

## ***General Information***

### **Discovery**

Neon was discovered by Sir William Ramsay and M.W. Travers in London in 1898.

### **Appearance**

Neon is a colourless, odourless gas.

### **Source**

Neon is a rare gas present in the atmosphere to the extent of 1 part in 65,000 of air. It is obtained by liquefaction of air and separation from other elements by fractional distillation.

### **Uses**

In a vacuum discharge tube neon glows a reddish orange colour, and is therefore used in making the ubiquitous neon advertising signs, which accounts for its largest use. It is also used to make high-voltage indicators, lightning arrestors, wave meter tubes and television tubes. Liquid neon is now commercially available and is finding important application as an economic cryogenic refrigerant, as it has over 40 times more refrigerating capacity per unit volume than liquid helium and more than 3 times that of liquid hydrogen.

### **Biological Role**

Neon has no known biological role. It is non-toxic.

### **General Information**

Natural neon is a mixture of three isotopes, but five other unstable isotopes are known. It is a very inert element. Neon is said to form a compound with fluorine but it is still questionable whether such a compound truly exists.

# Physical Information

Atomic Number	10
Relative Atomic Mass ( <sup>12</sup> C=12.000)	20.180
Melting Point/K	24.48
Boiling Point/K	27.10
Density/kg m <sup>-3</sup>	0.900 (gas, 273K)
Ground State Electron Configuration	[He]2s <sup>2</sup> 2p <sup>6</sup>
Electron Affinity (M-M <sup>-</sup> )/kJ mol <sup>-1</sup>	-99

# Key Isotopes

Nuclide	<sup>20</sup> Ne	<sup>21</sup> Ne	<sup>22</sup> Ne
Atomic mass	19.992	20.993	21.991
Natural abundance	90.51%	0.27%	9.22%
Half-life	stable	stable	stable

# Ionisation Energies/kJ mol<sup>-1</sup>

M - M <sup>+</sup>	2080.6
M <sup>+</sup> - M <sup>2+</sup>	3952.2
M <sup>2+</sup> - M <sup>3+</sup>	6122
M <sup>3+</sup> - M <sup>4+</sup>	9370
M <sup>4+</sup> - M <sup>5+</sup>	12177
M <sup>5+</sup> - M <sup>6+</sup>	15238
M <sup>6+</sup> - M <sup>7+</sup>	19998
M <sup>7+</sup> - M <sup>8+</sup>	23069
M <sup>8+</sup> - M <sup>9+</sup>	115377
M <sup>9+</sup> - M <sup>10+</sup>	131429

# Other Information

Enthalpy of Fusion/kJ mol <sup>-1</sup>	0.324
Enthalpy of Vaporisation/kJ mol <sup>-1</sup>	1.736

# Oxidation States

Not applicable

# Covalent Bonds/kJ mol<sup>-1</sup>

Not applicable