

IRREGULARITIES IN TRENDS..

1A vs. 1B

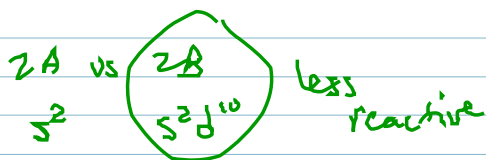
1A very reactive

s¹ s²d¹⁰

1B) UNREACTIVE

d e-'s shield poorly

s' feels" more (+) nuclear charge



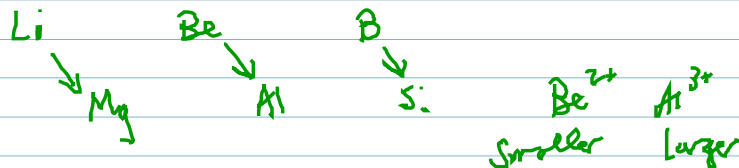
DIAGONAL RELATIONSHIP → SIMILAR CHEMICAL PROPERTIES

SECOND PERIOD

→ tend to react differently than the rest of their family

→ relates to "charge density"

$\frac{\text{charge of ion}}{\text{volume of ion}}$

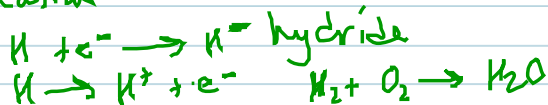


CHARACTERISTIC REACTIONS

1A, 2A, 7A, 8A similar reactivity top to bottom

H, He no good table location

○ He → NR



IRREGULARITIES IN TRENDS...

1A vs. 1B

s^1 $s^1 d^{10}$

1A very reactive

1B) UNREACTIVE

d e⁻'s shield poorly

s^1 "feels" worse (+) nuclear charge

2A vs. 2B
 s^2 $s^2 d^{10}$ less reactive

DIAGONAL RELATIONSHIP → SIMILAR CHEMICAL PROPERTIES

SECOND PERIOD

→ tend to react differently than the rest of their family

→ related to "charge density"

$\frac{\text{Charge of ion}}{\text{Volume of ion}}$

Li
↓
Mg

Be
↓
Al

B
↓
Si

Be²⁺ Al³⁺
Smaller Larger

CHARACTERISTIC REACTIONS

1A, 2A, 7A, 8A similar reactivity top to bottom

H, He no good table location

He → NR

$H + e^- \rightarrow H^-$ hydride

$H \rightarrow H^+ + e^-$ $H_2 + O_2 \rightarrow H_2O$