

Chemical Analysis of Glass Abrasive Blast Material

Chemical analysis of several glass abrasive products of the major manufacturers and distributors in the industry demonstrate that glass abrasive blasting materials contain many of the same metals associated with slag abrasives, including beryllium. Additionally, all products contained measureable amounts of arsenic, cadmium, and lead.

Study Methods

Exponent, an engineering and scientific consulting firm, facilitated the collection and analysis of abrasive glass products from various producers and locations. Samples were packaged, sealed, and sent to two independent accredited laboratories for analysis under standard Chain of Custody procedures. Samples were prepared and analyzed at each laboratory in accordance with EPA Method 3052M-HF//6020A [Inductively coupled plasma-mass spectrometry (ICP-MS)] for beryllium, arsenic, cadmium, and lead.

Results

Table 1 summarizes the results and shows that similar results were reported by the two independent laboratories. Beryllium was detected in all samples ranging from 0.270 to 0.757 milligrams per kilogram (mg/kg).

Table 1: Summary of Glass Abrasive Blast Materials Sample Results (in mg/kg)

Prod Name/ Manufacturer	Source Location	Lab ¹	Beryllium	Arsenic	Cadmium	Lead
Strategic Materials Glass Abrasive	Fairfield, CA	ALS	0.677	17.0	0.619	362
Strategic Materials Glass Abrasive	Fairfield, CA	KPrime	0.757	17.3	0.600	314
Strategic Materials Tru Abrasives® Medium Glass	Cleveland, OH	ALS	0.477	26.6	0.768	466
Strategic Materials Tru Abrasives® Medium Glass	Cleveland, OH	KPrime	0.569	27.8	0.756	502
Strategic Materials Medium Glass Abrasive	Midlothian, TX	ALS	0.503	13.0	0.417	377
Strategic Materials Medium Glass Abrasive	Midlothian, TX	KPrime	0.737	16.0	0.593	264
Strategic Materials 70/100 Glass	Midlothian, TX	ALS	0.421	12.2	0.449	233
Strategic Materials 70/100 Glass	Midlothian, TX	KPrime	0.535	17.6	0.336	267

¹ ALS refers to ALS Environmental, ALS Group USA, Corp., 1317 South 13th Avenue, Kelso, Washington 98626.
Kprime refers to K Prime, Inc., 3621 Westwind Blvd., Santa Rosa, California 95403

Prod Name/ Manufacturer	Source Location	Lab¹	Beryllium	Arsenic	Cadmium	Lead
Harsco Glass Cullet	Allentown, PA	ALS	0.407	5.6	0.155	60.6
Harsco Glass Cullet	Allentown, PA	KPrime	0.504	5.57	0.245	65.0
Harsco Black Beauty® Glass - medium	Orwigsburg, PA	ALS	0.405	15.5	0.243	227
Harsco Black Beauty® Glass – medium	Orwigsburg, PA	KPrime	0.419	15.0	0.250	73.4
Harsco Black Beauty® Glass – fine	Orwigsburg, PA	ALS	0.417	12.2	0.311	198
Harsco Black Beauty® Glass – fine	Orwigsburg, PA	KPrime	0.422	12.2	0.592	220
GlassBlast™	Stockton, CA	ALS	0.577	12.7	0.376	147
GlassBlast™	Stockton, CA	KPrime	0.573	22.2	0.517	192
Green Planet Glass Abrasive	Stockton, CA	ALS	0.270	4.5	0.206	32.7
Green Planet Glass Abrasive	Stockton, CA	KPrime	0.327	4.12	0.279	27.9



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