

Group 0 contains the **unreactive** (inert) gases helium, neon, argon and krypton.

The Noble gases were first discovered in the 1890s and named after another unreactive element, gold (the metal of **noble** kings).

As you go down group 0, the gases get heavier. All group 0 elements have very low boiling points, so are **gases** at room temperature.

All Noble gases exist as single atoms, they are **monoatomic**:

He Ne Ar

These gases are unlike other elements, which exist as pairs of atoms bonded together (diatomic):

hydrogen H₂, oxygen O₂, nitrogen N₂, chlorine Cl₂



Noble Gas	Uses	Reasons
Helium		
Neon		
Argon		

- Predict the properties of krypton:
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- Why did the noble gases remain undiscovered for so long?
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- Why are party balloons filled with helium rather than cheaper hydrogen?
.....
- Suggest why the gases are unreactive. Hint - look at their atomic diagrams.
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Suggested answers

Noble Gas	Uses	Reasons
Helium	Cooling medium in Large Hadron Collider, satellite instruments and Apollo space vehicles Fill birthday balloons and airships	As it is completely unreactive Low density
Neon	Neon advertising signs	Neon gives a reddish colour and is inert
Argon	Used to give an inert atmosphere e.g. welding and production of reactive elements	Totally inert

1. Colourless, odourless and unreactive gas
2. They were unreactive, colourless and odourless
3. Hydrogen was very reactive
4. They all have a full outer shell

Useful links

www.rsc.org/periodic-table