Name and formula

Reference code:	00-052-0875
PDF index name:	Aluminum Titanium Carbide
Empirical formula:	AlC_2Ti_3
Chemical formula:	Ti_3AlC_2

Crystallographic parameters

Crystal system:	Hexagonal
Space group:	P63/mmc E
Space group number:	194
a (Å):	3.0690
b (Å):	3.0690
c (Å):	18.5010
Alpha (°):	90.0000
Beta (°):	90.0000
Gamma (°):	120.0000
Volume of cell (10^6 pm^3):	150.91
Z:	2.00
RIR:	-

Subfiles and Quality

Subfiles:	Inorganic Alloy, metal or intermetalic
Quality:	Indexed (I)

Comments

General comments:	Cell parameters generated by least squares refinement.
Sample preparation:	A mixture of Ti, Al_4C_3 and graphite (stoichiometry $Ti_3Al_{1.1}C_{1.8}$) was isostatically hot pressed at 70 MPa and 1400 C for 16 hours.
Unit cell:	Reference reports: a=3.0654, c=18.487.

References

Primary reference: Tzenov, N., Barsoum, M., *J Am Ceram Soc*, **83**, 825, (2000)

Peak list

No.	h	k	l	d [A]	2Theta[deg]	I [%]
1	0	0	2	9.28509	9.518	27.0
2	0	0	4	4.62973	19.155	5.0
3	1	0	0	2.65643	33.713	1.0
4	1	0	1	2.63145	34.043	20.0
5	1	0	2	2.55234	35.132	3.0
6	1	0	3	2.44099	36.790	8.0
7	0	0	8	2.31799	38.819	20.0
8	1	0	4	2.30544	39.038	100.0

9	1	0	5	2.15850	41.816	28.0
10	1	0	6	2.01616	44.923	3.0
11	1	0	7	1.87369	48.550	8.0
12	1	0	8	1.74421	52.416	3.0
13	1	0	9	1.62554	56.572	12.0
14	1	1	0	1.53461	60.258	24.0
15	1	1	2	1.51755	61.007	3.0
16	1	0	11	1.42059	65.672	5.0
17	1	0	12	1.33357	70.567	11.0
18	2	0	1	1.32300	71.216	4.0
19	1	1	8	1.27830	74.112	18.0
20	2	0	4	1.27272	74.492	9.0
21	1	0	13	1.25453	75.761	2.0
22	2	0	5	1.25117	76.000	4.0
23	2	0	7	1.18737	80.894	2.0
24	0	0	16	1.15658	83.521	2.0
25	2	0	8	1.15355	83.790	1.0
26	2	0	9	1.11715	87.185	7.0
27	2	0	11	1.04327	95.182	3.0

Stick Pattern