

## Question #81274

Decide which element probably forms a compound with oxygen that has a chemical formula most and least similar to the chemical formula formed by oxygen and potassium

Answer:

The most similar chemical formula is obtained with all alkaline metals, but if I have to choose one, it will be a sodium oxide. Why? As sodium and potassium have very similar standard electrochemical potentials [1] and be the closest neighbors (alkaline metals) in the periodic table [2], so they have the most similar chemical properties.

The least similar chemical formula is obtained with fluorine. It is oxygen fluoride. This compound is the least similar because of this that the oxidation state of oxygen here is +2. This phenomenon is observed because of the fact that fluorine is more electronegative than oxygen [3].

References:

- [1] <https://d2gne97vdumgn3.cloudfront.net/api/file/jhhpRmC7Qp29EBuActGX>
- [2] <https://www.relypsa.com/file.cfm/130/docs/periodic-table-of-elements2.jpg>
- [3] [https://en.wikipedia.org/wiki/Oxygen\\_fluoride](https://en.wikipedia.org/wiki/Oxygen_fluoride)

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