

File Name	Compound Name	Supplier (if Purchased) or Synthesized	CAS	Molecular Formula	Beamline	Mode	Reference if from Literature	Note
Pi_Apatite_Carbonate_std.xmu	Carbonate Apatite	Clarkson	N/A	$(\text{Ca}_{10-x}\text{Ha}_x)(\text{PO}_4)_{6-x}(\text{CO}_3)_x(\text{OH})_2$	CLS SXRMB	Fluorescence	Barnes, 2020	CAS not reported on manufacture's website
Pi_Apatite_Natural_std.xmu	Apatite, Research Grade	Ward Scientific	N/A	N/A	SSRL 14-3	Fluorescence	Barnes, 2020	CAS and molecular formula not reported on manufacture's website
Pi_Apatite_Hydroxy_std.xmu	Hydroxyapatite	Sigma Aldrich	12167-74-7	$[\text{Ca}_5(\text{OH})(\text{PO}_4)_3]_x$	SSRL 14-3	Fluorescence	Barnes, 2020	N/A
Pi_Apatite_Fluor_std.xmu	Blue Fluorapatite	Ward Scientific	N/A	N/A	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Pi_Apatite_CaDefHydroxy_std.xmu	Calcium-Deficient Apatite (Low Temp)	Clarkson	N/A	Varies	SSRL 14-3	Fluorescence	This Study	CAS not reported on manufacture's website
Pi_Ca_Octa_std.xmu	Octacalcium Phosphate	Clarkson	13767-12-9	$\text{Ca}_8\text{H}_2(\text{PO}_4)_6 \cdot 5\text{H}_2\text{O}$	CLS SXRMB	Fluorescence	Barnes, 2020	CAS and molecular formula not reported on manufacture's website
Pi_Ca_Dibasic_std.xmu	Calcium Phosphate Dibasic Dihydrate	Sigma Aldrich	7789-77-7	$\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Pi_Ca_Precip_std.xmu	Precipitated Calcium Phosphate	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Pi_Ca_Mono_std.xmu	Calcium Phosphate Monobasic Monohydrate	Sigma Aldrich	10031-30-8	$\text{Ca}(\text{H}_2\text{PO}_4)_2 \cdot \text{H}_2\text{O}$	SSRL 14-3	Fluorescence	This Study	N/A
Pi_Ca_Tri_std.xmu	Calcium Phosphate Tribasic	Acros Organics	7758-87-4	$\text{Ca}_3\text{O}_8\text{P}_2$	SSRL 14-3	Fluorescence	This Study	N/A
Pi_Al_Precip_std.xmu	Precipitated Aluminum Phosphate	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Pi_Al_std.xmu	Aluminum Phosphate	Acros Organics	7784-30-7	AlO_4P	SSRL 14-3	Fluorescence	Barnes, 2020	N/A

Pi_Al_GibbSorb_std.xmu	Phosphate Sorbed on Gibbsite	Synthesized	N/A	N/A	SSRL 14-3	Fluorescence	O'Day et al. 2020	N/A
Pi_Fe_Precip_std.xmu	Precipitated Iron Phosphate	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Pi_Fe_std.xmu	Iron (III) Phosphate Hydrate	Acros Organics	51833-68-2	FeO ₄ ·H ₂ O	SSRL 14-3	Fluorescence	Barnes, 2020	N/A
Pi_Fe_FerriSorb_std.xmu	Phosphate Sorbed on Ferrihydrite	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Pi_Fe_FerriSorb_2_std.xmu	Phosphate Sorbed on Ferrihydrite	Synthesized	N/A	N/A	SSRL 14-3	Fluorescence	O'Day et al. 2020	N/A
Pi_Fe_GoethSorb_std.xmu	Phosphate Sorbed on Goethite	Synthesized	N/A	N/A	SSRL 14-3	Fluorescence	Barnes, 2020	N/A
Pi_Fe_GoethSorb_2_std.xmu	Phosphate Sorbed on Goethite	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	O'Day et al. 2020	N/A
Pi_Na_Mono_std.xmu	Sodium Phosphate Monobasic	Sigma Aldrich	7758-80-7	NaH ₂ PO ₄	SSRL 14-3	Fluorescence	Barnes, 2020	N/A
Pi_Na_Di_std.xmu	Sodium Phosphate, Dibasic, 7-Hydrate, Crystal	J.T. Baker	7782-85-6	Na ₂ HPO ₄ ·7H ₂ O	SSRL 14-3	Fluorescence	This Study	N/A
Pi_Na_Tri_std.xmu	Sodium Phosphate Tribasic Dodecahydrate	Fisher	10101-89-0	H ₂₄ Na ₃ O ₁₆ P	SSRL 14-3	Fluorescence	This Study	N/A
Pi_K_Mono_std.xmu	Potassium Phosphate Monobasic	Fluka	7778-77-0	KH ₂ PO ₄	SSRL 14-3	Fluorescence	This Study	N/A
Pi_K_Di_std.xmu	Potassium Phosphate Dibasic Anhydrous	Fisher	7758-11-4	K ₂ HPO ₄	SSRL 14-3	Fluorescence	This Study	N/A
Pi_Na_Pyro_std.xmu	Sodium Pyrophosphate Decahydrate	Alfa Aesar	13472-36-1	Na ₄ O ₇ P ₂ ·10H ₂ O	SSRL 14-3	Fluorescence	This Study	N/A
Pi_Ca_Pyro_std.xmu	Amorphous Calcium Pyrophosphate	Aldrich	7790-76-3	Ca ₂ O ₇ P ₂ · H ₂ O	SSRL 14-3	Fluorescence	This Study	N/A
Pi_Fe_Pyro_std.xmu	Iron (III) Pyrophosphate	Aldrich	10058-44-3	Fe ₄ (P ₂ O ₇) ₃	SSRL 14-3	Fluorescence	This Study	N/A
Pi_K_Pyro_std.xmu	Potassium Diphosphate; Potassium Pyrophosphate	Acros Organics	7320-34-5	K ₄ P ₂ O ₇	SSRL 14-3	Fluorescence	This Study	N/A
Pi_Mg_Pyro_std.xmu	Magnesium Pyrophosphate	Thermo Scientific	13446-24-7	P ₂ O ₇ •2Mg	SSRL 14-3	Fluorescence	This Study	N/A

Pi_Mg_Tri_std.xmu	Magnesium Phosphate Tribasic Hydrate	Thermo Scientific	53408-95-0	$\text{Mg}_3(\text{PO}_4)_2 \cdot x\text{H}_2\text{O}$	SSRL 14-3	Fluorescence	This Study	N/A
Pi_Mg_Di_std.xmu	Magnesium Hydrogen Phosphate Trihydrate; Magnesium Phosphate Dibasic Trihydrate	Sigma Aldrich	7782-75-4	$\text{MgHPO}_4 \cdot 3\text{H}_2\text{O}$	SSRL 14-3	Fluorescence	This Study	N/A
Pi_NH4_Mono_std.xmu	Ammonium Dihydrogen Phosphate; Ammonium Phosphate Monobasic	Acros Organics	7722-76-1	$\text{NH}_4\text{H}_2\text{PO}_4$	SSRL 14-3	Fluorescence	This Study	N/A
Pi_NH4_Di_std.xmu	Ammonium Hydrogen Phosphate; Ammonium Phosphate Dibasic	Alfa Aesar	7783-28-0	$(\text{NH}_4)_2\text{HPO}_4$	SSRL 14-3	Fluorescence	This Study	N/A
Pi_NH4_Mg_std.xmu	Ammonium Magnesium Phosphate Hydrate; Struvite	Alfa Aesar	7785-21-9	$(\text{NH}_4)\text{MgPO}_4 \cdot x\text{H}_2\text{O}$	SSRL 14-3	Fluorescence	This Study	N/A
Po_Fe_PA_GoethSorb_std.xmu	Phytic Acid Sorbed on Goethite	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Po_Fe_PA_FerriSorb_std.xmu	Phytic Acid Sorbed on Ferrihydrite	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Po_Fe_PA_FerriSorb_2_std.xmu	Phytic Acid Sorbed on Ferrihydrite	Synthesized	N/A	N/A	SSRL 14-3	Fluorescence	O'Day et al. 2020	N/A
Po_Fe_PA_Precip_std.xmu	Precipitated Iron Phytate	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	O'Day et al. 2020	N/A
Po_Fe_DNA_FerriSorb_std.xmu	DNA Sorbed on Ferrihydrite	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Po_Fe_DNA_GoethSorb_std.xmu	DNA Sorbed on Goethite	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Po_Al_DNA_GibbSorb_std.xmu	DNA Sorbed on Gibbsite	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Po_Al_DNA_GibbSorb_2_std.xmu	DNA Sorbed on Gibbsite	Synthesized	N/A	N/A	CLS SXRMB	Fluorescence	O'Day et al. 2020	N/A

Po_Al_PA_Precip_std.xmu	Precipitated Aluminum Phytate	Synthesized	N/A	N/A	SSRL 14-3	Fluorescence	O'Day et al. 2020	N/A
Po_Al_PA_GibbSorb_std.xmu	IHP Sorbed on Gibbsite	Synthesized	N/A	N/A	SSRL 14-3	Fluorescence	O'Day et al. 2020	N/A
Po_Ca_PA_std.xmu	Calcium Phytate	Synthesized	N/A	N/A	SSRL 14-3	Fluorescence	O'Day et al. 2020	N/A
Po_Ca_Lecithin_std.xmu	Lecithin (90% Soybean); Phosphatidylcholine	Alfa Aesar	8002-43-5	C42H80NO8P	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Po_Na_PA_std.xmu	Phytic Acid Sodium Salt Hydrate (Rice)	Sigma Aldrich	14306-25-3	C6H18O24P6 · xNa+ · yH2O	CLS SXRMB	Total Electron Yield	Barnes, 2020	N/A
Po_Na_DNA_std.xmu	Deoxyribonucleic Acid Sodium Salt (Salmon Testes)	Sigma	438545-06-3	N/A	CLS SXRMB	Total Electron Yield	Barnes, 2020	Molecular formula not reported on manufacture's website
Po_Na_AMP_std.xmu	Adenosine 5'-Monophosphate Sodium Salt (Yeast)	Sigma	149022-20-8	C ₁₀ H ₁₄ N ₅ O ₇ P · xNa ⁺ · yH ₂ O	CLS SXRMB	Fluorescence	Barnes, 2020	N/A
Po_Na_ATP_std.xmu	Adenosine-5'-Triphosphate Disodium Salt Hydrate	Alfa Aesar	34369-07-8	C ₁₀ H ₁₄ N ₅ Na ₂ O ₁₃ P ₃ · xH ₂ O	CLS SXRMB	Fluorescence	Barnes, 2020	N/A