Name and formula

Reference code:	00-042-1468
Mineral name:	Corundum, syn
Common name:	alumina
PDF index name:	Aluminum Oxide
Empirical formula:	Al_2O_3
Chemical formula:	Al_2O_3

Crystallographic parameters

Crystal system:	Rhombohedral
Space group:	R-3c
Space group number:	167
a (Å):	4.7588
b (Å):	4.7588
c (Å):	12.9920
Alpha (°):	90.0000
Beta (°):	90.0000
Gamma (°):	120.0000
Calculated density (g/cm^3):	3.98
Measured density (g/cm^3):	4.05
Volume of cell (10^6 pm^3):	254.80
Z:	6.00
RIR:	1.00

Status, subfiles and quality

Status:	Marked as deleted by ICDD
Subfiles:	Inorganic Mineral Alloy, metal or intermetalic Cement and Hydration Product Corrosion Common Phase Forensic
Quality:	Star (S)

Comments

Deleted by:	Deleted by 10-173 which is satisfactory.
Color:	White
General comments:	Also called: ruby. Also called: sapphire.
Sample source:	Sample is the National Institute of Standards and Technology corundum standard reference material 674.
Optical data:	A=1.7604, B=1.7686, Sign=-
Additional pattern:	Validated by calculated pattern 43-1484.
Melting point:	2050°

References

Primary reference: Welton-Holzer, J., McCarthy, G., North Dakota State University, Fargo, North Dakota, USA., *ICDD Grant-in-Aid* (1989)

Structure: Ishizawa, N., Miyata, T., Minato, I., Marumo, F., Iwai, S., *Acta Crystallogr., Sec. B* **26**, 228, (1980)

Optical data: Winchell, A., Winchell, H., *Microscopic Character of Artificial Inorg. Solid Sub.*, 60, (1964)

Peak list

No.	h	k	l	d [A]	2Theta[deg]	I [%]
1	0	1	2	3.48000	25.577	70.0
2	1	0	4	2.55100	35.151	97.0
3	1	1	0	2.37900	37.785	42.0
4	0	0	6	2.16500	41.685	1.0
5	1	1	3	2.08500	43.363	100.0
6	2	0	2	1.96400	46.184	1.0
7	0	2	4	1.73980	52.559	42.0
8	1	1	6	1.60140	57.504	82.0
9	2	1	1	1.54610	59.765	2.0
10	1	2	2	1.51470	61.135	5.0
11	0	1	8	1.51090	61.305	7.0
12	2	1	4	1.40450	66.522	30.0
13	3	0	0	1.37380	68.209	45.0
14	1	2	5	1.33580	70.432	1.0
15	2	0	8	1.27540	74.309	1.0
16	1	0	10	1.23900	76.882	13.0
17	1	1	9	1.23410	77.244	6.0
18	2	1	7	1.19290	80.442	2.0
19	2	2	0	1.18980	80.695	5.0
20	3	0	6	1.15980	83.237	1.0
21	2	2	3	1.14710	84.369	4.0
22	1	3	1	1.13870	85.137	1.0
23	3	1	2	1.12570	86.359	4.0
24	1	2	8	1.12420	86.502	3.0
25	0	2	10	1.09900	89.000	5.0
26	0	0	12	1.08240	90.740	2.0
27	1	3	4	1.07820	91.193	6.0
28	2	2	6	1.04270	95.251	12.0
29	0	4	2	1.01750	98.410	2.0
30	2	1	10	0.99780	101.067	9.0
31	1	1	12	0.98530	102.850	1.0
32	4	0	4	0.98200	103.334	2.0
33	3	2	1	0.94320	109.509	1.0
34	1	2	11	0.94120	109.855	1.0
35	2	3	2	0.93570	110.820	2.0
36	3	1	8	0.93470	110.998	2.0
37	2	2	9	0.91800	114.092	2.0
38	3	2	4	0.90780	116.105	9.0
39	0	1	14	0.90540	116.594	7.0
40	4	1	0	0.89940	117.843	5.0
41	2	3	5	0.88850	120.216	1.0
42	4	1	3	0.88050	122.053	3.0
43	0	4	8	0.87000	124.602	2.0
44	1	3	10	0.85820	127.683	10.0
45	3	0	12	0.85030	129.894	4.0
46	2	0	14	0.84610	131.125	4.0
47	3	2	7	0.84240	132.244	1.0

48	2	1	13	0.84100	132.677	1.0
49	4	1	6	0.83050	136.101	16.0

Stick Pattern