NEOGRAF™ SOLUTIONS

Graf+®

Graf+® Graphite Powders

TECHNICAL DATA SHEET 456

Product Overview

NeoGraf Solutions, LLC manufactures a variety of natural and synthetic graphite powders and nanoplatelets under our Graf+® trade name. Graphite can be added to a range of polymers to enhance thermal and electrical conductivity, reduce degradation to UV radiation, and increase insulation value in foams and boards. Graphite is also an excellent lubricant. Our Graf+ powders are available in a range of particle sizes and purities depending on the end use application. High purity (>99.9% carbon) grades are used in battery applications. Our graphite powders are available as dry powders or compounded with polymers as masterbatches.

Typical Properties*

PROPERTY	UNIT	EXPANDED NATURAL GRAPHITE FLAKES (ENG)			FLAKE NATURAL GRAPHITE GRADES (NG)	
		Graf+ 20-A-ENG	Graf+ 12-A-ENG	Graf+ 20-B-ENG	Graf+ 20-C-NG	Graf+ 6-B-NG
Ash	%	0.005	0.007	1.11	5.0	1.45
Typical Particle Size						
D10	microns	7	5	7	7	2
D50	microns	19	12	19	18	6
D90	microns	50	34	50	38	28
Real Density	g/ml	2.25	2.07	2.25	2.23	2.19
Scott Density	g/ml	0.05	0.07	0.06	0.12	0.08
BET Surface Area	m^2/g	21	21	20	8	14
Absorption, kerosene	ml/g	3.3	2.4	3.3	1.6	1.4
Moisture	%	0.14	0.16	0.19	0.19	0.17

Notes:
* Properties listed are typical and cannot be used as accept/reject specifications.

Typical Impurity Levels*

PROPERTY	UNIT	EXPANDED NATURAL GRAPHITE FLAKES (ENG)			FLAKE NATURAL GRAPHITE GRADES (NG)	
		Graf+ 20-A-ENG	Graf+ 12-A-ENG	Graf+ 20-B-ENG	Graf+ 20-C-NG	Graf+ 6-B-NG
Aluminum (Al)	ppm	4.8	3.9	45	830	230
Antimony (Sb)	ppm	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic (As)	ppm	<0.05	0.06	<0.05	<0.05	<0.05
Calcium (Ca)	ppm	1.7	1.9	13	7.7	40
Chromium (Cr)	ppm	<0.5	<0.5	<0.5	2.8	<0.5
Cobalt (Co)	ppm	<0.05	<0.05	<0.05	<0.05	<0.05
Copper (Cu)	ppm	0.18	<0.1	0.23	2	0.6
Iron (Fe)	ppm	6.1	4.8	75	980	190
Lead (Pb)	ppm	0.17	<0.05	<0.05	<0.05	<0.05
Magnesium (Mg)	ppm	4.9	3.6	54	20	88
Manganese	ppm	<0.05	<0.05	0.37	1.1	0.64
Molybdenum (Mo)	ppm	<0.1	<0.1	0.44	0.57	0.39
Nickel (Ni)	ppm	0.26	0.34	<0.05	1.9	0.36
Silicon (Si)	ppm	24	12	340	2300	670
Tin (Sn)	ppm	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium (V)	ppm	<0.05	<0.05	<0.05	4.5	0.83
Zinc (Zn)	ppm	0.24	<0.1	<0.1	9.2	1.5

Notes:
* Properties listed are typical and cannot be used as accept/reject specifications.

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