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HASSIUM

Element Symbol: **Hs**

Atomic Number: **108**

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Hassium, atomic number 108 and symbol Hs, is the heaviest Group VIII element. The element does not occur in nature and has no commercial value. It was first created as the isotope Hs-265 with a half life of about 2 milliseconds. The creators were based at a linear accelerator in Darmstadt, Germany, in the state of Hessen (Hasse in Latin, hence the name) by colliding ions of lead (Pb-208) with those of iron (Fe-58). This experiment is somewhat analogous to driving a semitrailer into a B-double at high speed and emerging with a fully formed road train – but one that falls apart in the blink of an eye! Subsequent experiments produced other isotopes, the most stable being Hs-277 with a half life greater than 15 minutes. It is not clear if a road train formed in this manner will last as long.

In the first experiment the researchers made about 4 atoms and that did not give them sufficient product nor sufficient time to do any chemistry. However, in later experiments as many as 100 atoms have been made of a more stable isotope, Hs-269, which has a half life of around 10 seconds. Working very rapidly, the researchers managed to react the Hs with oxygen, to make the oxide and even go on to react this with NaOH! The products confirmed that Hs sits in Group VIII under osmium.

There seems to be no Australian contribution to the study of Hassium, but there are linear accelerators that might do the job at the Australian National University and at ANSTO. Talking the operators into allowing you to use one for this purpose is likely to be more trouble than it is worth.

Hassium is one of more than a dozen trans-uranic elements, all man-made, many of which – including Hs – are of no value apart from satisfying intellectual curiosity. The nuclear chemist's answer to climbing Mount Everest!

Provided by the element sponsor Bob Watts

ARTISTS DESCRIPTION

The red map in my image is the state of Hessen in Germany. This was where Hassium was first created in a linear accelerator. As this initial experiment had a half life of about 2 milliseconds my abstract collograph image is intended to give the impression of an explosion and instant disintegration.

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