Hassium Hs

General Information

Discovery

Hassium was first made in 1984 by Peter Armbruster, Gottfried Munzenberg and co-workers at the GSI in Darmstadt, Germany.

Appearance

Unknown, but probably metallic grey in appearance.

Source

A transuranium element, only a few atoms of hassium have ever been made, and it will probably never be isolated in observable quantities. Created by a so-called “cold fusion” method, in which a target of lead is bombarded with atoms of iron.

Uses

Unknown

Biological Role

None

General Information

A synthetic element created via nuclear bombardment, few atoms have ever been made and the properties of hassium are very poorly understood. It is a radioactive metal which does not occur naturally and is of research interest only. The first atoms were made via a nuclear reaction, the cold fusion method:

$^{208}Pb + {}^{58}Fe \rightarrow {}^{265}Hs + n$

Physical Information

Atomic Number	108
Relative Atomic Mass (^{12}C=12.000)	265
Melting Point/K	Not available
Boiling Point/K	Not available
Density/kg m^{-3}	41,000 (estimated)
Ground State Electron Configuration	$[Rn]5f^{14}6d^{6}7s^{2}$
Electron Affinity (M-M^{-})/kJ mol^{-1}	Not available

Key Isotopes

Nuclide	^{264}Hs	^{265}Hs
Atomic mass	264.13	264.13
Natural abundance	0%	0%
Half-life	approx $8x10^{-5}$secs	approx $2x10^{-3}$secs

Ionisation Energies/kJ mol^{-1}

M	- M^{+}	750 (est)
M^{+}	- M^{2+}	
M^{2+}	- M^{3+}	
M^{3+}	- M^{4+}	
M^{4+}	- M^{5+}	
M^{5+}	- M^{6+}	
M^{6+}	- M^{7+}	
M^{7+}	- M^{8+}	
M^{8+}	- M^{9+}	
M^{9+}	- M^{10+}	

Other Information

Enthalpy of Fusion/kJ mol^{-1}	Not available
Enthalpy of Vaporisation/kJ mol^{-1}	Not available

Oxidation States

Many oxidation states predicted, but Hs^{III} has been predicted as probably the most stable state.

Covalent Bonds/kJ mol^{-1}

Not available