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X-RAY DIFFRACTION DATA FOR SOME  
URANIUM COMPOUNDS

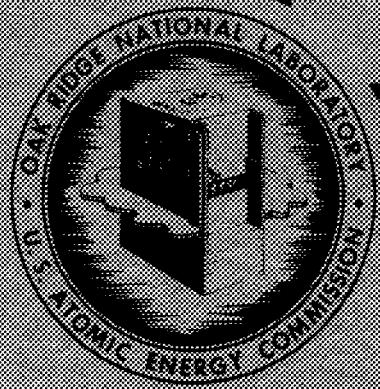
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**STABLE ISOTOPES DIVISION**

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## X-RAY DIFFRACTION DATA FOR SOME URANIUM COMPOUNDS

H. W. Dunn

### ACKNOWLEDGMENTS

The author would like to express his appreciation to members of the Materials Chemistry Division and of various Y-12 laboratory groups for these samples and for the checks they have made to establish the composition and purity of these compounds; the author is especially grateful to J. M. Schreyer and L. R. Phillips. Also, he would like to express his appreciation to J. R. McNally, Jr., for his interest and encouragement.

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### INTRODUCTION

X-ray diffraction data have been accumulated by this laboratory for a large number of uranium compounds. No data are available in the x-ray diffraction data cards published by the ASTM Joint Committee on Chemical Analysis by X-Ray Diffraction Methods for 74 of these compounds. No x-ray data have been published anywhere for approximately one-third of these compounds.

### EQUIPMENT

The following data were obtained from films made with a standard G-E powder camera having a diameter of 14.32 cm and a 0.025-in. pinhole collimator. The cameras have the Straumanis film arrangement. A copper target, CA-7 x-ray tube with a nickel-foil filter between the sample and the film was used for all these films. A G-E Fluoroline illuminator with a film holder containing a centimeter scale and a vernier graduated to 0.05 mm was used to determine line positions. Line intensities were estimated by use of a calibrated strip as reference.

### CALCULATIONS

The degree  $\theta$  was obtained by multiplying the reading in centimeters by the conversion factor. The interplanar spacing  $d$  was determined by solving the equation  $n\lambda = 2d \sin \theta$ , where  $\lambda$  was 1.5418 Å when the  $K_{\alpha_1} K_{\alpha_2}$  doublet was not resolved and 1.54050 Å for  $K_{\alpha_1}$  when the  $K_{\alpha_1} K_{\alpha_2}$  doublet was resolved. For these calculations one was substituted for  $n$ .

An independent check on the interplanar spacing was made by using the Neis chart. By this means, any significant errors in reading or calculating the films could be detected.

These data have not been corrected for absorption.

The diffraction data have been divided into two sections; data for pure compounds are listed on pages 3 through 14, and data for other compounds are on pages 15 through 42.

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## PURE COMPOUNDS

The pure compounds that are included in this report were obtained from various research groups in the Oak Ridge National Laboratory. In general, the treatment of these compounds leaves little or no doubt as to their composition and purity. References to reports and other publications are given when known.

The following methods have been used to establish the composition and purity of these compounds:

1. Schreinemaker wet-residue plots were made in which the chemical analyses of the mother liquor and solid phase of various concentrations were plotted on a graph and extrapolated to the composition of the solid phases. This method gives very conclusive evidence of the composition of the solid phase.
2. The compound was prepared by more than one method that theoretically should produce the desired compound.
3. Cross checks by x-ray diffraction were made in which the patterns of the compounds prepared as described in methods 1 and 2 were compared, and patterns of other known compounds which might have been present were checked.
4. Chemical tests and analyses were used when the nature of the compound and method of preparation were such as to make this method of value.
5. Petrographic microscopic examination was used to detect the presence of more than one compound, if such were present, and to identify these compounds when data were available. This method could be used only when the grain size was fairly large.
6. Spectrographic analyses were used to detect the presence of possible cation impurities.
7. Melting-point determinations were used to detect the presence of more than one compound, if such were present, and occasionally are an indication of the identity of the compound.

## X-RAY DIFFRACTION DATA FOR PURE COMPOUNDS

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
UF <sub>4</sub> (Uranium Tetrafluoride)		10	1.322	50	0.915
Cut off	21.00	12	1.312	35	0.907
75	4.13	15	1.300	10	0.901
40	3.88	8	1.287	15	0.899
100	3.67	12	1.276	40	0.897
40	3.50	60	1.261	12	0.891
20	3.32	10	1.250	30	0.885
50	3.25	12	1.233	30	0.878
10	2.77	12	1.222	10	0.873
25	2.67	50	1.203	10	0.868
15	2.64	10	1.186	70	0.864
12	2.56	35	1.170	12	0.862
15	2.45	35	1.152	8	0.859
12	2.43	35	1.144	15	0.854
10	2.29	40	1.131	30	0.850
10	2.18	8	1.120	20	0.849
35	2.10	6	1.112	15	0.846
70	2.06	8	1.105	12	0.843
15	2.01	35	1.098	12	0.841
35	1.99	10	1.089	12	0.835
35	1.97	50	1.082	30	0.834
100	1.93	12	1.076	12	0.831
35	1.91	50	1.064	35	0.829
25	1.89	3	1.055	30	0.825
60	1.87	6	1.046	35	0.823
12	1.84	35	1.041	15	0.821
12	1.81	20	1.036	25	0.819
20	1.78	25	1.032	30	0.817
20	1.73	25	1.022	20	0.813
25	1.69	60	1.017	15	0.807
40	1.64	10	1.010	15	0.805
30	1.63	8	1.003	30	0.803
35	1.60	10	0.997	20	0.795
8	1.58	8	0.992	12	0.793
20	1.55	20	0.989	15	0.790
35	1.54	15	0.981	12	0.789
15	1.51	40	0.973	6	0.786
12	1.495	10	0.970	20	0.784
50	1.483	20	0.968	10	0.780
35	1.447	8	0.960	10	0.7795
70	1.423	10	0.958	30	0.7778
50	1.398	20	0.952	Cut off	0.7727
35	1.372	20	0.939		
20	1.356	8	0.928		
60	1.341	6	0.921		

$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$
$\text{UF}_4 \cdot 2\frac{1}{2}\text{H}_2\text{O}$ (Uranium Tetrafluoride Hydrate) (ref. 1)					
Cut off	21.00	3	1.922	2	1.082
100	8.41	40	1.899	10	1.078
4	6.36	20	1.860	9	1.068
35	5.94	18	1.823	9	1.060
15	5.55	18	1.802	9	1.049
7	5.34	5	1.777	9	1.042
50	5.09	16	1.765	12	1.031
3	4.94	18	1.729	10	1.017
20	4.72	4	1.700	9	1.005
5	4.55	2	1.684	15	1.003
50	4.35	5	1.668	3	0.993
45	4.19	16	1.642	8	0.984
10	3.60	25	1.568	2	0.960
10	3.55	8	1.541	4	0.956
5	3.49	8	1.533	5	0.948
60	3.45	20	1.506	7	0.943
8	3.38	3	1.485	9	0.932
10	3.27	3	1.468	9	0.920
45	3.17	12	1.457	8	0.919
2	3.04	8	1.440	8	0.916
5	2.97	12	1.406	10	0.909
20	2.90	10	1.396	2	0.907
20	2.82	10	1.382	8	0.905
3	2.76	8	1.358	6	0.897
25	2.71	4	1.330	4	0.892
5	2.64	10	1.310	8	0.890
3	2.58	10	1.300	6	0.885
12	2.55	20	1.288	7	0.881
5	2.50	8	1.279	8	0.880
3	2.45	9	1.258	4	0.877
11	2.40	6	1.238	4	0.875
7	2.36	8	1.223	10	0.873
13	2.32	5	1.215	2	0.868
3	2.27	5	1.200	9	0.865
2	2.24	7	1.192	10	0.862
7	2.19	5	1.180	3	0.860
9	2.16	10	1.173	3	0.857
35	2.12	10	1.155	10	0.853
5	2.10	8	1.142	10	0.851
10	2.07	8	1.136	9	0.848
70	2.02	3	1.123	10	0.844
4	1.992	10	1.113	9	0.842
8	1.961	10	1.101	4	0.835
40	1.940	15	1.096	4	0.830

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
$\text{UF}_4 \cdot 2\frac{1}{2}\text{H}_2\text{O}$ (Uranium Tetrafluoride Hydrate) (ref. 1)		50	2.73	$\text{U}(\text{HPO}_4)_2 \cdot 2\text{H}_2\text{O}$ (Uranous Monohydrogen Phosphate Dihydrate) (ref. 3)	
5	0.828	12	2.35	Cut off	21.00
5	0.826	12	2.32	40	8.6
6	0.824	12	2.25	100	4.7
5	0.823	35	2.15	10	2.64
2	0.821	35	2.08	10	2.06
7	0.819	10	2.00	10	1.29
5	0.816	10	1.95	Cut off	0.773
7	0.814	8	1.92	$\text{U}(\text{HPO}_4)_2 \cdot 4\text{H}_2\text{O}$ (Uranous Monohydrogen Phosphate Tetrahydrate) (ref. 3)	
5	0.809	50	1.89	Cut off	21.00
5	0.808	35	1.84	100	11.14
5	0.805	40	1.79	15	5.39
5	0.803	25	1.74	3	4.83
6	0.800	10	1.69	12	4.25
10	0.798	12	1.65	5	3.92
9	0.797	35	1.62	12	3.61
9	0.796	12	1.59	3	3.26
9	0.795	10	1.56	10	3.00
4	0.792	15	1.53	3	2.85
8	0.790	15	1.49	12	2.70
7	0.787	30	1.45	2	2.40
7	0.786	10	1.42	2	2.03
6	0.784	10	1.37	2	1.80
7	0.781	30	1.34	2	1.63
7	0.779	8	1.30	3	1.54
3	0.777	10	1.27	Cut off	0.773
6	0.776	10	1.26	$\text{U}(\text{HPO}_4)_2 \cdot 6\text{H}_2\text{O}$ (Uranous Monohydrogen Phosphate Hexahydrate) (ref. 3)	
6	0.775	8	1.23	Cut off	21.00
Cut off	0.773	10	1.21	100	11.31
		8	1.19	2	8.65
$\text{U}(\text{HPO}_4)_2 \cdot \text{H}_2\text{O}$ (Uranous Monohydrogen Phosphate Monohydrate) (ref. 2)		8	1.18	2	6.38
Cut off	21.00	8	1.17	10	5.53
90	13.47	10	1.15	4	5.24
25	6.65	8	1.13	12	4.89
60	5.89	10	1.12	5	4.28
75	4.45	8	1.11	6	3.66
18	4.23	18	1.09	2	3.22
50	3.88	10	1.07	8	3.02
12	3.66	10	1.02	12	2.87
70	3.43	10	0.976	5	2.77
50	3.33	8	0.912		
10	3.01	8	0.903		
100	2.97	Cut off	0.874		
30	2.91				

$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$
$\text{U}(\text{HPO}_4)_2 \cdot 6\text{H}_2\text{O}$ (Uranous Monohydrogen Phosphate Hexahydrate) (ref. 3)		8	2.91	6	1.145
		6	2.86	6	1.114
		25	2.79	6	1.095
18	2.70	35	2.76	6	1.084
8	2.63	10	2.69	6	1.068
6	2.49	25	2.62	6	1.052
4	2.41	8	2.59	10	1.047
4	2.19	40	2.53	6	1.040
4	2.07	8	2.49	6	1.027
5	2.00	15	2.44	6	1.020
2	1.91	18	2.39	8	1.013
5	1.84	6	2.35	6	0.995
2	1.79	6	2.31	6	0.988
3	1.77	8	2.28	6	0.949
2	1.67	40	2.24	6	0.915
5	1.62	18	2.19	Cut off	0.773
5	1.54	18	2.14		
3	1.48	8	2.12	$\text{I-U}(\text{H}_2\text{PO}_4)_2(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$	
3	1.42	18	2.09	(Uranium(IV) Perchlorate Dihydrogen Phosphate Hexahydrate) (ref. 4)	
2	1.38	10	2.02		
3	1.33	10	1.96		
3	1.30	25	1.92	Cut off	21.00
2	1.22	18	1.89	18	13.33
Cut off	0.773	30	1.84	40	6.41
		6	1.78	18	5.96
$\text{U}(\text{H}_2\text{PO}_4)_2(\text{ClO}_4)_2 \cdot 4\text{H}_2\text{O}$ (Uranium(IV) Perchlorate Dihydrogen Phosphate Tetrahydrate) (ref. 4)		20	1.75	50	5.26
		8	1.72	60	4.65
		8	1.62	15	4.14
		6	1.60	10	3.94
Cut off	21.00	6	1.59	12	3.75
100	8.95	8	1.56	12	3.60
80	7.05	8	1.54	100	3.47
8	5.63	6	1.52	18	3.38
35	5.25	6	1.51	20	3.31
90	4.74	6	1.454	10	3.17
25	4.45	6	1.418	100	2.99
8	4.23	8	1.366	35	2.92
6	4.03	8	1.352	12	2.80
6	3.91	6	1.320	12	2.70
30	3.83	6	1.307	20	2.61
60	3.74	8	1.287	18	2.58
50	3.61	8	1.256	18	2.56
50	3.50	8	1.237	12	2.53
35	3.35	8	1.191	10	2.39
18	3.20	6	1.178	12	2.34
6	3.06	6	1.165	10	2.28
15	2.99	8	1.156	12	2.23

$I/I_1$	$d^\circ \text{Å}$	$I/I_1$	$d^\circ \text{Å}$	$I/I_1$	$d^\circ \text{Å}$
<b>I-U(<math>\text{H}_2\text{PO}_4</math>)<sub>2</sub>(<math>\text{ClO}_4</math>)<sub>2</sub>·6<math>\text{H}_2\text{O}</math> (Uranium(IV) Perchlorate Dihydrogen Phosphate Hexahydrate) (ref. 4)</b>		<b>II-U(<math>\text{H}_2\text{PO}_4</math>)<sub>2</sub>(<math>\text{ClO}_4</math>)<sub>2</sub>·6<math>\text{H}_2\text{O}</math> (Uranium(IV) Perchlorate Dihydrogen Phosphate Hexahydrate) (ref. 4)</b>			
25	2.18	Cut off	21.00	8	2.51
18	2.14	6	14.56	6	2.49
25	2.12	6	12.36	15	2.46
12	2.09	8	11.35	8	2.41
12	2.03	50	10.29	25	2.28
12	2.02	8	9.19	25	2.26
10	1.94	10	8.52	6	2.24
50	1.90	8	7.77	25	2.19
15	1.85	75	7.06	8	2.13
10	1.84	35	6.01	12	2.09
12	1.82	8	5.64	6	2.04
20	1.80	6	5.44	6	2.02
18	1.77	6	5.26	8	2.00
20	1.74	25	5.04	12	1.96
10	1.72	6	4.91	15	1.92
15	1.65	35	4.78	6	1.90
18	1.61	10	4.45	15	1.85
18	1.58	100	4.21	18	1.82
12	1.54	40	4.10	6	1.78
10	1.52	100	3.99	6	1.76
10	1.493	6	3.83	15	1.74
10	1.473	8	3.70	12	1.71
12	1.441	6	3.58	18	1.69
15	1.353	3	3.47	12	1.65
15	1.338	30	3.44	15	1.63
10	1.298	30	3.35	15	1.61
15	1.283	18	3.26	6	1.55
10	1.271	18	3.22	6	1.52
12	1.252	12	3.07	8	1.51
12	1.246	12	3.02	6	1.056
12	1.240	10	2.95	Cut off	0.773
10	1.210	6	2.91		
10	1.196	3	2.88		
10	1.159	15	2.84		
10	1.147	12	2.79		
12	1.139	15	2.75		
12	1.129	18	2.70	Cut off	21.00
12	1.106	6	2.66	100	11.66
12	0.953	6	2.61	5	6.65
Cut off	0.773	20	2.56	60	5.31

$I/I_1$	$d^\circ \text{Å}$	$I/I_1$	$d^\circ \text{Å}$	$I/I_1$	$d^\circ \text{Å}$
III-U( $\text{H}_2\text{PO}_4$ ) <sub>2</sub> ( $\text{ClO}_4$ ) <sub>2</sub> ·6 $\text{H}_2\text{O}$ (Uranium(IV) Perchlorate Dihydrogen Phosphate Hexahydrate) (ref. 4)		12	2.36	10	1.21
5	4.13	15	2.31	Cut off	0.773
10	3.53	8	2.25		
10	2.99	20	2.19	$\text{UO}_2\text{CO}_3$ (Uranyl Carbonate) (refs. 5 and 6)	
15	2.84	12	2.15	Cut off	21.00
35	2.69	15	2.10	75	4.49
5	2.41	25	2.04	75	4.18
5	2.16	6	2.00	60	3.81
20	2.07	10	1.97	80	3.16
30	2.03	8	1.90	50	2.60
5	1.92	3	1.87	20	2.56
5	1.84	10	1.75	25	2.46
5	1.74	4	1.73	40	2.39
10	1.55	4	1.71	40	2.27
5	1.29	20	1.68	100	2.04
Cut off	0.773	4	1.66	35	1.93
		3	1.64	60	1.90
$\text{U}(\text{HPO}_4)_2(\text{H}_3\text{PO}_4)\cdot\text{H}_2\text{O}$ (Uranous Phosphoric Acid Monohydrogen Phosphate Monohydrate) (ref. 3)		3	1.60	40	1.85
Cut off	21.00	4	1.59	45	1.72
90	7.51	6	1.53	20	1.70
90	6.88	6	1.498	25	1.68
6	6.60	3	1.470	20	1.66
80	5.07	3	1.404	25	1.64
30	4.20	3	1.387	35	1.60
40	3.93	8	1.356	25	1.58
4	3.79	6	1.337	18	1.56
100	3.65	8	1.315	18	1.52
15	3.54	4	1.291	40	1.50
10	3.44	3	1.201	35	1.427
35	3.30	3	1.192	25	1.420
25	3.15	3	1.165	15	1.407
18	2.95	3	1.070	50	1.379
4	2.80	4	1.048	20	1.365
15	2.76	3	1.026	25	1.335
18	2.67	Cut off	0.773	40	1.309
12	2.63			18	1.289
6	2.59	Cut off	21.00	40	1.271
12	2.56	100	5.22	25	1.256
10	2.52	35	2.71	10	1.240
4	2.47	35	2.10	6	1.229
18	2.42	10	1.70	40	1.217
		10	1.40	30	1.205
				25	1.184
				18	1.175
				25	1.164

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
<b><math>\text{UO}_2\text{CO}_3</math> (Uranyl Carbonate) (refs. 5 and 6)</b>		18	3.33	25	1.336
		5	3.25	5	1.325
35	1.151	40	3.17	5	1.316
25	1.139	25	3.00	5	1.311
18	1.108	10	2.93	20	1.295
18	1.086	35	2.73	50	1.284
35	1.069	25	2.70	10	1.266
35	1.052	75	2.65	2	1.252
40	1.039	6	2.60	10	1.244
35	1.025	3	2.50	10	1.231
25	1.022	3	2.46	15	1.223
3	1.012	60	2.30	5	1.216
18	0.989	50	2.21	20	1.205
20	0.980	3	2.18	25	1.196
18	0.968	3	2.16	15	1.184
25	0.957	40	2.10	15	1.171
8	0.948	25	2.08	15	1.158
20	0.942	25	2.04	10	1.147
3	0.933	10	2.02	18	1.132
25	0.923	15	2.00	12	1.125
35	0.918	3	1.92	8	1.114
30	0.889	10	1.90	20	1.100
18	0.884	15	1.88	18	1.094
35	0.877	18	1.86	12	1.084
10	0.869	25	1.83	18	1.073
25	0.856	10	1.80	25	1.063
25	0.846	35	1.77	10	1.051
20	0.832	30	1.76	5	1.046
15	0.826	100	1.74	15	1.040
30	0.806	5	1.73	15	1.028
25	0.804	2	1.71	20	1.016
30	0.801	2	1.69	40	1.012
20	0.794	4	1.68	12	1.003
40	0.789	2	1.62	8	0.996
10	0.782	25	1.60	8	0.992
Cut off	0.773	10	1.58	15	0.971
<b><math>2\text{Na}_2\text{CO}_3 \cdot \text{UO}_2\text{CO}_3</math> (Sodium Uranyl Tricarbonate) (refs. 5 and 6)</b>		18	1.56	6	0.958
		20	1.54	4	0.947
		20	1.52	15	0.936
		18	1.478	12	0.933
Cut off	21.00	12	1.464	18	0.928
6	12.31	10	1.439	10	0.922
25	7.69	20	1.404	12	0.915
25	4.87	15	1.385	12	0.911
60	4.53	15	1.375	3	0.904
25	3.94	12	1.359	6	0.901
18	3.38	3	1.348	15	0.897

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
$2\text{Na}_2\text{CO}_3 \cdot \text{UO}_2\text{CO}_3$ (Sodium Uranyl Tricarbonate) (refs. 5 and 6)		20	2.12	30	0.920
		35	2.10	35	0.911
		40	2.01	12	0.899
18	0.893	35	1.98	6	0.892
10	0.887	20	1.89	35	0.876
30	0.877	40	1.83	30	0.868
6	0.864	12	1.78	30	0.862
12	0.861	40	1.75	8	0.853
10	0.856	50	1.73	6	0.851
10	0.854	60	1.72	35	0.837
12	0.851	8	1.69	30	0.834
5	0.848	10	1.66	35	0.826
5	0.843	25	1.62	25	0.812
10	0.838	20	1.59	10	0.810
25	0.834	40	1.54	12	0.805
5	0.829	18	1.52	15	0.798
4	0.817	20	1.467	25	0.792
8	0.815	30	1.439	35	0.787
12	0.812	35	1.419	Cut off	0.773
8	0.810	20	1.394		
10	0.804	60	1.370	$(\text{UO}_2)_3(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$ (Normal Uranyl Phosphate Tetrahydrate) (ref. 8)	
12	0.802	35	1.332		
12	0.800	30	1.313		
12	0.798	25	1.305	Cut off	21.00
3	0.795	30	1.298		
3	0.793	18	1.272	20	10.23
15	0.791	12	1.253	40	8.38
25	0.789	15	1.243	10	6.28
20	0.784	20	1.226	25	5.78
8	0.782	18	1.218	100	5.14
12	0.779	35	1.193	6	4.91
12	0.774	35	1.168	9	4.75
Cut off	0.773	10	1.140	100	4.21
		10	1.129	10	3.68
$\text{UO}_3$ (Uranium Trioxide) (ref. 7)		35	1.117	15	3.59
		40	1.095	35	3.49
Cut off	21.00	10	1.060	25	3.25
50	4.91	10	1.053	8	3.16
40	4.35	25	1.041	6	3.10
100	3.42	10	1.016	20	3.02
75	3.22	40	1.009	50	2.96
50	3.02	35	0.998	15	2.90
80	2.78	25	0.996	10	2.83
20	2.73	25	0.980	25	2.79
40	2.62	30	0.969	15	2.70
35	2.38	12	0.954	8	2.59
40	2.17	12	0.939	15	2.54

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
$(\text{UO}_2)_3(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$ (Normal Uranyl Phosphate Tetrahydrate) (ref. 8)		6	1.179	$\text{UO}_2\text{NH}_4\text{PO}_4 \cdot 3\text{H}_2\text{O}$ (Uranyl Ammonium Phosphate Trihydrate) (ref. 9)	
8	2.46	6	1.138	Cut off	21.00
40	2.43	4	1.116	18	9.41
15	2.38	6	1.107	50	8.74
4	2.29	4	1.086	12	5.73
20	2.25	10	1.074	40	5.41
10	2.21	6	1.062	10	5.11
10	2.18	6	1.049	30	4.86
8	2.14	8	1.039	15	4.44
10	2.12	6	1.029	40	4.27
5	2.04	5	1.015	10	3.86
10	2.02	4	0.999	100	3.74
8	1.97	4	0.989	12	3.58
12	1.94	2	0.977	6	3.52
8	1.91	10	0.968	60	3.45
40	1.86	6	0.958	8	3.33
6	1.82	1	0.951	8	3.28
6	1.78	2	0.947	80	3.22
10	1.74	6	0.939	35	2.93
25	1.73	6	0.935	45	2.74
6	1.70	3	0.912	25	2.56
20	1.68	6	0.903	15	2.46
8	1.65	2	0.893	30	2.37
6	1.61	4	0.886	25	2.25
5	1.58	3	0.878	30	2.20
8	1.57	4	0.868	40	2.16
4	1.55	6	0.866	40	2.14
6	1.54	1	0.852	20	2.07
4	1.53	4	0.849	12	2.04
10	1.499	3	0.843	5	1.98
6	1.488	5	0.839	18	1.89
8	1.464	2	0.831	18	1.84
6	1.421	2	0.828	15	1.83
5	1.407	6	0.826	10	1.80
5	1.395	1	0.816	40	1.78
4	1.356	6	0.802	18	1.75
3	1.346	1	0.799	18	1.71
10	1.331	3	0.797	40	1.69
5	1.317	3	0.787	12	1.66
8	1.309	2	0.781	12	1.65
8	1.282	1	0.778	18	1.63
6	1.249	2	0.776	15	1.62
15	1.235	Cut off	0.773	15	1.60
3	1.221			12	1.59
4	1.191			15	1.58

$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$
$\text{UO}_2\text{NH}_4\text{PO}_4 \cdot 3\text{H}_2\text{O}$ (Uranyl Ammonium Phosphate Trihydrate) (ref. 9)		15	0.949	$\text{UO}_2\text{HPO}_4 \cdot 4\text{H}_2\text{O}$ (Uranyl Monohydrogen Phosphate Tetrahydrate) (ref. 8)	
		18	0.944		
		6	0.931		
12	1.56	10	0.923	Cut off	21.00
15	1.54	15	0.917		8.59
8	1.50	8	0.909		5.39
15	1.476	18	0.893		4.90
15	1.469	10	0.887		4.27
12	1.455	20	0.880		3.68
15	1.438	8	0.878		3.47
35	1.397	8	0.875		3.40
20	1.382	8	0.873		3.05
6	1.370	15	0.870		2.93
18	1.356	8	0.865		2.71
18	1.335	12	0.861		2.67
18	1.285	8	0.859		2.53
25	1.268	8	0.857		2.49
6	1.257	15	0.855		2.46
6	1.249	6	0.851		2.36
20	1.244	6	0.849		2.24
8	1.226	10	0.847		2.20
12	1.217	25	0.836		2.17
6	1.202	15	0.829		2.13
25	1.192	12	0.827		2.08
8	1.182	8	0.824		2.05
8	1.174	12	0.821		1.99
6	1.168	12	0.818		1.88
10	1.157	15	0.813		1.85
11	1.142	10	0.811		1.81
12	1.128	12	0.808		1.78
20	1.114	9	0.804		1.77
5	1.108	9	0.801		1.74
8	1.100	9	0.796		1.71
10	1.094	8	0.794		1.66
10	1.085	9	0.793		1.64
20	1.076	5	0.791		1.61
20	1.062	18	0.787		1.59
10	1.038	15	0.785		1.57
18	1.028	12	0.784		1.56
20	1.017	18	0.782		1.55
10	1.001	5	0.781		1.54
10	0.994	5	0.780		1.462
12	0.985	8	0.777		1.446
12	0.977	12	0.775		1.422
6	0.973	Cut off	0.773		1.393
12	0.966				1.378
12	0.956				1.368

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
$\text{UO}_2\text{HPO}_4 \cdot 4\text{H}_2\text{O}$ (Uranyl Monohydrogen Phosphate Tetrahydrate) (ref. 8)		10	0.925	12	3.47
		12	0.917	25	3.42
		12	0.911	9	3.37
12	1.352	18	0.900	50	3.32
10	1.338	6	0.885	5	3.20
18	1.329	6	0.879	25	3.13
15	1.313	12	0.876	10	3.07
10	1.282	2	0.871	15	2.90
10	1.268	5	0.867	8	2.83
20	1.258	10	0.862	30	2.78
12	1.242	35	0.860	7	2.69
12	1.233	8	0.855	8	2.65
10	1.222	20	0.850	8	2.61
12	1.213	20	0.847	15	2.57
15	1.197	18	0.845	5	2.51
15	1.185	18	0.843	14	2.46
12	1.176	8	0.835	3	2.41
15	1.163	20	0.831	3	2.36
12	1.159	15	0.824	20	2.31
12	1.154	15	0.821	14	2.26
10	1.138	18	0.818	12	2.18
12	1.110	5	0.815	14	2.12
12	1.105	25	0.812	8	2.09
12	1.096	12	0.809	5	2.07
15	1.078	12	0.807	5	2.04
12	1.068	12	0.806	10	2.00
10	1.057	15	0.804	12	1.98
15	1.049	10	0.800	14	1.95
6	1.034	10	0.792	12	1.91
6	1.030	10	0.788	12	1.88
6	1.027	18	0.781	15	1.86
8	1.022	15	0.778	8	1.82
9	1.013	15	0.776	8	1.75
5	1.009	Cut off	0.773	14	1.73
4	1.005			12	1.69
8	0.998	$\text{UO}_2(\text{H}_2\text{PO}_4)_2 \cdot 3\text{H}_2\text{O}$ (Uranyl Dihydrogen Phosphate Trihydrate) (ref. 8)		6	1.66
20	0.988			2	1.63
12	0.981			3	1.61
5	0.973	Cut off	21.00	8	1.58
15	0.969	25	8.33	12	1.55
12	0.963	25	6.95	12	1.53
3	0.954	100	6.16	7	1.51
12	0.948	12	5.21	2	1.492
5	0.943	60	4.97	3	1.475
12	0.937	40	4.23	3	1.463
12	0.934	30	4.01	10	1.450
12	0.930	25	3.61	8	1.429

$I/I_1$	$d^\circ \text{Å}$	$I/I_1$	$d^\circ \text{Å}$	$I/I_1$	$d^\circ \text{Å}$
$\text{UO}_2(\text{H}_2\text{PO}_4)_2 \cdot 3\text{H}_2\text{O}$ (Uranyl Dihydrogen Phosphate Trihydrate) (ref. 8)		10	3.14	Cut off	0.773
2	1.411	10	3.07		
3	1.392	40	2.96	$\text{Na}_4\text{U}_3\text{O}_8(\text{PO}_4)_2 \cdot 6\text{H}_2\text{O}$ (Tetrasodium Hydrolyzed Uranium(VI) Phosphate Hexahydrate) (ref. 10)	
3	1.377	4	2.85		
12	1.364	3	2.78		
4	1.348	12	2.75		
2	1.339	25	2.64	Cut off	21.00
3	1.305	5	2.56		6.44
5	1.278	20	2.50		4.39
4	1.255	3	2.42		3.82
5	1.238	12	2.35		3.44
4	1.219	3	2.32		3.20
5	1.186	10	2.25		3.03
3	1.174	25	2.19		2.82
3	1.162	2	2.14		2.71
4	1.132	7	2.10		2.58
3	1.109	4	2.06		2.43
1	1.098	2	2.04		2.31
4	1.058	5	2.02		2.24
2	1.001	5	2.00		2.14
1	0.867	12	1.93		2.01
1	0.856	12	1.87		1.98
Cut off	0.773	12	1.86		1.94
		12	1.84		1.92
$\text{Na}_4\text{UO}_2(\text{PO}_4)_2 \cdot 6\text{H}_2\text{O}$ (Sodium Uranyl Phosphate Hexahydrate) (ref. 10)		5	1.81		1.87
Cut off	21.00	6	1.78		1.83
80	14.18	15	1.72		1.74
25	7.91	7	1.65		1.73
15	6.97	3	1.58		1.71
100	6.16	20	1.55		1.61
5	5.56	5	1.52		1.41
35	5.14	1	1.475	Cut off	0.773
10	4.85	1	1.454		
10	4.62	2	1.432		
2	4.38	2	1.416		
15	4.23	3	1.403		
15	4.17	2	1.388		
4	3.94	2	1.348		
12	3.83	1	1.338		
15	3.69	1	1.323		
5	3.54	7	1.311		
50	3.42	8	1.267		
40	3.26	1	1.223		
		10	1.223		
		4	1.147		
		2	1.124		
		1	1.120		
		1	1.105		

### OTHER COMPOUNDS

These compounds were obtained from the same sources as the compounds that are known to be pure. Although there is good evidence as to the composition and purity of these compounds, because of the method of preparation or because of insufficient checks it has not been possible to eliminate all doubt concerning their composition and purity. To a limited extent the same methods that were used to establish the composition and purity of the "Pure Compounds" have been used for these "Other Compounds."

#### X-RAY DIFFRACTION DATA FOR OTHER COMPOUNDS

$I/I_1$	$d\text{\AA}$	$bkl$	$I/I_1$	$d\text{\AA}$	$bkl$
<b>UN (Uranium Nitride;</b>			<b>UN<sub>2</sub> (Uranium Dinitride;</b>		
System - Face-centered Cubic;			System - Face-centered Cubic;		
$a_0 = 4.895 \pm 0.005 \text{ \AA}$			$a_0 = 5.332 \pm 0.005 \text{ \AA}$		
Cut off	21.00		Cut off	21.00	
30	2.78	111	90	3.02	111
25	2.42	200	40	2.62	200
35	1.72	220	75	1.86	220
40	1.47	311	100	1.59	311
15	1.40	222	20	1.53	222
12	1.22	400	18	1.32	400
35	1.12	331	50	1.22	331
35	1.09	420	50	1.19	420
40	0.997	422	40	1.08	422
50	0.941	511, 333	45	1.02	511, 333
35	0.865	440	15	0.940	440
100	0.827	531	40	0.899	531
90	0.816	600	25	0.887	600
Cut off	0.773		20	0.842	620
			20	0.813	335
			20	0.803	622
			Cut off	0.773	

$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$
<b><math>\text{UCl}_3</math> (Uranium Trichloride)</b>					
Cut off	21.00				
8	7.36	18	0.894	12	1.67
40	6.25	40	0.874	10	1.65
50	3.64	30	0.856	10	1.64
15	3.53	50	0.853	12	1.60
30	3.18	25	0.846	10	1.57
35	2.55	6	0.837	8	1.55
30	2.41	18	0.835	20	1.54
75	2.13	10	0.828	20	1.52
50	2.10	20	0.826	15	1.500
5	2.02	30	0.814	10	1.473
35	1.84	60	0.812	12	1.444
30	1.78	40	0.810	6	1.413
40	1.64	100	0.794	10	1.300
15	1.60	20	0.790	12	1.284
18	1.51	12	0.787	6	1.264
15	1.50	18	0.778	12	1.249
20	1.47	40	0.776	10	1.238
45	1.40	Cut off	0.773	12	1.222
40	1.39	<b><math>\text{UOCl}_2</math> (Uranium Oxychloride)</b>		12	1.208
12	1.37			8	1.195
15	1.31	Cut off	21.00	8	1.184
15	1.28	100	7.49	40	1.175
30	1.24	20	5.45	6	1.150
25	1.23	70	3.81	5	1.132
12	1.22	50	3.45	8	1.120
35	1.18	70	3.19	6	1.110
20	1.17	8	3.08	8	1.090
10	1.15	8	3.01	12	1.067
40	1.12	15	2.94	6	1.040
12	1.10	18	2.89	10	1.006
18	1.07	18	2.75	8	0.985
15	1.06	35	2.69	6	0.957
40	1.030	40	2.58	5	0.950
40	1.027	15	2.54	10	0.920
8	1.018	25	2.49	8	0.875
10	0.981	30	2.43	6	0.867
12	0.964	12	2.39	6	0.838
15	0.960	15	2.32	8	0.832
40	0.957	25	2.18	6	0.793
15	0.950	20	2.00	Cut off	0.773
12	0.933	20	1.98	<b><math>(\text{UO})_2\text{P}_2\text{O}_7</math> (Uranium Oxygen Pyrophosphate)</b>	
40	0.930	35	1.92		
18	0.920	50	1.81	Cut off	21.00
20	0.902	6	1.76	75	6.15
50	0.899	50	1.73	50	4.41

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
( $\text{UO}_2\text{P}_2\text{O}_7$ ) (Uranium Oxygen Pyrophosphate)		35	1.105	18	1.68
		15	1.065	8	1.62
45	4.14	40	1.040	15	1.59
20	3.61	30	1.029	6	1.58
100	3.48	18	1.013	18	1.54
20	3.12	15	1.002	18	1.51
45	3.05	35	0.988	20	1.484
50	2.73	15	0.967	10	1.434
40	2.68	40	0.958	8	1.414
35	2.51	35	0.946	12	1.380
30	2.31	20	0.926	20	1.369
25	2.19	15	0.919	20	1.341
40	2.13	20	0.905	5	1.315
30	2.10	25	0.886	5	1.297
18	2.07	18	0.841	6	1.279
8	2.03	18	0.817	12	1.261
25	1.97	25	0.808	10	1.239
20	1.90	18	0.789	10	1.226
12	1.87	Cut off	0.773	6	1.211
40	1.84			5	1.199
30	1.83			8	1.181
35	1.81			10	1.172
12	1.78	Cut off	21.00	6	1.158
45	1.76	50	6.10	5	1.146
60	1.72	100	4.10	10	1.124
18	1.70	40	3.95	6	1.108
30	1.68	50	3.72	8	1.099
25	1.64	8	3.63	12	1.083
20	1.59	40	3.43	6	1.063
20	1.58	20	3.17	10	1.055
30	1.51	50	3.07	8	1.046
25	1.490	18	2.76	10	1.039
20	1.440	25	2.68	15	1.029
40	1.416	35	2.51	8	1.010
20	1.375	18	2.28	12	0.987
20	1.357	15	2.25	6	0.979
25	1.312	20	2.11	8	0.974
40	1.293	60	2.05	15	0.961
30	1.275	12	2.01	6	0.947
45	1.256	15	1.97	6	0.940
15	1.234	40	1.92	8	0.918
25	1.214	6	1.89	15	0.899
18	1.192	18	1.86	10	0.884
35	1.177	25	1.84	6	0.872
18	1.159	25	1.81	8	0.865
20	1.139	20	1.77	10	0.862
25	1.122	15	1.73	5	0.852

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
<b>UZr<sub>2</sub>F<sub>11</sub> (Uranium Zirconium Fluoride)</b>		6	1.78	12	0.839
12      0.840		6	1.77	3	0.828
6      0.831		18	1.73	5	0.820
8      0.826		12	1.69	6	0.812
8      0.816		12	1.67	3	0.806
8      0.806		15	1.64	3	0.799
5      0.802		6	1.60	6	0.794
6      0.798		5	1.58	3	0.790
5      0.796		5	1.54	8	0.783
6      0.792		3	1.53	3	0.779
5      0.788		8	1.51	Cut off	0.773
Cut off      0.773		8	1.491		
		8	1.475	<b>UNaZr<sub>2</sub>F<sub>12</sub> (Uranium Sodium Zirconium Fluoride)</b>	
		6	1.415	Cut off	21.00
<b>UZr<sub>3</sub>F<sub>15</sub> (Uranium Zirconium Fluoride)</b>		8	1.402	20	7.27
Cut off      21.00		12	1.377	25	6.01
10      6.35		10	1.369	10	4.99
18      6.03		12	1.356	6	4.51
20      4.04		8	1.331	12	4.34
100      3.92		12	1.322	18	4.05
10      3.84		5	1.304	75	3.93
10      3.66		8	1.294	30	3.58
35      3.60		5	1.254	30	3.41
20      3.51		3	1.229	25	3.19
25      3.40		5	1.202	90	3.12
5      3.25		2	1.178	12	2.70
6      3.15		3	1.150	10	2.63
25      3.08		8	1.141	18	2.49
8      2.77		8	1.120	6	2.37
15      2.63		6	1.093	8	2.26
3      2.58		8	1.080	6	2.16
18      2.49		6	1.059	6	2.11
2      2.38		6	1.052	15	2.06
12      2.26		8	1.033	8	2.04
12      2.16		8	1.023	25	2.02
2      2.10		3	1.006	25	1.99
10      2.03		6	0.992	25	1.96
30      1.99		10	0.975	100	1.92
12      1.97		8	0.964	10	1.90
6      1.95		10	0.956	20	1.86
35      1.92		8	0.937	35	1.83
18      1.90		5	0.912	35	1.80
15      1.86		8	0.904	8	1.77
12      1.83		5	0.883	8	1.73
20      1.82		8	0.871	8	1.70
20      1.80		10	0.860		
		10	0.848		

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
<b>UNaZr<sub>2</sub>F<sub>12</sub> (Uranium Sodium Zirconium Fluoride)</b>		8	0.842	35	0.780
		20	0.839	Cut off	0.773
		12	0.830		
50	1.64	25	0.824		
12	1.61	8	0.818		
10	1.57	6	0.806		
8	1.54	6	0.796		
10	1.51	12	0.791		
6	1.491	12	0.783		
12	1.483	Cut off	0.773		
8	1.443				
8	1.405	UC <sub>2</sub> ? (Uranium Dicarbide)			
30	1.370	Cut off	21.00	100	4.23
20	1.357	35	3.32	40	4.06
25	1.329	75	3.01	70	3.67
8	1.298	50	2.97	25	3.34
25	1.248	100	2.47	25	3.06
8	1.216	70	1.91	60	2.83
6	1.199	35	1.75	10	2.72
6	1.184	100	1.73	7	2.66
8	1.170	100	1.52	15	2.29
8	1.163	40	1.50	35	2.08
8	1.157	50	1.283	85	2.01
12	1.135	25	1.243	15	1.94
25	1.114	60	1.235	5	1.90
5	1.102	40	1.149	25	1.87
5	1.084	30	1.141	5	1.82
6	1.073	40	1.134	20	1.79
8	1.059	30	1.113	25	1.72
20	1.050	50	1.043	20	1.66
10	1.035	40	1.011	10	1.63
10	1.026	15	0.998	15	1.58
8	1.008	70	0.964	7	1.53
15	0.996	30	0.957	15	1.485
10	0.986	80	0.954	30	1.441
12	0.976	40	0.927	5	1.432
10	0.965	50	0.894	30	1.413
10	0.954	18	0.880	10	1.397
6	0.944	70	0.878	10	1.375
6	0.939	50	0.869	7	1.363
20	0.922	80	0.846	7	1.332
6	0.905	40	0.839	5	1.304
18	0.890	40	0.832	7	1.274
6	0.878	50	0.830	5	1.242
12	0.861	70	0.800	6	1.191
15	0.855	60	0.788	5	1.159
5	0.848	80	0.786	5	1.142
				5	1.042

$I/I_1$	$d^\circ \text{Å}$	$I/I_1$	$d^\circ \text{Å}$	$I/I_1$	$d^\circ \text{Å}$
$\text{UF}_4 \cdot \frac{3}{4} \text{H}_2\text{O}$ (Uranium Tetrafluoride Hydrate) (ref. 1)		6	1.52	10	2.37
		6	1.50	7	2.34
		3	1.48	10	2.28
6	1.034	12	1.46	7	2.25
Cut off	0.773	8	1.44	9	2.21
		8	1.39	9	2.16
$\text{U}(\text{MoO}_4)_2 \cdot x \text{H}_2\text{O}$ (Uranium Molybdate Hydrate)		6	1.36	20	2.11
		3	1.30	20	2.08
Cut off	21.00	3	1.28	12	2.06
15	9.10	6	1.25	12	2.03
60	6.49	3	1.23	15	2.00
20	5.74	3	1.21	7	1.97
25	5.26	6	1.19	20	1.93
10	4.55	6	1.17	8	1.90
18	4.31	6	1.13	10	1.88
15	3.58	3	0.92	9	1.86
30	3.44	Cut off	0.773	11	1.84
20	3.34			10	1.81
100	3.22	$\text{UFPO}_4 \cdot \text{H}_2\text{O}$ (Uranous Monofluorophosphate Monohydrate) (ref. 1)		4	1.78
25	3.12			5	1.76
8	3.03			15	1.75
10	2.96	Cut off	21.00	15	1.71
8	2.89	12	6.28	12	1.69
6	2.78	5	6.02	7	1.68
3	2.72	75	5.76	12	1.65
20	2.63	60	4.73	8	1.62
12	2.54	50	4.56	8	1.60
6	2.48	50	4.34	10	1.58
6	2.32	2	4.13	10	1.56
18	2.15	12	4.00	9	1.54
15	2.08	5	3.84	10	1.51
8	2.03	100	3.74	9	1.492
8	2.01	3	3.63	4	1.470
10	1.98	20	3.55	10	1.456
8	1.94	10	3.42	6	1.441
18	1.91	25	3.23	8	1.418
10	1.87	23	3.14	10	1.397
15	1.84	4	3.07	8	1.379
6	1.79	4	3.03	2	1.364
12	1.76	100	2.97	4	1.356
8	1.73	10	2.93	4	1.346
12	1.70	5	2.88	8	1.337
10	1.66	25	2.80	5	1.320
18	1.64	3	2.78	9	1.300
10	1.61	10	2.73	2	1.290
6	1.59	70	2.68	4	1.278
3	1.56	15	2.46	9	1.263
10	1.54	10	2.44	3	1.252

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
UFPO <sub>4</sub> ·H <sub>2</sub> O (Uranous Monofluorophosphate Monohydrate) (ref. 1)		3	0.784	15	0.867
12	1.236	3	0.782	15	0.846
5	1.225	3	0.777	15	0.834
7	1.209	Cut off	0.773	10	0.804
4	1.199	UP <sub>2</sub> O <sub>7</sub> (Uranous Pyrophosphate) (ref. 1)		6	0.801
12	1.189	Cut off	21.00	8	0.787
7	1.174	75	4.97	8	0.778
6	1.168	100	4.31	Cut off	0.773
4	1.158	10*	3.85	UCl <sub>5</sub> (Uranium Pentachloride)	
8	1.148	10*	3.51	Cut off	21.00
5	1.138	60	3.04	10	6.23
5	1.125	6*	2.66	5	5.58
6	1.112	80	2.59	8	5.03
6	1.099	6*	2.54	20	4.44
12	1.087	15	2.49	5	3.89
6	1.066	15	2.15	3	3.68
4	1.052	35	1.98	2	3.50
8	1.042	40	1.93	3	3.35
5	1.031	30	1.76	25	3.22
5	1.021	40	1.66	7	3.01
5	1.009	15	1.52	9	2.69
10	0.989	25	1.456	100	2.65
7	0.981	20	1.435	6	2.57
5	0.967	12	1.362	9	2.50
3	0.958	12	1.315	8	2.46
3	0.950	12	1.300	12	2.41
6	0.939	5*	1.243	10	2.36
6	0.927	5*	1.233	5	2.25
5	0.917	5*	1.221	15	2.21
2	0.903	15	1.207	5	2.12
4	0.896	12	1.196	15	2.05
5	0.886	15	1.152	30	2.00
5	0.876	20	1.123	6	1.97
4	0.864	4	1.077	15	1.91
5	0.858	10	1.054	15	1.88
5	0.845	12	1.046	6	1.84
5	0.833	10	1.017	15	1.82
4	0.821	12	0.996	3	1.78
2	0.811	4	0.989	2	1.76
3	0.807	6	0.966	17	1.74
4	0.802	15	0.947	5	1.71
5	0.798	8	0.941	5	1.70
4	0.794	5	0.920	5	1.66
4	0.790	10	0.905	10	1.64
2	0.786	4	0.880	5	1.61

\* These lines may be from an impurity.

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
$\text{UCl}_5$ (Uranium Pentachloride)					
12	1.57	6	0.786	15	0.863
7	1.52	3	0.783	10	0.853
20	1.501	1	0.781	10	0.841
20	1.499	Cut off	0.773	15	0.828
5	1.443	$\text{U}_2\text{O}_5$ (Uranium Oxide)	21.00	40	0.809
5	1.415	Cut off	21.00	60	0.805
4	1.404	75	4.13	Cut off	0.773
17	1.335	75	3.40	$\text{NH}_4\text{UO}_2\text{AsO}_4 \cdot x\text{H}_2\text{O}$	
4	1.319	60	2.63	(Ammonium Uranyl Arsenate Hydrate) (ref. 11)	
2	1.303	75	2.57	Cut off	21.00
7	1.268	35	2.21	90	8.62
3	1.256	18	2.07	50	5.47
5	1.215	50	2.04	45	4.96
10	1.197	40	1.96	20	4.36
8	1.182	35	1.93	40	3.74
12	1.165	100	1.75	100	3.53
7	1.143	35	1.69	6	3.46
5	1.120	15	1.66	70	3.29
4	1.098	10	1.61	6	3.15
3	1.085	12	1.59	6	3.06
8	1.078	40	1.56	40	2.98
4	1.048	20	1.54	18	2.75
4	1.024	18	1.49	20	2.58
5	1.008	30	1.42	25	2.51
4	0.994	25	1.41	25	2.42
4	0.977	35	1.37	6	2.36
5	0.967	15	1.31	18	2.30
2	0.951	12	1.30	30	2.25
4	0.940	12	1.29	20	2.18
3	0.927	50	1.27	12	2.09
6	0.921	35	1.23	12	1.93
3	0.909	18	1.13	10	1.86
4	0.893	40	1.09	18	1.81
4	0.874	10	1.08	20	1.78
4	0.869	10	1.07	15	1.75
1	0.848	10	1.06	12	1.70
2	0.838	12	1.03	10	1.65
3	0.820	50	0.988	20	1.60
5	0.817	18	0.943	18	1.57
4	0.815	10	0.934	6	1.50
1	0.810	12	0.925	6	1.45
3	0.808	12	0.917	8	1.44
1	0.803	18	0.914	10	1.41
2	0.800	10	0.895	8	1.36
2	0.794	18	0.885	6	1.13
2	0.791	10	0.869	Cut off	0.773

$I/I_1$	$d^\circ \text{\AA}$	$I/I_1$	$d^\circ \text{\AA}$	$I/I_1$	$d^\circ \text{\AA}$
$\text{UO}_2\text{HAsO}_4$ (Uranyl Monohydrogen Arsenate) (ref. 11)		20	1.360	$\text{NaUO}_2\text{AsO}_4 \cdot 2\text{H}_2\text{O}$ (Sodium Uranyl Arsenate Dihydrate) (ref. 11)	
Cut off	21.00	20	1.336	Cut off	21.00
100	8.63	10	1.285	100	8.51
70	5.52	10	1.271	50	5.45
35	5.03	10	1.263	25	4.95
35	4.36	10	1.250	20	4.30
90	3.73	3	1.238	12	3.76
50	3.57	6	1.230	80	3.67
80	3.30	10	1.217	80	3.53
4	3.15	12	1.181	10	3.33
35	2.99	5	1.169	80	3.27
2	2.90	5	1.136	6	3.04
2	2.87	10	1.132	25	2.97
10	2.76	10	1.121	2	2.84
40	2.70	4	1.109	2	2.78
20	2.57	10	1.096	12	2.74
35	2.51	2	1.093	18	2.66
35	2.42	2	1.082	18	2.55
2	2.36	6	1.072	30	2.50
12	2.29	3	1.062	25	2.41
15	2.25	3	1.044	15	2.28
20	2.19	4	1.037	20	2.25
20	2.15	5	1.007	18	2.17
35	2.09	3	0.992	12	2.13
40	2.01	5	0.985	25	2.07
3	1.99	2	0.978	15	1.98
10	1.93	2	0.964	10	1.92
5	1.87	4	0.960	8	1.84
10	1.85	6	0.945	12	1.83
20	1.81	3	0.932	18	1.79
20	1.78	6	0.919	25	1.78
4	1.76	2	0.913	15	1.74
18	1.75	5	0.897	10	1.69
5	1.70	1	0.891	8	1.68
2	1.68	2	0.882	20	1.64
25	1.66	4	0.877	10	1.60
8	1.64	2	0.869	15	1.59
8	1.61	5	0.863	40	1.56
6	1.60	3	0.849	5	1.52
40	1.57	4	0.834	6	1.495
1	1.54	3	0.830	10	1.483
6	1.494	2	0.822	6	1.452
5	1.464	1	0.814	3	1.423
6	1.438	2	0.806	10	1.408
20	1.411	2	0.790	15	1.375
25	1.388	Cut off	0.773	12	1.354

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
$\text{NaUO}_2\text{AsO}_4 \cdot 2\text{H}_2\text{O}$ (Sodium Uranyl Arsenate Dihydrate) (ref. 11)		1	0.811	12	1.52
10	1.329	2	0.799	8	1.432
5	1.308	2	0.796	12	1.400
10	1.280	Cut off	0.773	6	1.382
10	1.261			8	1.367
8	1.247	$\text{NaUO}_2\text{AsO}_4 \cdot 4\text{H}_2\text{O}$ (Sodium Uranyl Arsenate Tetrahydrate) (ref. 11)		15	1.346
2	1.234	Cut off	21.00	6	1.323
10	1.221	6	8.18	3	1.301
10	1.207	20	7.29	5	1.281
10	1.189	100	6.56	6	1.267
12	1.185	10	5.12	8	1.254
3	1.163	20	4.81	6	1.228
3	1.153	12	4.14	10	1.192
12	1.129	10	3.60	12	1.173
10	1.118	25	3.51	6	1.144
4	1.106	20	3.46	8	1.090
2	1.098	25	3.36	6	1.076
12	1.088	5	3.25	6	1.057
2	1.078	8	3.22	8	1.041
8	1.064	15	3.12	10	1.015
6	1.053	25	3.04	6	0.996
2	1.040	6	2.86	10	0.989
8	1.033	10	2.71	5	0.982
4	1.015	5	2.53	6	0.946
5	1.008	15	2.48	6	0.935
10	0.999	12	2.45	5	0.924
6	0.990	6	2.38	4	0.902
6	0.982	25	2.26	12	0.870
5	0.974	18	2.24	8	0.860
2	0.960	5	2.20	5	0.836
3	0.954	12	2.16	6	0.804
2	0.946	3	2.01	Cut off	0.773
4	0.938	5	1.98	$2\text{K}_2\text{CO}_3 \cdot \text{UO}_2\text{CO}_3$ (Potassium Uranyl Tricarbonate) (ref. 12)	
3	0.927	8	1.95		
4	0.915	15	1.91		
2	0.901	3	1.88	Cut off	21.00
3	0.894	6	1.83	30	6.84
2	0.886	18	1.78	40	6.48
3	0.881	8	1.76	100	6.13
5	0.873	15	1.73	100	5.81
4	0.867	12	1.71	8	5.52
5	0.861	10	1.69	40	5.11
3	0.848	10	1.64	10	4.88
2	0.838	10	1.62	12	4.62
3	0.830	18	1.59	20	4.10
4	0.826	6	1.54	10	3.99

$I/I_1$	$d^\circ \text{Å}$	$I/I_1$	$d^\circ \text{Å}$	$I/I_1$	$d^\circ \text{Å}$
$2\text{K}_2\text{CO}_3 \cdot \text{UO}_2\text{CO}_3$ (Potassium Uranyl Tricarbonate) (ref. 12)		10	1.238	$\text{UO}_2\text{Cl}_2$ (Uranyl Dichloride)	
8	3.89	20	1.222	Cut off	21.00
10	3.76	25	1.203	8	5.86
25	3.62	8	1.187	3	4.94
50	3.41	10	1.177	100	4.67
60	3.31	25	1.169	16	4.25
18	3.24	12	1.159	20	4.10
75	3.16	15	1.149	20	3.41
50	3.07	35	1.134	35	3.15
40	2.96	8	1.121	30	3.11
20	2.86	10	1.102	10	2.97
15	2.73	8	1.088	16	2.71
85	2.67	30	1.069	15	2.67
80	2.62	20	1.053	10	2.63
15	2.56	25	1.042	10	2.56
15	2.50	20	1.035	8	2.46
8	2.42	25	1.022	18	2.39
40	2.35	6	0.985	8	2.37
50	2.30	6	0.981	12	2.34
50	2.24	8	0.971	20	2.27
12	2.16	35	0.961	25	2.17
40	2.12	35	0.949	15	2.16
35	2.06	15	0.943	3	2.12
60	2.02	20	0.935	10	2.08
15	1.99	20	0.930	8	2.06
10	1.91	8	0.923	25	2.02
35	1.85	15	0.913	16	2.00
12	1.81	40	0.905	8	1.98
35	1.75	35	0.894	60	1.96
15	1.72	15	0.887	15	1.91
60	1.69	30	0.874	6	1.88
50	1.65	25	0.865	15	1.82
60	1.59	25	0.858	30	1.80
8	1.56	8	0.851	12	1.74
35	1.55	35	0.843	3	1.70
6	1.53	30	0.838	15	1.68
6	1.491	35	0.828	4	1.65
40	1.465	40	0.817	25	1.64
40	1.432	18	0.811	15	1.60
8	1.410	30	0.809	14	1.54
8	1.379	20	0.804	10	1.51
50	1.352	15	0.798	5	1.477
35	1.327	15	0.788	20	1.456
10	1.310	25	0.784	10	1.445
40	1.261	8	0.779	20	1.427
8	1.247	Cut off	0.773	15	1.404
				15	1.397
				10	1.382

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
$\text{UO}_2\text{Cl}_2$ (Uranyl Dichloride)					
10	1.368	12	0.849	6	2.55
30	1.352	1	0.843	40	2.47
30	1.338	3	0.841	3	2.43
8	1.311	6	0.838	3	2.39
30	1.291	3	0.835	6	2.33
10	1.278	6	0.833	12	2.24
10	1.269	18	0.828	15	2.21
4	1.254	15	0.826	12	2.16
12	1.243	15	0.824	12	2.12
12	1.223	10	0.814	15	2.08
10	1.210	10	0.807	3	2.03
10	1.182	6	0.805	3	2.00
10	1.165	10	0.802	3	1.98
10	1.152	10	0.799	25	1.95
8	1.131	10	0.798	18	1.93
8	1.122	10	0.796	3	1.90
3	1.112	4	0.793	6	1.88
8	1.104	8	0.789	30	1.84
10	1.093	8	0.788	20	1.80
8	1.087	6	0.784	18	1.78
5	1.078	6	0.783	20	1.73
10	1.068	1	0.781	6	1.68
15	1.052	6	0.779	8	1.66
15	1.034	12	0.778	3	1.63
6	1.025	Cut off	0.773	6	1.62
3	1.019	$\text{AgUO}_2\text{CrO}_4 \cdot x\text{H}_2\text{O}$ (Silver Uranyl Chromate Hydrate)		8	1.61
15	1.010			15	1.58
3	1.001	Cut off	21.00	12	1.56
2	0.989	15	5.59	6	1.54
10	0.984	12	4.94	12	1.51
12	0.977	6	4.68	12	1.48
3	0.967	3	4.47	6	1.47
1	0.962	5	4.24	6	1.43
6	0.958	5	4.02	8	1.40
3	0.946	12	3.98	3	1.36
3	0.940	12	3.83	3	1.35
10	0.932	15	3.50	2	1.34
8	0.917	15	3.44	6	1.32
6	0.912	3	3.37	3	1.31
15	0.901	6	3.29	6	1.27
6	0.889	100	3.16	3	1.24
6	0.886	100	3.10	3	1.19
15	0.871	90	3.03	3	1.16
18	0.868	80	2.93	3	1.14
12	0.862	70	2.85	3	1.12
10	0.859	3	2.81	6	1.10
4	0.851	3	2.74	3	1.08
		60	2.65	Cut off	0.773

$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$
$(\text{UO}_2)_2\text{Fe}(\text{CN})_6$ (Uranyl Iron Cyanide)		6	1.10	2	1.84
Cut off	21.00	Cut off	0.773	2	1.82
18	7.49			3	1.78
50	6.78			15	1.75
100	6.13	Cut off	21.00	10	1.73
10	5.72	6	7.30	3	1.68
10	5.47	100	6.98	3	1.65
40	5.22	6	6.42	4	1.63
8	4.97	10	5.54	15	1.61
35	4.77	6	5.29	3	1.56
18	4.58	20	5.03	3	1.54
12	4.35	2	4.79	12	1.52
8	4.14	2	4.64	3	1.50
18	3.96	3	4.35	3	1.47
10	3.87	50	4.19	2	1.45
10	3.80	4	4.06	4	1.42
18	3.59	10	3.91	3	1.41
50	3.48	3	3.82	3	1.38
18	3.38	4	3.76	3	1.37
18	3.24	75	3.58	3	1.36
18	3.12	25	3.48	4	1.34
6	2.97	3	3.39	3	1.32
25	2.77	4	3.33	2	1.31
25	2.72	35	3.22	2	1.28
30	2.61	2	2.97	3	1.27
10	2.51	2	2.87	3	1.25
35	2.46	4	2.78	2	1.23
15	2.42	5	2.73	2	1.22
8	2.31	20	2.67	2	1.17
10	2.19	5	2.61	3	1.15
8	2.13	6	2.57	2	1.09
8	2.06	10	2.52	3	1.08
8	2.02	3	2.43	2	1.07
6	1.99	3	2.33	3	1.05
6	1.93	10	2.21	3	1.04
6	1.86	15	2.16	3	1.03
6	1.82	3	2.11	2	1.00
6	1.79	3	2.08	Cut off	0.773
10	1.74	20	2.03		
6	1.71	10	2.01		
5	1.68	12	2.00		
6	1.61	4	1.97	Cut off	21.00
6	1.52	18	1.95	100	5.26
5	1.49	12	1.93	10	5.08
5	1.46	18	1.92	50	4.58
8	1.28	3	1.89	8	4.00
5	1.23	3	1.86	20	3.38

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
<b>3KF·UO<sub>2</sub>F<sub>2</sub> (Potassium Uranyl Fluoride)</b>		12	1.111	<b>UO<sub>2</sub>(HCOO)<sub>2</sub>·H<sub>2</sub>O (Uranyl Formate Monohydrate)</b>	
100	3.23	2	1.101	Cut off	21.00
2	2.86	3	1.093	100	4.97
3	2.81	12	1.080	40	4.83
40	2.76	3	1.068	35	3.99
10	2.72	2	1.042	40	3.13
12	2.63	3	1.035	12	3.07
12	2.49	8	1.024	90	2.84
3	2.46	2	1.011	30	2.80
5	2.32	8	0.999	40	2.61
25	2.29	6	0.990	40	2.45
10	2.27	3	0.976	10	2.42
15	2.19	8	0.960	40	2.29
15	2.09	2	0.953	8	2.20
15	2.08	3	0.947	30	2.16
18	2.05	8	0.936	65	2.12
12	1.97	2	0.924	12	2.08
8	1.89	6	0.916	25	2.02
45	1.87	2	0.910	50	2.01
25	1.81	10	0.899	8	1.98
6	1.79	6	0.892	40	1.93
18	1.76	3	0.886	40	1.87
12	1.68	8	0.882	18	1.86
10	1.64	3	0.876	25	1.77
10	1.62	2	0.856	40	1.74
10	1.61	2	0.854	40	1.73
8	1.58	6	0.851	40	1.69
12	1.55	6	0.850	8	1.66
10	1.53	2	0.845	18	1.64
12	1.494	6	0.836	20	1.61
15	1.447	3	0.831	15	1.59
6	1.422	3	0.826	15	1.58
6	1.393	2	0.819	18	1.57
10	1.381	2	0.815	20	1.53
10	1.356	6	0.810	20	1.52
8	1.322	5	0.805	25	1.491
10	1.300	3	0.803	20	1.478
10	1.281	8	0.801	25	1.459
8	1.270	3	0.798	15	1.438
8	1.253	8	0.794	40	1.416
15	1.223	2	0.790	8	1.408
10	1.208	3	0.786	15	1.395
8	1.191	5	0.782	25	1.376
10	1.183	5	0.777	25	1.372
6	1.164	Cut off	0.773	18	1.356
3	1.145			20	1.337
10	1.133			25	1.315

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
$\text{UO}_2(\text{HCOO})_2 \cdot \text{H}_2\text{O}$ (Uranyl Formate Monohydrate)		12	0.864	12	1.75
		15	0.861	25	1.72
8	1.309	6	0.851	15	1.47
25	1.280	5	0.849	10	1.42
35	1.270	8	0.846	12	1.36
20	1.260	12	0.843	10	1.28
18	1.247	8	0.837	Cut off	0.773
10	1.237	10	0.835		
18	1.227	8	0.831	$\text{UO}_2\text{C}_2\text{O}_4 \cdot \text{H}_2\text{O}$ (Uranyl Oxalate Monohydrate)	
20	1.200	30	0.827	Cut off	21.00
18	1.190	6	0.822	40	8.22
20	1.176	10	0.820	40	6.31
20	1.163	10	0.814	18	5.97
18	1.139	18	0.810	35	5.31
15	1.129	18	0.808	30	5.11
12	1.117	25	0.804	12	4.88
6	1.110	8	0.800	25	4.58
20	1.102	20	0.797	100	4.25
15	1.084	20	0.794	40	3.90
35	1.073	18	0.786	35	3.80
15	1.060	20	0.784	30	3.68
15	1.054	15	0.781	15	3.07
18	1.048	8	0.779	25	2.97
12	1.040	15	0.776	15	2.89
15	1.034	Cut off	0.773	12	2.84
4	1.026			20	2.80
20	1.019	$\text{UO}_2\text{C}_2\text{O}_4$ (Uranyl Oxalate)		10	2.74
18	1.016	Cut off	21.00	10	2.68
12	1.003	20	6.20	25	2.60
8	0.997	10	5.68	18	2.53
18	0.982	40	5.24	35	2.50
5	0.975	12	4.71	18	2.36
12	0.967	30	4.50	18	2.33
6	0.962	100	4.38	25	2.28
15	0.953	30	4.28	10	2.22
12	0.946	25	4.13	50	2.17
12	0.942	18	3.02	60	2.14
12	0.931	35	2.90	35	2.11
18	0.925	10	2.64	8	2.09
18	0.917	50	2.57	20	1.98
15	0.910	40	2.43	30	1.92
20	0.907	25	2.36	50	1.85
15	0.899	20	2.30	30	1.81
8	0.894	18	2.21	30	1.78
25	0.879	45	2.18	10	1.76
25	0.877	35	1.90		
20	0.870	20	1.86		
8	0.866	10	1.82		

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
$\text{UO}_2\text{C}_2\text{O}_4 \cdot \text{H}_2\text{O}$ (Uranyl Oxalate Monohydrate)		100	7.24	2	1.52
		3	4.43	2	1.480
15	1.74	2	4.04	8	1.445
10	1.71	3	3.75	3	1.419
10	1.69	40	3.65	10	1.358
35	1.67	35	3.57	2	1.336
25	1.64	25	3.47	3	1.321
20	1.62	2	3.38	2	1.303
15	1.60	5	3.30	2	1.292
25	1.57	50	3.20	3	1.283
10	1.55	20	3.15	2	1.257
15	1.53	2	3.05	3	1.228
6	1.48	3	2.99	3	1.215
8	1.46	2	2.95	3	1.204
8	1.45	2	2.92	8	1.189
25	1.43	10	2.87	2	1.177
10	1.40	8	2.83	2	1.171
8	1.38	3	2.79	2	1.163
8	1.36	2	2.75	3	1.141
15	1.34	3	2.60	2	1.132
10	1.32	35	2.55	2	1.124
8	1.31	15	2.52	3	1.113
15	1.29	6	2.48	2	1.041
20	1.27	10	2.44	3	0.998
18	1.25	3	2.38	4	0.981
6	1.23	8	2.30	5	0.962
12	1.21	2	2.26	2	0.951
15	1.19	6	2.21	2	0.945
15	1.17	2	2.18	1	0.940
10	1.16	10	2.14	4	0.933
5	1.15	4	2.11	1	0.927
6	1.14	8	2.06	4	0.923
6	1.11	12	2.03	3	0.911
8	1.09	15	2.01	2	0.902
12	1.07	20	1.95	2	0.891
6	1.06	3	1.91	4	0.879
12	1.03	2	1.85	5	0.869
10	1.02	4	1.83	2	0.857
12	0.990	6	1.81	2	0.843
12	0.967	20	1.78	2	0.813
8	0.928	10	1.75	Cut off	0.773
10	0.923	3	1.72		
12	0.909	8	1.70		
Cut off	0.773	6	1.68		
		10	1.63		
$\text{UO}_3 \cdot 2\text{H}_2\text{O}$ (Uranium Trioxide Dihydrate)		10	1.61	Cut off	21.00
		4	1.58	50	7.05
Cut off	21.00	10	1.56	70	3.46
25	7.47	3	1.53	100	3.12

$I/I_1$	$d\text{Å}^\circ$	$I/I_1$	$d\text{Å}^\circ$	$I/I_1$	$d\text{Å}^\circ$
$(\text{NH}_4)_2\text{O}\cdot 4\text{UO}_3\cdot 7\text{H}_2\text{O}$ (Ammonium Uranium Oxide Hydrate)		15	2.64	25	10.24
40	2.51	10	2.42	75	8.64
6	2.32	9	2.34	25	7.48
5	2.28	10	2.23	40	6.86
8	2.20	12	2.12	30	6.20
5	2.17	12	2.08	40	5.86
30	2.02	13	2.03	45	5.83
6	1.98	13	2.00	35	5.44
40	1.94	9	1.85	80	5.19
35	1.76	9	1.79	10	4.97
5	1.73	2	1.73	18	4.81
35	1.70	2	1.68	40	4.61
8	1.65	8	1.64	12	4.42
5	1.57	5	1.62	100	4.22
6	1.55	8	1.60	20	3.94
5	1.418	2	1.58	20	3.84
6	1.302	6	1.55	12	3.75
5	1.266	6	1.51	35	3.68
5	1.245	5	1.48	50	3.51
5	1.218	3	1.44	30	3.39
6	1.209	4	1.42	60	3.26
5	1.163	8	1.36	10	3.17
5	1.155	6	1.32	15	3.10
5	1.137	2	1.30	10	3.05
5	1.099	4	1.26	40	2.98
5	0.990	1	1.25	12	2.92
6	0.927	1	1.21	12	2.86
5	0.909	1	1.19	40	2.81
5	0.867	1	1.18	25	2.72
5	0.830	1	1.16	12	2.66
Cut off	0.773	<1	1.14	35	2.60
		<1	1.12	25	2.51
$\text{UO}_2\text{NH}_4\text{PO}_4$ (Uranyl Ammonium Phosphate) (ref. 9)		2	1.11	30	2.44
Cut off	21.00	2	1.09	18	2.38
35	6.98	4	1.07	10	2.30
100	6.59	6	1.02	12	2.26
18	4.49	<1	0.992	25	2.20
5	4.41	<1	0.972	40	2.13
18	3.69	1	0.929	30	2.04
2	3.43	Cut off	0.867	25	2.03
25	3.33	0.773	12	1.97	
12	3.26		18	1.95	
40	3.17		35	1.91	
6	2.68		50	1.86	
		$\text{UO}_2\text{HPO}_4\cdot 2\text{H}_2\text{O}$ (Uranyl Monohydrogen Phosphate Dihydrate) (ref. 8)	12	1.82	
		Cut off	10	1.79	
		21.00	8	1.77	

$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$
$\text{UO}_2\text{HPO}_4 \cdot 2\text{H}_2\text{O}$ (Uranyl Monohydrogen Phosphate Dihydrate) (ref. 8)					
35	1.73	35	2.03	15	1.052
25	1.69	25	1.97	20	1.044
20	1.64	20	1.87	10	1.029
35	1.61	18	1.83	15	1.023
18	1.58	40	1.80	12	1.017
12	1.50	18	1.77	15	1.009
10	1.49	45	1.75	6	1.003
15	1.46	40	1.73	10	0.999
10	1.44	35	1.69	15	0.992
10	1.42	15	1.65	25	0.984
8	1.39	50	1.63	15	0.977
8	1.33	40	1.60	6	0.969
12	1.31	35	1.58	20	0.965
12	1.28	20	1.56	8	0.959
15	1.24	35	1.55	8	0.956
10	1.16	18	1.54	18	0.946
10	1.11	15	1.52	6	0.937
12	1.07	18	1.454	10	0.934
10	1.05	40	1.436	20	0.930
Cut off	0.773	15	1.411	20	0.927
		35	1.382	15	0.921
		15	1.368	20	0.913
		55	1.357	12	0.908
$\text{UO}_2\text{NaPO}_4$ (Uranyl Sodium Phosphate) (ref. 9)		18	1.343	10	0.906
		15	1.330	20	0.896
		20	1.320	10	0.884
Cut off	21.00	18	1.305	12	0.882
25	9.27	12	1.274	12	0.876
75	8.21	18	1.261	15	0.873
40	5.26	25	1.250	6	0.866
20	4.79	20	1.235	12	0.863
35	4.19	20	1.225	10	0.859
3	3.98	20	1.215	40	0.856
6	3.78	25	1.206	20	0.854
100	3.60	25	1.190	10	0.852
60	3.41	20	1.179	6	0.850
75	3.18	12	1.169	30	0.847
55	2.88	30	1.156	30	0.844
12	2.67	25	1.149	25	0.843
50	2.63	12	1.132	25	0.841
40	2.50	6	1.119	18	0.838
25	2.43	8	1.110	3	0.836
40	2.34	9	1.104	20	0.832
15	2.22	15	1.098	10	0.830
45	2.18	20	1.090	25	0.828
35	2.15	25	1.071	15	0.826
55	2.11	15	1.063	20	0.821
18	2.05	8	1.059	18	0.818

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
$\text{UO}_2\text{NaPO}_4$ (Uranyl Sodium Phosphate) (ref. 9)					
30	0.814	40	2.19	12	1.157
15	0.812	12	2.16	12	1.152
30	0.809	35	2.11	3	1.142
18	0.808	5	2.08	6	1.130
15	0.807	15	2.06	4	1.120
20	0.806	30	2.04	8	1.108
18	0.803	3	2.01	2	1.099
20	0.801	15	1.98	8	1.091
8	0.799	15	1.88	3	1.079
8	0.798	12	1.84	8	1.072
25	0.797	25	1.81	3	1.066
12	0.795	12	1.78	4	1.062
18	0.794	25	1.76	8	1.055
12	0.792	15	1.74	3	1.044
25	0.788	15	1.70	2	1.031
3	0.787	3	1.67	3	1.022
8	0.786	25	1.66	6	1.018
20	0.785	25	1.64	3	1.009
10	0.780	3	1.61	10	0.993
18	0.779	3	1.59	8	0.983
15	0.778	15	1.57	4	0.976
18	0.777	25	1.55	5	0.966
15	0.776	20	1.54	2	0.960
Cut off	0.773	15	1.53	3	0.949
		18	1.456	2	0.934
		18	1.442	3	0.921
$\text{NaUO}_2\text{PO}_4 \cdot 5\text{H}_2\text{O}$ (Sodium Uranyl Phosphate Pentahydrate) (ref. 10)					
Cut off	21.00	2	1.428	10	0.909
100	8.57	10	1.417	2	0.898
75	5.43	8	1.383	2	0.888
50	4.89	8	1.373	3	0.883
50	4.25	30	1.361	5	0.874
100	3.65	4	1.348	4	0.860
3	3.51	10	1.330	12	0.857
60	3.46	12	1.325	3	0.853
80	3.21	10	1.308	10	0.848
40	2.91	2	1.290	10	0.845
10	2.70	5	1.278	8	0.843
40	2.65	2	1.264	12	0.841
35	2.52	12	1.253	4	0.828
10	2.48	2	1.246	3	0.818
20	2.45	6	1.239	2	0.815
35	2.36	8	1.230	10	0.812
5	2.30	6	1.218	5	0.807
15	2.23	8	1.208	3	0.805
		10	1.193	6	0.803
		8	1.180	6	0.802
		2	1.170	3	0.797

$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$
$\text{NaUO}_2\text{PO}_4 \cdot 5\text{H}_2\text{O}$ (Sodium Uranyl Phosphate Pentahydrate) (ref. 10)					
3	0.790	4	1.79	15	1.94
3	0.788	4	1.76	60	1.90
6	0.785	8	1.72	12	1.87
3	0.779	6	1.66	75	1.85
4	0.776	8	1.62	15	1.81
Cut off	0.773	4	1.59	15	1.79
		3	1.55	70	1.72
		3	1.53	20	1.70
		3	1.48	20	1.68
		3	1.42	20	1.65
$(\text{UO}_2)_2\text{P}_2\text{O}_7$ (Uranyl Pyrophosphate)		Cut off	0.773	12	1.64
Cut off	21.00	$(\text{UO}_2)_2\text{P}_2\text{O}_7$ (Uranyl Pyrophosphate)		12	1.62
35	8.41	Cut off	21.00	10	1.59
12	6.36	60	5.99	12	1.57
50	5.21	35	5.09	15	1.55
18	4.98	20	4.88	20	1.52
8	4.81	15	4.73	25	1.490
12	4.67	10	4.48	25	1.454
10	4.44	60	4.15	10	1.419
18	4.33	12	3.93	12	1.394
100	4.18	10	3.78	12	1.364
5	3.95	40	3.66	12	1.340
4	3.85	25	3.57	10	1.328
5	3.61	10	3.48	10	1.303
40	3.53	40	3.37	10	1.296
5	3.37	25	3.26	20	1.280
20	3.26	15	3.10	25	1.237
4	3.08	12	3.01	12	1.217
40	3.01	100	2.95	10	1.201
12	2.92	30	2.89	15	1.189
18	2.82	25	2.75	12	1.177
4	2.77	12	2.70	15	1.159
10	2.69	50	2.58	12	1.143
20	2.60	15	2.51	10	1.116
6	2.50	25	2.43	12	1.106
15	2.46	15	2.36	10	1.093
12	2.42	20	2.29	15	1.073
3	2.33	15	2.24	10	1.062
3	2.26	50	2.21	10	1.043
15	2.22	20	2.17	10	1.039
12	2.14	12	2.14	15	1.029
10	2.10	15	2.11	15	1.014
10	2.05	20	2.06	20	0.958
10	1.98	10	2.02	12	0.935
12	1.93	10	1.99	10	0.903
12	1.88	10	1.97	10	0.878
5	1.83			12	0.866

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
( $\text{UO}_2$ ) <sub>2</sub> $\text{P}_2\text{O}_7$ (Uranyl Pyrophosphate)		15	1.68	12	0.994
		12	1.66	5	0.982
10	0.855	20	1.62	4	0.973
15	0.831	20	1.59	10	0.963
18	0.826	10	1.57	12	0.950
12	0.817	5	1.56	4	0.940
12	0.814	15	1.53	12	0.932
12	0.802	12	1.51	4	0.922
15	0.798	12	1.497	5	0.918
Cut off	0.773	15	1.480	12	0.915
		12	1.428	5	0.903
$\text{U}_2\text{O}_3\text{P}_2\text{O}_7$ (Uranyl Uranous Pyrophosphate) (ref. 1)		10	1.421	5	0.890
		10	1.410	4	0.881
Cut off	21.00	15	1.393	4	0.865
40	5.42	5	1.373	8	0.850
35	5.19	20	1.362	8	0.839
10	4.91	10	1.349	10	0.837
90	4.42	20	1.333	8	0.834
35	4.31	12	1.310	12	0.828
25	4.19	18	1.298	12	0.825
35	4.08	4	1.287	12	0.817
100	3.49	15	1.278	8	0.815
10	3.40	15	1.261	8	0.812
15	3.31	15	1.248	5	0.805
80	3.00	8	1.236	15	0.800
80	2.97	5	1.222	15	0.798
12	2.90	15	1.209	3	0.792
40	2.83	8	1.197	8	0.788
12	2.73	8	1.188	3	0.784
40	2.66	5	1.176	8	0.781
15	2.60	12	1.168	4	0.778
40	2.54	18	1.150	10	0.776
40	2.49	5	1.135	Cut off	0.773
15	2.44	10	1.125		
20	2.40	5	1.118	2 $\text{UO}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$ (Uranyl Sulfate Hydrate)	
30	2.21	12	1.110	Cut off	21.00
60	2.16	12	1.096	40	7.72
20	2.13	12	1.084	40	6.82
15	2.09	10	1.079	18	5.78
10	2.06	8	1.064	35	5.48
35	1.92	4	1.057	40	5.12
20	1.90	3	1.051	100	5.03
30	1.84	3	1.043	35	4.93
20	1.82	5	1.038	40	4.74
35	1.79	10	1.029	12	4.48
30	1.75	3	1.021	35	4.34
20	1.73	8	1.006	12	4.08
40	1.70	3	1.000		

$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$
$2\text{UO}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$ (Uranyl Sulfate Hydrate)		8	1.329	12	2.33
		6	1.314	12	2.26
50	3.98	10	1.293	12	2.23
15	3.49	6	1.278	10	2.18
35	3.42	8	1.263	12	2.14
10	3.37	10	1.248	30	2.10
40	3.32	10	1.215	18	2.06
8	3.24	12	1.195	12	2.03
12	3.10	12	1.177	25	1.98
15	3.03	8	1.122	12	1.95
8	2.99	10	1.080	10	1.87
12	2.93	8	1.066	10	1.78
35	2.77	12	1.052	12	1.74
20	2.70	6	1.044	12	1.69
18	2.57	8	1.037	Cut off	0.773
35	2.51	6	1.024		
10	2.42	12	0.981	$\text{BaO}_2\text{UO}_4 \cdot 8\text{H}_2\text{O}$ (Barium Oxide Uranate Octahydrate)	
8	2.38	8	0.971		
30	2.32	10	0.937	Cut off	21.00
12	2.25	6	0.916	100	7.35
25	2.22	6	0.909	12	4.31
8	2.20	6	0.900	10	4.04
30	2.13	5	0.880	18	3.89
8	2.07	6	0.868	35	3.66
6	2.04	5	0.851	10	3.58
8	2.01	6	0.842	6	3.52
12	1.98	6	0.830	75	3.46
18	1.96	5	0.825	40	3.32
10	1.90	8	0.795	10	3.24
8	1.86	6	0.782	100	3.15
6	1.84	Cut off	0.773	70	3.13
35	1.79			6	3.01
30	1.73	$\text{UO}_2\text{WO}_4$ (Uranyl Tungstate)		35	2.84
25	1.68	Cut off	21.00	35	2.73
10	1.66	90	7.54	10	2.53
15	1.64	100	6.18	6	2.32
6	1.60	35	5.35	18	2.21
30	1.59	80	4.78	10	2.17
25	1.55	60	4.35	50	2.12
8	1.51	70	3.57	50	2.11
5	1.465	30	3.38	10	2.07
5	1.449	25	3.22	25	2.00
6	1.438	18	3.09	12	1.94
8	1.422	25	2.97	6	1.90
6	1.407	70	2.85	10	1.86
10	1.391	50	2.59	12	1.76
6	1.367	12	2.53	10	1.67
6	1.343	12	2.45	10	1.63

$I/I_1$	$d\text{Å}^\circ$	$I/I_1$	$d\text{Å}^\circ$	$I/I_1$	$d\text{Å}^\circ$
$\text{BaO}_2\text{UO}_4 \cdot 8\text{H}_2\text{O}$ (Barium Oxide Uranate Octahydrate)					
10	1.43	3	1.46	12	1.193
6	1.40	6	1.43	6	1.181
6	1.35	8	1.40	30	1.167
10	1.32	3	1.26	25	1.146
6	1.26	3	1.15	8	1.135
Cut off	0.773	Cut off	0.773	12	1.125
				5	1.113
$(\text{CuO}_2)_2\text{UO}_4 \cdot x\text{H}_2\text{O}$ (Copper Oxide Uranate Hydrate)		$\text{PbUO}_4$ (Lead Uranate)		10	1.100
Cut off	21.00	Cut off	21.00	15	1.094
18	8.38	75	3.25	25	1.067
8	7.37	50	3.19	20	1.041
90	6.59	8	2.58	6	1.009
15	5.37	3	2.32	8	1.001
25	4.23	6	2.24	20	0.993
18	4.07	8	2.20	20	0.977
20	3.90	20	2.07	10	0.967
6	3.70	30	2.03	25	0.960
100	3.48	100	1.98	8	0.952
80	3.23	15	1.93	30	0.945
6	3.04	15	1.86	10	0.934
3	2.99	25	1.81	10	0.923
40	2.86	15	1.78	25	0.913
6	2.78	12	1.74	15	0.900
18	2.68	40	1.72	20	0.884
12	2.62	35	1.70	18	0.879
40	2.52	35	1.67	25	0.875
6	2.46	30	1.64	12	0.867
8	2.38	20	1.61	10	0.861
6	2.27	20	1.60	6	0.853
30	2.20	18	1.58	15	0.847
6	2.17	18	1.54	6	0.839
25	2.12	15	1.497	20	0.834
6	2.02	12	1.456	8	0.825
20	1.96	30	1.423	3	0.818
3	1.88	20	1.386	12	0.812
8	1.83	30	1.378	25	0.806
6	1.79	8	1.350	8	0.797
35	1.75	30	1.323	25	0.794
10	1.71	12	1.307	Cut off	0.773
6	1.69	35	1.293		
6	1.62	30	1.283	$\text{Li}_2\text{UO}_4$ (Lithium Uranate)	
6	1.59	30	1.265	Cut off	21.00
6	1.56	35	1.243	10	5.43
6	1.54	30	1.229	10	5.28
8	1.50	12	1.210	40	5.11

$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$
$\text{Li}_2\text{UO}_4$ (Lithium Uranate)					
5	3.74	10	1.026	10	2.10
10	3.69	10	1.005	35	2.03
100	3.62	12	0.992	12	1.96
30	2.98	10	0.983	30	1.94
5	2.86	10	0.978	15	1.88
75	2.59	6	0.972	25	1.79
12	2.54	12	0.962	25	1.70
10	2.32	12	0.951	12	1.67
25	2.28	8	0.941	25	1.65
18	1.97	20	0.927	18	1.60
20	1.94	20	0.924	15	1.58
50	1.84	10	0.916	20	1.55
50	1.82	20	0.910	20	1.499
3	1.80	4	0.905	25	1.441
3	1.78	6	0.899	15	1.329
12	1.75	8	0.894	10	1.302
4	1.67	20	0.884	15	1.283
20	1.65	8	0.877	10	1.263
20	1.62	6	0.871	30	1.231
4	1.59	8	0.854	6	1.192
20	1.56	8	0.850	8	1.177
4	1.53	5	0.844	15	1.162
18	1.51	10	0.839	15	1.148
20	1.482	5	0.830	12	1.133
4	1.465	15	0.828	8	1.119
15	1.445	10	0.823	6	1.100
30	1.397	15	0.814	3	1.070
10	1.301	6	0.813	8	1.049
18	1.291	5	0.807	6	1.039
6	1.278	10	0.805	8	1.020
12	1.261	10	0.801	8	1.003
10	1.243	2	0.795	8	0.998
12	1.219	10	0.793	6	0.986
6	1.204	10	0.791	3	0.974
6	1.176	10	0.786	3	0.965
25	1.168	8	0.781	18	0.938
15	1.150	Cut off	0.773	8	0.923
5	1.128			18	0.913
10	1.118	$\text{Ag}_2\text{UO}_4$ (Silver Uranate)		2	0.899
10	1.115	Cut off	21.00	3	0.893
12	1.107	18	6.19	10	0.887
4	1.099	100	3.27	10	0.876
8	1.091	50	3.14	3	0.861
10	1.075	90	2.98	3	0.847
6	1.066	8	2.87	5	0.838
3	1.055	30	2.64	18	0.834
10	1.044	35	2.34	3	0.800

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
<b><math>\text{Ag}_2\text{UO}_4</math> (Silver Uranate)</b>					
18	0.787	12	1.119	12	0.801
Cut off	0.773	15	1.096	30	0.794
		15	1.093	18	0.792
		15	1.084	15	0.790
<b><math>\text{Na}_2\text{UO}_4</math> (Sodium Uranate)</b>					
Cut off	21.00	12	1.061	12	0.787
18	5.95	15	1.045	12	0.786
40	5.78	15	1.030	18	0.784
15	3.97	15	1.024	18	0.783
100	3.88	15	1.012	15	0.782
35	2.96	10	0.998	18	0.779
25	2.88	20	0.983	18	0.778
70	2.83	20	0.981	8	0.777
5	2.77	10	0.974	18	0.776
6	2.70	12	0.971	10	0.775
15	2.64	10	0.958	Cut off	0.773
15	2.59	12	0.948		
25	2.07	15	0.941	<b><math>\text{SrUO}_4</math> (Strontium Uranate)</b>	
10	2.05	8	0.932	Cut off	21.00
25	2.03	12	0.927	12	6.47
40	1.95	18	0.921	20	6.09
30	1.85	10	0.909	35	5.00
25	1.81	12	0.896	30	4.37
50	1.69	6	0.886	8	3.52
35	1.66	15	0.884	75	3.46
8	1.64	12	0.881	15	3.36
18	1.63	20	0.878	50	3.25
15	1.61	10	0.872	18	3.10
8	1.59	12	0.869	100	3.05
18	1.55	12	0.860	12	3.00
10	1.489	15	0.857	6	2.84
15	1.463	18	0.848	30	2.80
20	1.445	12	0.845	20	2.74
18	1.421	15	0.842	20	2.64
10	1.407	5	0.836	8	2.58
12	1.374	12	0.832	10	2.47
12	1.326	15	0.830	10	2.40
6	1.314	12	0.825	3	2.27
18	1.305	12	0.823	8	2.19
10	1.293	10	0.821	18	2.16
15	1.272	12	0.819	6	2.11
5	1.258	12	0.817	3	2.05
15	1.248	10	0.814	8	2.02
15	1.237	18	0.813	18	1.99
15	1.207	10	0.811	6	1.96
15	1.193	12	0.809	6	1.92
15	1.163	12	0.807	15	1.90
12	1.131	25	0.804	8	1.88

$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$
SrUO <sub>4</sub> (Strontium Uranate)					
12	1.84	3	2.20	3	1.45
15	1.78	3	2.15	10	1.39
6	1.76	25	2.06	6	1.35
25	1.74	20	2.00	6	1.31
18	1.72	3	1.94	8	1.28
3	1.69	3	1.87	3	1.22
8	1.67	3	1.85	6	1.14
3	1.62	3	1.81	3	1.09
3	1.56	25	1.74	Cut off	0.773
10	1.54	15	1.69		
10	1.52	10	1.62	MgU <sub>2</sub> O <sub>7</sub> (Magnesium Diuranate)	
3	1.42	12	1.57	Cut off	21.00
3	1.41	6	1.52	90	7.52
6	1.40	3	1.46	8	6.05
10	1.38	6	1.40	12	5.22
8	1.36	3	1.36	10	4.75
3	1.34	6	1.32	8	4.40
6	1.32	8	1.29	25	3.74
3	1.29	3	1.23	100	3.54
3	1.26	3	1.19	6	3.36
6	1.23	6	1.15	100	3.20
3	1.22	3	1.09	8	3.05
3	1.21	3	0.96	8	2.83
3	1.19	Cut off	0.773	6	2.76
3	1.17	PbU <sub>2</sub> O <sub>7</sub> ·xH <sub>2</sub> O (Lead Diuranate Hydrate)		5	2.67
3	1.14	25		25	2.57
3	1.12	Cut off	21.00	5	2.47
3	1.10	60	6.99	6	2.38
3	1.06	12	4.52	15	2.32
3	1.03	3	3.93	15	2.22
3	1.02	80	3.48	6	2.14
6	1.01	100	3.10	30	2.04
3	1.00	3	2.78	8	1.99
3	0.91	6	2.54	25	1.96
Cut off	0.773	20	2.46	5	1.87
BaU <sub>2</sub> O <sub>7</sub> (Barium Diuranate)		6	2.37	10	1.79
Cut off	21.00	6	2.27	8	1.71
60	7.06	6	2.04	20	1.66
3	5.87	25	1.99	6	1.61
50	3.48	35	1.93	6	1.59
100	3.11	6	1.86	8	1.55
8	2.76	8	1.80	5	1.50
8	2.58	30	1.73	5	1.45
18	2.48	18	1.68	5	1.41
3	2.35	3	1.61	8	1.39
8	2.28	8	1.56	6	1.31
		6	1.52	6	1.26

$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$	$I/I_1$	$d\text{\AA}$
$\text{MgU}_2\text{O}_7$ (Magnesium Diuranate)					
6	1.22	10	1.54	8	5.93
8	1.21	8	1.488	25	5.36
5	1.18	10	1.475	70	4.78
5	1.16	8	1.460	40	4.37
5	1.15	8	1.439	8	3.76
Cut off	0.773	20	1.417	25	3.57
		18	1.396	40	3.50
		2	1.353	30	3.38
$\text{K}_2\text{U}_2\text{O}_7$ (Potassium Diuranate)					
Cut off	21.00	2	1.328	25	3.20
100	6.76	2	1.303	8	2.96
75	3.40	25	1.286	40	2.86
10	2.36	25	1.277	6	2.78
10	2.21	18	1.240	6	2.71
25	2.00	15	1.227	35	2.59
18	1.92	12	1.213	8	2.46
30	1.72	20	1.189	8	2.34
6	1.49	12	1.177	6	2.28
6	1.30	15	1.153	8	2.19
6	1.15	15	1.139	18	2.14
Cut off	0.773	20	1.119	25	2.10
		15	1.063	18	2.06
		15	1.046	20	2.02
		15	1.020	20	1.99
$\text{Na}_2\text{U}_2\text{O}_7$ (Sodium Diuranate)					
Cut off	21.00	12	1.010	8	1.95
50	5.84	18	0.988	6	1.94
25	3.38	15	0.974	6	1.93
100	3.30	15	0.943	6	1.84
25	3.22	20	0.936	10	1.78
100	3.14	10	0.928	10	1.74
30	2.93	6	0.918	8	1.67
40	2.68	12	0.913	8	1.65
12	2.57	12	0.906	6	1.59
15	2.52	8	0.887	8	1.57
15	2.44	6	0.874	8	1.47
35	2.34	2	0.866	6	1.46
12	2.23	3	0.854	4	1.36
18	2.16	12	0.847	6	1.32
25	2.03	6	0.838	4	1.30
75	1.96	20	0.833	4	1.29
75	1.86	Cut off	0.824	6	1.21
40	1.70	20	0.786	Cut off	0.773
40	1.67	75	0.773		
50	1.64	$\text{Na}_2\text{U}_2\text{O}_7 \cdot 6\text{H}_2\text{O}$ (Sodium Diuranate Hexahydrate)			
25	1.59	Cut off	21.00	$\text{UO}_4 \cdot 2\text{H}_2\text{O}$ (Uranium Peroxide Dihydrate)	
25	1.58	100	7.56	Cut off	21.00
		75	6.18	100	5.73
				40	4.16
				40	3.44

$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$	$I/I_1$	$d\text{\AA}^\circ$
$\text{UO}_4 \cdot 2\text{H}_2\text{O}$ (Uranium Peroxide Dihydrate)		18	1.63	18	1.114
		18	1.57	12	1.059
75	3.36	10	1.54	5	1.047
35	2.92	10	1.52	8	0.978
18	2.70	18	1.495	6	0.959
20	2.62	15	1.460	12	0.938
18	2.56	15	1.415	6	0.922
18	2.47	15	1.396	8	0.914
18	2.42	15	1.361	3	0.899
20	2.35	8	1.301	8	0.882
35	2.21	20	1.280	5	0.855
25	2.10	8	1.266	3	0.847
40	2.00	10	1.240	6	0.836
40	1.96	18	1.216	6	0.821
30	1.95	8	1.196	5	0.815
25	1.92	10	1.182	5	0.808
20	1.83	15	1.162	8	0.797
25	1.79	12	1.132	Cut off	0.773
20	1.74				

## NUMERICAL INDEX OF X-RAY DIFFRACTION PATTERNS OF URANIUM COMPOUNDS

Compound		$d^{\circ}\text{Å}$		$I/I_1$			Page
III-U(H <sub>2</sub> PO <sub>4</sub> ) <sub>2</sub> (ClO <sub>4</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	11.66	5.31	2.69	100	60	35	7
U(HPO <sub>4</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	11.31	2.70	4.89	100	18	12	5
U(HPO <sub>4</sub> ) <sub>2</sub> ·4H <sub>2</sub> O	11.14	5.39	4.25	100	15	12	5
U(H <sub>2</sub> PO <sub>4</sub> ) <sub>2</sub> (ClO <sub>4</sub> ) <sub>2</sub> ·4H <sub>2</sub> O	8.95	4.74	7.05	100	90	80	6
UO <sub>2</sub> HA <sub>5</sub> O <sub>4</sub>	8.63	3.73	3.30	100	90	80	23
UO <sub>2</sub> HPO <sub>4</sub> ·4H <sub>2</sub> O	8.59	3.68	3.40	100	100	100	12
NaUO <sub>2</sub> PO <sub>4</sub> ·5H <sub>2</sub> O	8.57	3.65	3.21	100	100	80	33
NaUO <sub>2</sub> AsO <sub>4</sub> ·2H <sub>2</sub> O	8.51	3.67	3.53	100	80	80	23
UF <sub>4</sub> ·2 $\frac{1}{2}$ H <sub>2</sub> O	8.41	2.02	3.45	100	70	60	4
Na <sub>2</sub> U <sub>2</sub> O <sub>7</sub> ·6H <sub>2</sub> O	7.56	6.18	4.78	100	75	70	41
UOCl <sub>2</sub>	7.49	3.81	3.19	100	70	70	16
BaO <sub>2</sub> UO <sub>4</sub> ·8H <sub>2</sub> O	7.35	3.15	3.46	100	100	75	36
UO <sub>3</sub> ·2H <sub>2</sub> O	7.24	3.20	3.65	100	50	40	30
(NH <sub>4</sub> ) <sub>3</sub> UO <sub>2</sub> F <sub>5</sub>	6.98	3.58	4.19	100	75	50	27
K <sub>2</sub> U <sub>2</sub> O <sub>7</sub>	6.76	3.40	1.72	100	75	30	41
UO <sub>2</sub> NH <sub>4</sub> PO <sub>4</sub>	6.59	3.17	6.98	100	40	35	31
NaUO <sub>2</sub> AsO <sub>4</sub> ·4H <sub>2</sub> O	6.56	3.51	3.36	100	25	25	24
Na <sub>4</sub> U <sub>3</sub> O <sub>8</sub> (PO <sub>4</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	6.44	3.03	3.44	100	100	60	14
UO <sub>2</sub> WO <sub>4</sub>	6.18	7.54	4.78	100	90	80	36
Na <sub>4</sub> UO <sub>2</sub> (PO <sub>4</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	6.16	14.18	3.42	100	80	50	14
UO <sub>2</sub> (H <sub>2</sub> PO <sub>4</sub> ) <sub>2</sub> ·3H <sub>2</sub> O	6.16	4.97	3.32	100	60	50	13
(UO <sub>2</sub> ) <sub>2</sub> Fe(CN) <sub>6</sub>	6.13	6.78	3.48	100	50	50	27
2K <sub>2</sub> CO <sub>3</sub> ·UO <sub>2</sub> CO <sub>3</sub>	6.13	5.81	3.16	100	100	75	24
UO <sub>4</sub> ·2H <sub>2</sub> O	5.73	3.36	4.16	100	75	40	41
3KF·UO <sub>2</sub> F <sub>2</sub>	5.26	3.23	4.58	100	100	50	27
UP <sub>2</sub> O <sub>7</sub> ·6H <sub>2</sub> O	5.22	2.71	2.10	100	35	35	8
(UO <sub>2</sub> ) <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> ·4H <sub>2</sub> O	5.14	4.21	2.96	100	100	50	10
2UO <sub>2</sub> SO <sub>4</sub> ·7H <sub>2</sub> O	5.03	3.98	7.72	100	50	40	35
UO <sub>2</sub> (HCOO) <sub>2</sub> ·H <sub>2</sub> O	4.97	2.84	2.12	100	90	65	28
U(HPO <sub>4</sub> ) <sub>2</sub> ·2H <sub>2</sub> O	4.7	8.6	2.64	100	40	10	5
UO <sub>2</sub> Cl <sub>2</sub>	4.67	1.96	3.15	100	60	35	25
UO <sub>2</sub> C <sub>2</sub> O <sub>4</sub>	4.38	2.57	2.18	100	50	45	29
UP <sub>2</sub> O <sub>7</sub>	4.31	2.57	4.97	100	80	75	21
UO <sub>2</sub> C <sub>2</sub> O <sub>4</sub> ·H <sub>2</sub> O	4.25	2.14	2.17	100	60	50	29
UF <sub>4</sub> · $\frac{3}{4}$ H <sub>2</sub> O	4.23	2.01	3.67	100	85	70	19

Compound	$d\text{\AA}$			$I/I_1$		Page	
$\text{UO}_2\text{HPO}_4 \cdot 2\text{H}_2\text{O}$	4.22	5.19	8.64	100	80	75	31
$\text{II-U}(\text{H}_2\text{PO}_4)_2(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$	4.21	3.99	7.06	100	100	75	7
$(\text{UO}_2)_2\text{P}_2\text{O}_7$	4.18	5.21	3.53	100	50	40	34
$\text{UZr}_2\text{F}_{11}$	4.10	2.05	6.10	100	60	50	17
$\text{UZr}_3\text{F}_{15}$	3.92	3.60	1.92	100	35	35	18
$\text{Na}_2\text{UO}_4$	3.88	2.83	1.69	100	70	50	39
$\text{UO}_2\text{NH}_4\text{PO}_4 \cdot 3\text{H}_2\text{O}$	3.74	3.22	3.45	100	80	60	11
$\text{UFPO}_4 \cdot \text{H}_2\text{O}$	3.74	2.97	5.76	100	100	75	20
$\text{UF}_4$	3.67	1.93	4.13	100	100	75	3
$\text{U}(\text{HPO}_4)_2(\text{H}_3\text{PO}_4) \cdot \text{H}_2\text{O}$	3.65	7.51	6.88	100	90	90	8
$\text{Li}_2\text{UO}_4$	3.62	2.59	1.84	100	75	50	37
$\text{UO}_2\text{NaPO}_4$	3.60	8.21	3.18	100	75	75	32
$\text{MgU}_2\text{O}_7$	3.54	3.20	7.52	100	100	90	40
$\text{NH}_4\text{UO}_2\text{AsO}_4 \cdot x\text{H}_2\text{O}$	3.53	8.62	3.29	100	90	70	22
$\text{U}_2\text{O}_3\text{P}_2\text{O}_7$	3.49	4.42	3.00	100	90	80	35
$(\text{CuO}_2)_2\text{UO}_4 \cdot x\text{H}_2\text{O}$	3.48	6.59	3.23	100	90	80	37
$(\text{UO})_2\text{P}_2\text{O}_7$	3.48	6.15	1.72	100	75	60	17
$\text{I-U}(\text{H}_2\text{PO}_4)_2(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$	3.47	2.99	4.65	100	100	60	6
$\text{UO}_3$	3.42	2.78	3.22	100	80	75	10
$\text{Na}_2\text{U}_2\text{O}_7$	3.30	3.14	1.96	100	100	75	41
$\text{Ag}_2\text{UO}_4$	3.27	2.98	3.14	100	90	50	38
$\text{U}(\text{MoO}_4)_2 \cdot x\text{H}_2\text{O}$	3.22	6.49	3.44	100	60	30	20
$\text{AgUO}_2\text{CrO}_4 \cdot x\text{H}_2\text{O}$	3.16	3.10	3.03	100	100	90	26
$(\text{NH}_4)_2\text{O} \cdot 4\text{UO}_3 \cdot 7\text{H}_2\text{O}$	3.12	3.46	7.05	100	70	50	30
$\text{BaU}_2\text{O}_7$	3.11	7.06	3.48	100	60	50	40
$\text{PbU}_2\text{O}_7 \cdot x\text{H}_2\text{O}$	3.10	3.48	6.99	100	80	60	40
$\text{SrUO}_4$	3.05	3.46	3.25	100	75	50	39
$\text{U}(\text{HPO}_4)_2 \cdot \text{H}_2\text{O}$	2.97	13.47	4.45	100	90	75	5
$(\text{UO}_2)_2\text{P}_2\text{O}_7$	2.95	5.99	4.15	100	60	60	34
$\text{UCl}_5$	2.65	2.00	3.22	100	30	25	21
$\text{UC}_2?$	2.47	1.73	1.52	100	100	100	19
$\text{UO}_2\text{CO}_3$	2.04	3.16	4.49	100	80	75	8
$\text{PbUO}_4$	1.98	3.25	3.19	100	75	50	37
$\text{UNaZr}_2\text{F}_{12}$	1.92	3.12	3.93	100	90	75	18
$\text{U}_2\text{O}_5$	1.75	4.13	3.40	100	75	75	22
$2\text{Na}_2\text{CO}_3 \cdot \text{UO}_2\text{CO}_3$	1.74	2.65	4.53	100	75	60	9
$\text{UN}_2$	1.59	3.02	1.86	100	90	75	15
$\text{UN}$	0.827	0.816	0.941	100	90	50	15
$\text{UCl}_3$	0.794	2.13	0.812	100	75	60	16

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