

Marks
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- Classify each of the following as either “soluble” or “insoluble” in water at 298 K.

Compound	Solubility	Compound	Solubility
$\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$	soluble	HgCl_2	soluble
Li_2CO_3	insoluble	$\text{Zn}(\text{CH}_3\text{CO}_2)_2$	soluble
MnO_2	insoluble	SrSO_4	insoluble

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- Complete the following table.

FORMULA	SYSTEMATIC NAME
$\text{NH}_4\text{Fe}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$	ammonium iron(III) sulfate-6-water
$[\text{Cr}(\text{OH}_2)_5\text{Cl}]\text{SO}_4$	pentaaquachloridochromium(III) sulfate
NaH_2PO_4	sodium dihydrogenphosphate
HClO_4	perchloric acid
As_2O_3	diarsenic trioxide or arsenic(III) oxide
$[\text{PdCl}_2(\text{NH}_3)_2]$	diamminedichloridopalladium(II)
SO_2	sulfur dioxide
KNCS	potassium thiocyanate
NaNO_2	sodium nitrite
$[\text{CoBr}_2(\text{OH}_2)_4]\text{Cl}$	tetraaquadibromidocobalt(III) chloride
$\text{Na}_3[\text{Fe}(\text{CN})_6]$	sodium hexacyanidoferrate(III)
PbO_2	lead(IV) oxide
O_2^{2-}	peroxide ion
$\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$	nickel(II) nitrate-6-water