

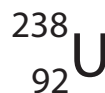
- 7 The photograph shows a glass plate made from uranium glass.



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Uranium oxide is used to give the glass a green colour.

- (a) Uranium-238 is the most common isotope of uranium and can be represented using this symbol.



- (i) State what information the numbers 92 and 238 give about the nucleus of this isotope of uranium.

(2)

92.....

238.....

- (ii) Uranium-238 decays by alpha emission.

Describe how the nucleus of a uranium-238 atom changes as a result of alpha emission.

(2)

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DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



(b) The table gives some information about the uranium glass plate.

mass of plate	1.1 kg
percentage (%) of plate made of uranium-238 (by mass)	4.5%
mass of uranium-238 atom	4.0×10^{-27} kg

(i) Calculate the number of uranium-238 atoms in the plate.

(2)

number of atoms =

(ii) Uranium-238 is an alpha emitter and has a half-life of 4.5 billion years.

Explain why it is safe to eat food from the uranium glass plate.

(3)

(Total for Question 7 = 9 marks)

