

# Salt formation

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**FeBr<sub>3</sub>**      **Iron (III) bromide**



## Some acids

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Formula

HF

HCl

HBr

HI

HNO<sub>3</sub>

HNO<sub>2</sub>

H<sub>2</sub>SO<sub>4</sub>

H<sub>2</sub>SO<sub>3</sub>

Name

hydrofluoric acid

hydrochloric acid

hydrobromic acid

hydroiodic acid

nitric acid

nitrous acid

sulfuric acid

Sulfurous acid

## Some acids and their anions

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<u>Acid</u>	<u>Anion</u>	<u>Name</u>
HF	F <sup>-</sup>	fluoride anion
HCl	Cl <sup>-</sup>	chloride anion
HBr	Br <sup>-</sup>	bromide anion
HI	I <sup>-</sup>	iodide anion
HNO <sub>3</sub>	NO <sub>3</sub> <sup>-</sup>	nit <u>rate</u> anion
HNO <sub>2</sub>	NO <sub>2</sub> <sup>-</sup>	nit <u>rite</u> anion
H <sub>2</sub> SO <sub>4</sub>	SO <sub>4</sub> <sup>2-</sup>	sulf <u>ate</u> anion
H <sub>2</sub> SO <sub>3</sub>	SO <sub>3</sub> <sup>2-</sup>	Sulf <u>ite</u> anion

# Naming salts of acids

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- Higher oxidation state is named **(stem)ic** acid.
- Lower oxidation state is named **(stem)ous** acid
- Salts are named based on the acids.
  - Anions of **-ic** acids make “**ate**” salts.
  - Anions of **-ous** acids make “**ite**” salts.

acid	salt
<b>ic</b>	<b>ate</b>
<b>ous</b>	<b>ite</b>

## Some acids

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Formula

Name

HCN

hydrocyanic acid

H<sub>3</sub>PO<sub>4</sub>

phosphoric acid

H<sub>2</sub>CO<sub>3</sub>

carbonic acid

CH<sub>3</sub>COOH

acetic acid

## Some acids and their anions

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<u>Acid</u>	<u>Anion</u>	<u>Name</u>
HCN	CN <sup>-</sup>	cyanide anion
H <sub>3</sub> PO <sub>4</sub>	PO <sub>4</sub> <sup>3-</sup>	phosphate anion
H <sub>2</sub> CO <sub>3</sub>	CO <sub>3</sub> <sup>2-</sup>	carbonate anion
CH <sub>3</sub> COOH	CH <sub>3</sub> COO <sup>-</sup>	acetate anion

## Common bases

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### Formula

### Name

LiOH

lithium hydroxide

NaOH

sodium hydroxide

KOH

potassium hydroxide

RbOH

rubidium hydroxide

CsOH

cesium hydroxide

Ca(OH)<sub>2</sub>

calcium hydroxide

Sr(OH)<sub>2</sub>

strontium hydroxide

Ba(OH)<sub>2</sub>  
hydroxide

barium

## More bases

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<u>Formula</u>	<u>Name</u>
$\text{Cu}(\text{OH})_2$	copper (II) hydroxide
$\text{Fe}(\text{OH})_2$	iron (II) hydroxide
$\text{Fe}(\text{OH})_3$	iron (III) hydroxide
$\text{Zn}(\text{OH})_2$	zinc (II) hydroxide
$\text{Mg}(\text{OH})_2$	magnesium (II) hydroxide



## Naming some oxides

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### Formula

- CO
- CO<sub>2</sub>
- SO<sub>3</sub>

### Name

carbon monoxide  
carbon dioxide  
sulfur trioxide

## Naming some inorganic compounds

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**Cation** named first  
**Anion** named second

- $\text{LiBr}$  lithium bromide
- $\text{MgCl}_2$  magnesium (II) chloride
- $\text{Li}_2\text{S}$  lithium sulfide
- $\text{Al}_2\text{O}_3$  Aluminum (III) oxide

## Naming some inorganic compounds

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- KOH                      potassium hydroxide
- Ba(OH)<sub>2</sub>                barium (II) hydroxide
- Al(OH)<sub>3</sub>                aluminum (III) hydroxide
- Fe(OH)<sub>2</sub>                iron (II) hydroxide
- Fe(OH)<sub>3</sub>                iron (III) hydroxide
- Ba(CN)<sub>2</sub>                barium (II) cyanide
- (NH<sub>4</sub>)<sub>2</sub>S                ammonium sulfide
- NH<sub>4</sub>CN                ammonium cyanide

## Naming some salts

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### Acid

- $\text{HNO}_2$   
nitrous acid
- $\text{HNO}_3$   
nitric acid
- $\text{H}_2\text{SO}_3$   
sulfurous acid

### Salt

- $\text{NaNO}_2$   
sodium nitrite
- $\text{NaNO}_3$   
sodium nitrate
- $\text{Na}_2\text{SO}_3$   
sodium sulfite

## Classify each of the following ions as a monoatomic or a polyatomic

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- $\text{Mg}^{2+}$       monatomic cation
- $\text{SO}_3^{2-}$       polyatomic anion
- $\text{Cu}^+$       monatomic cation
- $\text{NH}_4^+$       polyatomic cation
- $\text{Br}^-$       monatomic anion

*I will do it!*

## Name the following compounds

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- $\text{CuCO}_3$
- $(\text{NH}_4)_2\text{CO}_3$
- $\text{ZnO}$
- $\text{Fe}(\text{CH}_3\text{COO})_3$
- $\text{Al}_2(\text{CO}_3)_3$
- $\text{MgCl}_2$
- $\text{Zn}(\text{OH})_2$
- $(\text{NH}_4)_2\text{S}$

*You do it!*

Write the correct formula for the following compounds

*You do it!*

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- |                            |                                   |
|----------------------------|-----------------------------------|
| ● Potassium iodide         | PI                                |
| ● Copper(II) nitrate       | CuNO <sub>3</sub>                 |
| ● Silver(I) sulfite        | AgSO <sub>4</sub>                 |
| ● Magnesium (II) carbonate | Mg <sub>3</sub> CO <sub>3</sub>   |
| ● Zinc (II) carbonate      | Zn(CO <sub>3</sub> ) <sub>2</sub> |

**Chemistry is fun!**