

Ionic Bonding: Polyatomic Ions

A. Write the formula for each of the following:

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|-----------------------|---------------------------------------|--------------------------|---|
| 1. sodium hydroxide | <u>NaOH</u> | 8. calcium phosphate | <u>Ca₃(PO₄)₂</u> |
| 2. calcium hydroxide | <u>Ca(OH)₂</u> | 9. ammonium chloride | <u>NH₄Cl</u> |
| 3. aluminum hydroxide | <u>Al(OH)₃</u> | 10. ammonium chlorate | <u>NH₄ClO₃</u> |
| 4. iron (II) sulphate | <u>FeSO₄</u> | 11. potassium sulphate | <u>K₂SO₄</u> |
| 5. iron (II) sulphite | <u>FeSO₃</u> | 12. copper (II) sulphate | <u>CuSO₄</u> |
| 6. sodium nitrate | <u>NaNO₃</u> | 13. copper (I) nitrate | <u>CuNO₃</u> |
| 7. aluminum nitrate | <u>Al(NO₃)₃</u> | 14. ammonium nitrate | <u>NH₄NO₃</u> |

B. Write the chemical name for each of the following:

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|--------------------------------------|-----------------------------|--|-----------------------------|
| 1. Ca(NO ₃) ₂ | <u>calcium nitrate</u> | 8. LiNO ₃ | <u>lithium nitrate</u> |
| 2. Fe(NO ₃) ₂ | <u>iron (II) nitrate</u> | 9. Ca ₃ (PO ₄) ₂ | <u>calcium phosphate</u> |
| 3. Fe(NO ₃) ₃ | <u>iron (III) nitrate</u> | 10. FePO ₄ | <u>iron (III) phosphate</u> |
| 4. Al(OH) ₃ | <u>aluminum hydroxide</u> | 11. CaCO ₃ | <u>calcium carbonate</u> |
| 5. CuOH | <u>copper (I) hydroxide</u> | 12. NH ₄ OH | <u>ammonium hydroxide</u> |
| 6. Zn(OH) ₂ | <u>zinc hydroxide</u> | 13. BaSO ₄ | <u>barium sulphate</u> |
| 7. Pb(NO ₃) ₄ | <u>lead (IV) nitrate</u> | 14. CuSO ₄ | <u>copper (II) sulphate</u> |

Non-metals & Radicals		Chloride	Acetate	Nitrate	Hydroxide	Oxide	Sulphate	Sulphide	Carbonate	Phosphate	Hydrogen Carbonate
Symbol		Cl	CH ₃ COO	NO ₃	OH	O	SO ₄	S	CO ₃	PO ₄	HCO ₃
Valence Oxidation State		-1	-1	-1	-1	-2	-2	-2	-2	-3	-1
Metals											
Metals	Symbol	Valence									
Sodium	Na	+1	NaCH ₃ COO	NaNO ₃	NaOH	NO ₂ O	Na ₂ SO ₄	Na ₂ S	Na ₂ CO ₃	Na ₃ PO ₄	NaHCO ₃
Potassium	K	+1	KCH ₃ COO	KNO ₃	KOH	K ₂ O	K ₂ SO ₄	K ₂ S	K ₂ CO ₃	K ₃ PO ₄	KHCO ₃
Silver	Ag	+1	AgCH ₃ COO	AgNO ₃	AgOH	Ag ₂ O	Ag ₂ SO ₄	Ag ₂ S	Ag ₂ CO ₃	Ag ₃ PO ₄	AgHCO ₃
Ammonium	NH ₄	+1	NH ₄ CH ₃ COO	NH ₄ NO ₃	NH ₄ OH	(NH ₄) ₂ O	(NH ₄) ₂ SO ₄	(NH ₄) ₂ S	(NH ₄) ₂ CO ₃	(NH ₄) ₃ PO ₄	NH ₄ HCO ₃
Copper I	Cu	+1	CuCH ₃ COO	CuNO ₃	CuOH	Cu ₂ O	Cu ₂ SO ₄	Cu ₂ S	Cu ₂ CO ₃	Cu ₃ PO ₄	CuHCO ₃
Copper II	Cu	+2	Cu(CH ₃ COO) ₂	Cu(NO ₃) ₂	Cu(OH) ₂	CuO	CuSO ₄	CuS	CuCO ₃	Cu ₃ (PO ₄) ₂	Cu ₂ (HCO ₃) ₂
Zinc	Zn	+2	Zn(CH ₃ COO) ₂	Zn(NO ₃) ₂	Zn(OH) ₂	ZnO	ZnSO ₄	ZnS	ZnCO ₃	Zn ₃ (PO ₄) ₂	Zn ₂ (HCO ₃) ₂
Calcium	Ca	+2	Ca(CH ₃ COO) ₂	Ca(NO ₃) ₂	Ca(OH) ₂	CaO	CaSO ₄	CaS	CaCO ₃	Ca ₃ (PO ₄) ₂	Ca ₂ (HCO ₃) ₂
Magnesium	Mg	+2	Mg(CH ₃ COO) ₂	Mg(NO ₃) ₂	Mg(OH) ₂	MgO	MgSO ₄	MgS	MgCO ₃	Mg ₃ (PO ₄) ₂	Mg ₂ (HCO ₃) ₂
Iron II	Fe	+2	Fe(CH ₃ COO) ₂	Fe(NO ₃) ₂	Fe(OH) ₂	FeO	FeSO ₄	FeS	FeCO ₃	Fe ₃ (PO ₄) ₂	Fe ₂ (HCO ₃) ₂
Iron III	Fe	+3	Fe(CH ₃ COO) ₃	Fe(NO ₃) ₃	Fe(OH) ₃	Fe ₂ O ₃	Fe ₂ (SO ₄) ₃	Fe ₂ S ₃	Fe ₂ (CO ₃) ₃	Fe ₃ PO ₄	Fe ₂ (HCO ₃) ₃
Aluminum	Al	+3	Al(CH ₃ COO) ₃	Al(NO ₃) ₃	Al(OH) ₃	Al ₂ O ₃	Al ₂ (SO ₄) ₃	Al ₂ S ₃	Al ₂ (CO ₃) ₃	Al ₃ PO ₄	Al ₂ (HCO ₃) ₃
Hydrogen	H	+1	HCH ₃ COO	HNO ₃	H ₂ O	H ₂ O	H ₂ SO ₄	H ₂ S	H ₂ CO ₃	H ₃ PO ₄	H ₂ CO ₃