

Silicon carbide

Technical Data



Description

Silicon Carbide is manufactured through heating Silica sand and carbon to high temperatures in an electric arc furnace.

Application

Impact finishing, bonded abrasives, lapping and polishing compounds, blasting media, dip and stucco coats for investment casting moulds, dental applications.

Typical chemicals analysis

PRODUCTS	% SIC	% FREE C	% Si	% SiO ₂	% Fe ₂ O ₃
Green Macro	99.5	0.15	0.03	0.20	0.02
Green Micro	99.5	0.15	0.02	0.20	0.02
Black Macro	99.0	0.15	0.08	0.30	0.03
Black Micro	99.0	0.15	0.07	0.30	0.03

Physical data

- **Colour** : black or green
- **Shape** : cubic or “alpha” grains
- **Melting Point** : Stable up to 2400°C
- **Hardness** :
 Mohs Scale..... between 9.0 and 10.0
 Knoop Scale..... between 2,300 and 3,000
- **Vickers Scale** : between 2,800 and 3,300
- **Specific gravity** : 3.21 g/cm³
- **Thermal conductivity** :
 at 20 °C..... 41.0 W/m°C
 at 1,000 °C..... 21.3 W/m°C

Macro Grain Size Specific : F8 - F220

Grit Designation	TEST SIEVE 1			TEST SIEVE 2			TEST SIEVE 3			TEST SIEVE 3 and 4			TEST SIEVE 3, 4, 5			Remainder in Bottom pan
	Aperture Size	Residue On test Sieve 1	%	Aperture Size	Residue On test Sieve 2	%	Aperture Size	Residue On test Sieve 3	%	Aperture Size Test Sieve 4	Sum of Residues On test Sieves 3 and 4	%	Aperture Size Test Sieve 5	Sum of Residues On test Sieves 3,4 and 5	%	
N°	ISO Mm/ µm	AS TM N°	%	ISO Mm/ µm	AS TM N°	Max	ISO Mm/ µm	AS TM N°	Min	ISO Mm/ µm	AS TM N°	Min	ISO Mm/ µm	AS TM N°	Min	Max
F8	4.00	5	0	2.80	7	20	2.36	8	45	2.00	10	70	1.70	12	*	3
F10	3.35	6	0	2.36	8	20	2.00	10	45	1.70	12	70	1.40	14	*	3
F12	2.80	7	0	2.00	10	20	1.70	12	45	1.40	14	70	1.18	16	*	3
F14	2.36	8	0	1.70	12	20	1.40	14	45	1.18	16	70	1.00	18	*	3
F16	2.00	10	0	1.40	14	20	1.18	16	45	1.00	18	70	850	20	*	3
F20	1.70	12	0	1.18	16	20	1.00	18	45	850	20	70	710	25	*	3
F22	1.40	14	0	1.00	18	20	850	20	45	710	25	70	600	30	*	3
F24	1.18	16	0	850	20	25	710	25	45	600	30	65	500	35	*	3
F30	1.00	18	0	710	25	25	600	30	45	500	35	65	425	40	*	3
F36	850	20	0	600	30	25	500	35	45	425	40	65	355	45	*	3
F40	710	25	0	500	35	30	425	40	40	355	45	65	300	50	*	3
F46	600	30	0	425	40	30	355	45	40	300	50	65	250	60	*	3
F54	600	35	0	355	45	30	300	50	40	250	60	65	212	70	*	3
F60	425	40	0	300	50	30	250	60	40	212	70	65	180	80	*	3
F70	355	45	0	250	60	25	212	70	40	180	80	65	150	100	*	3
F80	300	50	0	212	70	25	180	80	40	150	100	65	125	120	*	3
F90	250	60	0	180	80	20	150	100	40	125	120	65	106	140	*	3
F100	212	70	0	150	100	20	125	120	40	106	140	65	75	200	*	3
F120	180	80	0	125	120	20	106	140	40	90	170	65	63	230	*	3
F150	150	100	0	106	140	15	75	200	40	63	230	65	45	325	*	3
F180	125	120	0	90	170	15	75	200	*	63	230	40	53	270	65	*
F220	106	140	0	75	200	15	63	230	*	53	270	40	45	325	60	*

Micro Grain Size Specific F240 to F1200

GRIT DESIGNATION	DS3 VALUE MAX. µm	DS50 VALUE MEDIAN GRAIN SIZE µm	DS94 VALUE MIN. µm
F 240	72.6	42.0 ± 2.0	28.3
F280	61.1	34.5 ± 1.5	22.1
F320	50.6	27.7 ± 1.5	16.5
F360	41.1	21.6 ± 1.5	11.9
F400	32.7	16.5 ± 1.0	7.9
F500	25.3	12.3 ± 1.0	4.8
F600	19.0	9.0 ± 1.0	2.8
F800	13.8	6.3 ± 1.0	1.7
F1000	9.6	4.5 ± 0.8	0.7
F1200	6.4	3.1 ± 0.5	0.7

Serigraph values calculated on the basis of the Eppendorf-Photosedimentometer