Sodium (Na)

Element 11 — Complete Summary

theperiodictable.in

11
Na
Sodium
22.99

Key Properties

Atomic Mass	22.99
Category	Alkali Metals
State at 20°C	solid
Melting Point	97.794°C
Boiling Point	882.940°C
Density	0.971
Electron Config	[Ne] 3s1
Electronegativity	0.93
Year Discovered	1807
Discovered By	Humphry Davy

✨ Did You Know?

1. It is so soft it can be easily cut with a butter knife at room temperature.
2. Sodium reacts explosively with water, producing hydrogen gas and so much heat that the hydrogen often ignites and burns.
3. Its chemical symbol 'Na' comes from its Latin name, 'natrium'.
4. The distinct yellow-orange glow of many streetlights comes from sodium vapor lamps.
5. Sodium is essential for life in animals, playing a critical role in nerve function and maintaining the body's fluid balance.

APPEARANCE
A soft, silvery-white, highly reactive metal.

SUPERHERO PERSONA
"The Salt Shaker, a hero with an explosive personality when mixed with water, but a partner in the most essential compound on Earth."

EVERYDAY CONNECTION
The table salt used to season food.

POP CULTURE
A key element in the sci-fi concept of salt-based life forms.

Sodium: The Essential, Reactive Metal

Sodium is a soft, silvery metal that reacts so quickly it can’t exist freely in nature. Exposed to air, it tarnishes within seconds, and when dropped into water, it fizzes and explodes vigorously. Even though pure sodium is dangerous, its compounds—like ordinary table salt—are absolutely essential for life.

Why Is Sodium Useful?

While metallic sodium has a few specialized uses, most of its value comes from its compounds.

Table Salt (NaCl): The most familiar sodium compound is sodium chloride, better known as common salt. It’s used to flavor and preserve food, melt ice on roads, and as a key raw material in the chemical industry.

Washing Soda (Na_2CO_3): Sodium carbonate is used in laundry detergents and as a water softener.

Other Compounds: Many other sodium compounds are important in making glass, paper, and soaps.

Sodium in Living Things

Sodium is essential for all animals, including humans. Our bodies contain around 100 grams of sodium, mostly in our blood and tissues. It plays a crucial role in:

Sending nerve signals

Regulating water balance

Controlling blood pressure

We get sodium mainly from food. Although the average person eats about 10 grams of salt per day, we only need around 3 grams—too much sodium can lead to health problems like high blood pressure.

Natural Abundance & History

Sodium is the sixth most common element on Earth, making up about 2.6% of the crust. It’s never found as pure metal, but its compounds are everywhere—especially sodium chloride in seawater and in giant underground deposits formed by ancient evaporated seas.

Discovery (1807): English chemist Sir Humphry Davy first isolated pure sodium metal using electrolysis on molten sodium hydroxide.

Modern Production: Today, sodium is still obtained by electrolysis, but of molten sodium chloride instead.