

THE METAL REACTIVITY SERIES

Metals can be ordered according to their reactivities; the table below shows a selection of common metals and their reactivities with water, air, and dilute acids. A more reactive metal will displace a less reactive metal from a compound.

METAL NAME & SYMBOL	REACTION WITH COLD WATER	REACTION WITH STEAM	REACTION WITH AIR/OXYGEN	REACTION WITH DILUTE ACIDS	EXTRACTION METHOD
 POTASSIUM (K)	<i>Produces metal hydroxide & hydrogen</i> ✓ VIOLENT REACTION	<i>Produces metal oxide & hydrogen</i> ✓ VIOLENT REACTION	<i>Produces metal oxide</i> ✓ REACTS READILY	<i>Produces metal salt & hydrogen</i> ✓ VIOLENT REACTION	⚡ ELECTROLYSIS OF MOLTEN METAL ORE
 SODIUM (Na)	✓ STRONG REACTION	✓ VIOLENT REACTION	✓ REACTS READILY	✓ VIOLENT REACTION	⚡ ELECTROLYSIS OF MOLTEN METAL ORE
 CALCIUM (Ca)	✓ MODERATE REACTION	✓ VIOLENT REACTION	✓ REACTS READILY	✓ VIOLENT REACTION	⚡ ELECTROLYSIS OF MOLTEN METAL ORE
 LITHIUM (Li)	✓ MODERATE REACTION	✓ STRONG REACTION	✓ REACTS READILY	✓ VIGOROUS REACTION	⚡ ELECTROLYSIS OF MOLTEN METAL ORE
 MAGNESIUM (Mg)	✓ VERY SLOW REACTION	✓ STRONG REACTION	✓ SLOW REACTION	✓ VIGOROUS REACTION	⚡ ELECTROLYSIS OF MOLTEN METAL ORE
 ALUMINIUM (Al)	✗ NO REACTION	✓ MODERATE REACTION	✓ SLOW REACTION	✓ MODERATE REACTION	⚡ ELECTROLYSIS OF MOLTEN METAL ORE
<i>(Carbon)</i>  ZINC (Zn)	✗ NO REACTION	✓ MODERATE REACTION	✓ REACTS WHEN HEATED	✓ MODERATE REACTION	Ⓒ METAL ORE SMELTED WITH CARBON
 IRON (Fe)	✗ NO REACTION	✓ REVERSIBLE REACTION	✓ REACTS WHEN HEATED	✓ MODERATE REACTION	Ⓒ METAL ORE SMELTED WITH CARBON
 NICKEL (Ni)	✗ NO REACTION	✓ SLOW REACTION	✓ REACTS WHEN HEATED	✓ SLOW REACTION	Ⓒ METAL ORE SMELTED WITH CARBON
 TIN (Sn)	✗ NO REACTION	✗ NO REACTION	✓ REACTS WHEN HEATED	✓ SLOW REACTION	Ⓒ METAL ORE SMELTED WITH CARBON
 LEAD (Pb)	✗ NO REACTION	✗ NO REACTION	✓ REACTS WHEN HEATED	✓ SLOW REACTION	Ⓒ METAL ORE SMELTED WITH CARBON
<i>(Hydrogen)</i>  COPPER (Cu)	✗ NO REACTION	✗ NO REACTION	✓ REACTS WHEN HEATED	✗ NO REACTION	🔥 HEAT OR PHYSICAL EXTRACTION
 MERCURY (Hg)	✗ NO REACTION	✗ NO REACTION	✓ REVERSIBLE REACTION	✗ NO REACTION	🔥 HEAT OR PHYSICAL EXTRACTION
 SILVER (Ag)	✗ NO REACTION	✗ NO REACTION	✗ NO REACTION	✗ NO REACTION	🔥 HEAT OR PHYSICAL EXTRACTION
 GOLD (Au)	✗ NO REACTION	✗ NO REACTION	✗ NO REACTION	✗ NO REACTION	🔥 HEAT OR PHYSICAL EXTRACTION
 PLATINUM (Pt)	✗ NO REACTION	✗ NO REACTION	✗ NO REACTION	✗ NO REACTION	🔥 HEAT OR PHYSICAL EXTRACTION

