were just alpha radiation...

- Alpha particles are stopped by a sheet of paper or a few centimeters of air.
- 0.2 MeV high energy electrons (“beta radiation”) require more shielding for protection.
- In our studies, we analyze high energy electrons with an average energy of 200,000 MeV (much more energetic than wimpy uranium electrons)

Thorium-234 from the decay of uranium-238 will (rapidly) undergo two nuclear transitions to become uranium-234 (this is where U234 comes from)..

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