

Dubnium

Db

General Information

Discovery

Dubnium was discovered in 1970 by various parties at both Berkeley, California and Dubna, Moscow.

Appearance

Unknown, but probably metallic grey in appearance.

Source

A transuranium element created by bombarding ^{249}Cf with ^{15}N nuclei.

Uses

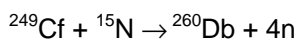
Unknown.

Biological Role

None.

General Information

Two separate groups have claimed to be the discoverers of the element, due to two differing isotopes. Credit has been shared between both. A synthetic element created via nuclear bombardment, few atoms have ever been made and the properties of dubnium are very poorly understood. It is a radioactive metal and is of research interest only. Interestingly, it is unlikely that any of the transuranium elements would ever be synthesised in large quantities due to the danger from their high radioactivity.



Physical Information

Atomic Number	105
Relative Atomic Mass ($^{12}\text{C}=12.000$)	262.11
Melting Point/K	Not available
Boiling Point/K	Not available
Density/kg m ⁻³	29,000
Ground State Electron Configuration	[Rn]5f ¹⁴ 6d ³ 7s ²
Electron Affinity (M-M ⁻)/kJ mol ⁻¹	Not available

Key Isotopes

Nuclide	²⁵⁵ Db	²⁵⁷ Db	²⁵⁸ Db	²⁵⁹ Db	²⁶⁰ Db	²⁶¹ Db
Atomic mass		257.11	258.11	259.11	260.11	261.11
Natural abundance	0%	0%	0%	0%	0%	0%
Half-life	approx 1.5 secs	1.3 secs	4.4 secs	approx 1.2 secs	1.5 secs	1.8 secs
Nuclide	²⁶² Db	²⁶³ Db				
Atomic mass	262.11					
Natural abundance	0%	0%				
Half-life	34 secs	27 secs				

Ionisation Energies/kJ mol⁻¹

M - M ⁺	640 (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

Db^V suggested as most stable.

Covalent Bonds/kJ mol⁻¹

Not available