

6. Electrochemistry

Starter Quiz · 课前小测

A-Level Chemistry

Name: _____ Score: _____

- The oxidation number of an uncombined element (like O_2 or Fe) is:
☐ 0
☐ +1
☐ -2
☐ equal to its group
- When balancing a redox equation using oxidation numbers:
☐ the total rise in oxidation number must equal the total fall
☐ the rise is always bigger than the fall
☐ oxidation numbers are ignored
☐ only the masses matter
- The usual oxidation number of oxygen in a compound is:
☐ -2 (but -1 in peroxides)
☐ +2
☐ 0
☐ +6
- Disproportionation is a reaction in which:
☐ the same element is both oxidised and reduced
☐ two different elements are oxidised
☐ no electrons move
☐ only reduction happens
- In KMnO_4 , K is +1 and each O is -2. What is the oxidation number of Mn? (give the number, e.g. 7)

- An oxidising agent:
☐ takes electrons from another species and is itself reduced
☐ gives electrons away and is itself oxidised
☐ does not take part in redox
☐ always contains oxygen

- A substance that loses electrons in a reaction is being _____.

- An oxidising agent is itself reduced during a reaction.

☐ True ☐ False

- Using OIL RIG, oxidation is:

- ☐ loss of electrons (oxidation number goes up)
☐ gain of electrons
☐ gain of protons
☐ loss of neutrons

- A reducing agent:

- ☐ gives electrons to another species and is itself oxidised
☐ takes electrons and is itself reduced
☐ cannot change oxidation number
☐ always contains hydrogen

1. **0**

A free, uncombined element always has an oxidation number of 0.

2. **the total rise in oxidation number must equal the total fall**

Every electron lost is gained, so the total increase in oxidation number equals the total decrease.

3. **−2 (but −1 in peroxides)**

Oxygen is normally −2, except −1 in peroxides.

4. **the same element is both oxidised and reduced**

In disproportionation one element goes both up and down in oxidation number (e.g. $\text{Cl}_2 \rightarrow \text{Cl}^-$ and ClO^-).

5. **7**

$+1 (\text{K}) + \text{Mn} + 4 \times (-2) = 0$, so $\text{Mn} = +7$.

6. **takes electrons from another species and is itself reduced**

An oxidising agent removes electrons from another species, so it gains electrons and is reduced itself.

7. **oxidised**

OIL: Oxidation Is Loss of electrons.

8. **True**

It gains the electrons lost by the other species.

9. **loss of electrons (oxidation number goes up)**

Oxidation Is Loss of electrons; the oxidation number rises. Reduction Is Gain (number falls).

10. **gives electrons to another species and is itself oxidised**

A reducing agent donates electrons, causing reduction of the other species while being oxidised itself.