

Structure Number	Molecular Formula	Synthetic Conditions	Unit Cell Parameters
1	$\text{Hf}^{\text{IV}}\text{F}_9(\text{HAsO}_4)(\text{NH}_4)_3(\text{H}_2\text{O})$	HfF_4 (0.1 g); $\text{NH}_4\text{H}_2\text{AsO}_4$ (0.19 g); ethanol (10 mL); 180 °C; 6 days	Monoclinic, $P2_1$, $a = 6.187(2)$ Å, $b = 11.648(5)$ Å, $c = 10.676(4)$ Å, $\beta = 105.9(3)^\circ$, $V = 739.87(7)$ Å ³
2	$\text{Hf}^{\text{IV}}\text{F}_8(\text{AsO}_4)(\text{DABCO-H}_2)(\text{NH}_4)$	HfF_4 (0.1 g); $\text{NH}_4\text{H}_2\text{AsO}_4$ (0.19 g); DABCO (0.04 g); H_2O (10 mL); 140 °C; 10 days; pH 5	Orthorhombic, $\text{Ama}2$, $a = 9.403(5)$ Å, $b = 17.205(9)$ Å, $c = 9.933(4)$ Å, $V = 1607.01(1)$ Å ³
3	$\text{Hf}^{\text{IV}}\text{F}_2(\text{HAsO}_4)(\text{AsO}_4)_2\text{F}(\text{H}_2\text{O})(\text{EDA-H}_2)_{0.5}$	HfF_4 (0.1 g); H_3AsO_4 (0.14 g); EDA (0.02 g); H_2O (10 mL); 190 °C; 5 days	Monoclinic, $C2/c$, $a = 17.760(4)$ Å, $b = 6.781(2)$ Å, $c = 23.733$ Å, $\beta = 93.8^\circ$, $V = 2851.96(4)$ Å ³
3	$\text{Hf}^{\text{IV}}\text{F}_2(\text{HAsO}_4)(\text{AsO}_4)_2\text{F}(\text{H}_2\text{O})(\text{DETA-H}_3)_{0.33}$	HfF_4 (0.1 g); H_3AsO_4 (0.17 g); DETA (0.04 g); H_2O (10 mL); 190 °C; 7 days	Monoclinic, $C2$, $a = 17.683(8)$ Å, $b = 6.772(3)$ Å, $c = 11.849(6)$ Å, $\beta = 94.4(3)^\circ$, $V = 1414.67(11)$ Å ³
4	$\text{Hf}^{\text{IV}}\text{F}(\text{AsO}_4)_2(\text{NH}_4)_3$	HfF_4 (0.1 g); As_2O_5 (0.27 g); NH_3 (10 mL); 180 °C; 6 days	Monoclinic, $P21/c$, $a = 10.365(5)$ Å, $b = 6.658(3)$ Å, $c = 32.268(2)$ Å, $\beta = 91.6(2)^\circ$, $V = 2226.10(2)$ Å ³
5	$\text{Hf}^{\text{IV}}\text{F}(\text{AsO}_4)(\text{H}_2\text{O})$	HfF_4 (0.1 g); As_2O_5 (0.27 g); HCl (10 mL); 180 °C; 5 days	Monoclinic, $C2/m$, $a = 8.863(5)$ Å, $b = 6.731(4)$ Å, $c = 7.902(5)$ Å, $\beta = 100.5(3)^\circ$, $V = 463.64(3)$ Å ³
6	$\text{Hf}^{\text{IV}}\text{F}_2(\text{HPO}_4)_2(\text{PO}_4)(\text{NH}_4)(\text{H}_2\text{O})$	HfF_4 (0.1 g); $\text{NH}_4\text{H}_2\text{PO}_4$ (0.14 g); NH_3 (10 mL); 175 °C; 6 days	Monoclinic, $C2/c$, $a = 17.048(8)$ Å, $b = 8.742(3)$ Å, $c = 9.172(3)$ Å, $\beta = 103.8(3)^\circ$, $V = 1327.63(1)$ Å ³
7	$\text{Hf}^{\text{IV}}\text{F}_2(\text{PO}_4, \text{HPO}_4)_2(\text{NH}_4, \text{H}_2\text{O})_3$	HfF_4 (0.1 g); P_2O_5 (0.17 g); NH_3 (10 mL); 140 °C; 5 days	Triclinic, $P-1$, $a = 5.222(3)$ Å, $b = 8.126(4)$ Å, $c = 12.614(6)$ Å; $\alpha = 74.2(3)^\circ$; $\beta = 88.3(3)^\circ$; $\gamma = 87.8(3)^\circ$; $V = 514$ Å ³
8	$\text{Zr}^{\text{IV}}\text{F}_2(\text{PO}_4, \text{HPO}_4)_2(\text{NH}_4, \text{H}_2\text{O})_3$	ZrF_4 (0.1 g); $\text{NH}_4\text{H}_2\text{PO}_4$ (0.21 g); DABCO (0.07 g); H_2O (10 mL); 140 °C; 14 days	Triclinic, $P-1$, $a = 5.242(3)$ Å, $b = 8.132(5)$ Å, $c = 12.616(8)$ Å, $\alpha = 74.1(4)^\circ$, $\beta = 88.4(4)^\circ$, $\gamma = 87.9(4)^\circ$, $V = 516.66(6)$ Å ³
9	$\text{Zr}^{\text{IV}}\text{F}(\text{AsO}_4)(\text{H}_2\text{O})$	ZrF_4 (0.1 g); BaOH (0.1 g); H_3AsO_4 (0.26g); H_2O (10 mL); 175 °C; 7 days	Monoclinic, $C 2/m$, $a = 8.907(5)$ Å; $b = 6.770(3)$ Å; $c = 7.951(2)$ Å; $\beta = 100.7(3)^\circ$; $V = 471.1(4)$ Å ³
10	$\text{Nb}^{\text{IV}}\text{F}_2(\text{AsO}_4, \text{HAsO}_4)_2(\text{NH}_4, \text{H}_2\text{O})_3$	NbF_4 (0.1 g); $\text{NH}_4\text{H}_2\text{AsO}_4$ (0.18 g); DABCO (0.07 g); NH_3 (10 mL); 175 °C; 6 days	Orthorhombic, $Pnma$, $a = 12.278(9)$ Å, $b = 5.280(4)$ Å, $c = 16.571(1)$ Å, $V = 1074.33$ Å ³
11	$\text{Ti}^{\text{IV}}\text{F}_2(\text{PO}_4, \text{HPO}_4)_2(\text{NH}_4, \text{H}_2\text{O})_3$	TiF_3 (0.1 g); $\text{NH}_4\text{H}_2\text{PO}_4$ (0.33 g); ethanol (10 mL); 175 °C; 7 days	Triclinic, $P-1$, $a = 5.067(2)$ Å, $b = 8.042(3)$ Å, $c = 12.482(5)$ Å, $\alpha = 75.6(2)^\circ$, $\beta = 88.6(2)^\circ$, $\gamma = 88.4(1)^\circ$, $V = 492.31(3)$ Å ³
12	$\text{Ti}^{\text{IV}}\text{F}_2(\text{PO}_4)(\text{DABCO-H})$	TiF_3 (0.1 g); $\text{NH}_4\text{H}_2\text{PO}_4$ (0.33 g); DABCO (0.11 g); H_2O (10 mL); 140 °C; 10 days; pH 2	Tetragonal, $I4mmm$, $a = 6.306(3)$ Å, $c = 17.849(2)$ Å, $V = 709.76(1)$ Å ³
12	$\text{Zr}_2^{\text{IV}}(\text{AsO}_4)_2\text{F}_4(\text{H}_2\text{O})_2[\text{EDA-H}_2]$	ZrF_4 (0.1 g); H_3AsO_4 (0.26 g); EDA (0.036 g); H_2O (10 mL); 190 °C; 5 days	Triclinic, $P-1$ $a = 6.746(5)$ Å, $b = 6.787(5)$ Å, $c = 8.589(7)$ Å, $\alpha = 87.0^\circ$, $\beta = 71.3^\circ$, $\gamma = 89.8^\circ$, $V = 371.91(5)$ Å ³
13	$\text{Ce}^{\text{IV}}(\text{AsO}_4)\text{F}$	CeF_4 (0.1 g); H_3AsO_4 (0.19 g); RbOH (0.24 g); H_2O (11 mL); 140 °C; 14 days	Orthorhombic, $Pnma$, $a = 6.776(2)$ Å, $b = 6.018(2)$ Å, $c = 7.132(2)$ Å, $V = 401.24$ Å ³
14	$\text{Ce}^{\text{IV}}(\text{AsO}_4)\text{F}(\text{H}_2\text{O})$	CeF_4 (0.1 g); H_3AsO_4 (0.19 g); RbOH (0.24 g); H_2O (11 mL); 140 °C; 14 days	Monoclinic, $P2_1/n$, $a = 5.089(3)$ Å, $b = 7.512(5)$ Å, $c = 11.818(8)$ Å, $\beta = 97.7(4)^\circ$, $V = 447.72(3)$ Å ³

15	$[\text{NH}_4]\text{Ce}^{\text{IV}}\text{F}_2(\text{AsO}_4)$	CeF_4 (0.2 g); $\text{NH}_4\text{H}_2\text{AsO}_4$ (0.44 g); H_2O (12 mL); 175 °C; 5 days; pH 6.3	Monoclinic, $P2_1/m$, $a = 6.776(2)$ Å, $b = 6.018(2)$ Å, $c = 7.132(2)$ Å, $\beta = 113.8(2)^\circ$, $V = 266.01(2)$ Å ³
16	$[(\text{NH}_4)_5(\text{H}_2\text{O})_2][\text{Ce}^{\text{IV}}_4(\text{AsO}_4)_6(\text{H}_2\text{O})\text{F}_3]$	CeF_4 (0.2 g); $\text{NH}_4\text{H}_2\text{AsO}_4$ (0.44 g); H_2O (12 mL); 175 °C; 5 days; pH 6	Monoclinic, $P-1$, $a = 9.389(3)$ Å, $b = 9.529(3)$ Å, $c = 18.496(5)$ Å, $\alpha = 91.2(2)^\circ$, $\beta = 104.0(2)^\circ$, $\gamma = 114.3(2)^\circ$, $V = 1449.51(19)$ Å ³
17	$[\text{H}_2\text{N}(\text{C}_2\text{H}_4)_2\text{NH}_2][(\text{Mo}^{\text{VO}})_2(\text{PO}_4)_2\text{F}_2] \cdot \text{H}_2\text{O}$	MoO_3 (0.08g); H_3PO_4 (0.014g); $\text{C}_4\text{H}_{10}\text{N}_2$ (0.1g); HF (0.023); H_2O (3ml), 180°C, 2 days	Monoclinic, $C2/m$, $a = 18.061(2)$ Å, $b = 6.447(6)$ Å, $c = 6.453(6)$ Å, $\beta = 102.3(9)^\circ$, $V = 734.07(15)$ Å ³
18	$[\text{H}_2\text{N}(\text{C}_2\text{H}_4)_2\text{NH}_2]_{1.5}[(\text{V}^{\text{IV/V}}\text{O})_2(\text{AsO}_4)\text{F}_2]\text{O}$ $[(\text{V}^{\text{IV}}\text{O})(\text{HAsO}_4)\text{F}] \cdot \text{H}_2\text{O}$	V_2O_5 (0.1g); H_3AsO_4 (0.08g), $\text{C}_4\text{H}_{10}\text{N}_2$ (0.1g); HF (0.023g) H_2O (4ml), 140°C, 4 days	Triclinic, $P-1$, $a = 8.559(5)$ Å, $b = 10.800(5)$ Å, $c = 12.062(5)$ Å, $\alpha = 65.6(5)^\circ$, $\beta = 102.3(9)^\circ$, $\gamma = 72.1(5)^\circ$, $V = 964.50(8)$ Å ³
19	$[\text{H}_2\text{N}(\text{C}_2\text{H}_4)_2\text{NH}_2]_{1.5}[(\text{V}^{\text{IV}}\text{O})_3(\text{AsO}_4)\text{F}_4]$ $[(\text{V}^{\text{IV}}\text{O})(\text{AsO}_4)\text{F}_3]$	V_2O_5 (0.1g); H_3AsO_4 (0.08g); $\text{C}_4\text{H}_{10}\text{N}_2$ (0.1g); KF (0.07g); HF (0.046g); H_2O (4 ml), 140°C, 4 days	Monoclinic, $P2_1/c$, $a = 16.876(6)$ Å, $b = 14.165(5)$ Å, $c = 10.719(4)$ Å, $\beta = 93.9(2)^\circ$, $V = 2556.84(16)$ Å ³
20	$\text{Ba}(\text{H}_2\text{O})_2[(\text{V}^{\text{VO}})(\text{PO}_4)\text{H}_2\text{O}][(\text{V}^{\text{IV}}\text{O})(\text{PO}_4)\text{F}]$	VF_3 (0.06g); H_3AsO_4 (0.08g); $\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$ (0.18g); H_2O (4mL) 140°C; 3 days;	Monoclinic, $P2_1/m$, $a = 7.2225(3)$ Å, $b = 8.8870(4)$ Å, $c = 8.9007(4)$ Å, $\beta = 108.815(3)^\circ$, $V = 540.78(6)$ Å ³
21	$\text{Ba}(\text{H}_2\text{O})_2[(\text{V}^{\text{VO}})(\text{AsO}_4)\text{H}_2\text{O}][(\text{V}^{\text{IV}}\text{O})(\text{AsO}_4)\text{F}]$	VF_3 (0.06g); H_3AsO_4 (0.16g); $\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$ (0.09g); H_2O (4mL) 140°C; 3 days	Monoclinic, $P2_1/m$, $a = 7.3380(5)$ Å, $b = 9.0448(6)$ Å, $c = 9.1177(7)$ Å, $\beta = 108.244(4)^\circ$, $V = 574.73(8)$ Å ³