ATLANTIC EQUIPMENT ENGINEERS
HIGH PURITY METALS & COMPOUNDS

ZIRCONIUM
(Granular or powdered)
MIL-Z-399D
1 October 1971
Superseding
MIL-Z-399C
19 February 1969

Chemical Requirements

Requirement	Type I	Type II		
		Class 1	Class 2	Class 3
Total zirconium, % min	96.0	94.0	95.0	95.0
Calcium, % max	0.05	0.10	0.05	0.05
Iron, % max	0.30	0.20	0.03	0.05
Aluminum, % max	0.10	0.30	0.15	0.10
Hydrogen, % max	0.20	0.20	0.20	---
Chloride (asCl), % max	0.03	---	---	---
Silicon, % max	0.10	---	---	---
Tin, % max	0.75	---	---	---
Ignition gain, percent	---	30.2 - 33.0	30.2 - 33.0	30.2 - 33.0

Particle size requirements for type I zirconium

Sieve (percent by weight)	Class 1	Class 2	Class 3
Thru 20 mesh	99.0 min	---	---
Thru 60 mesh	5 max	---	---
Thru 80 mesh	---	100	---
Thru 100 mesh	---	98 min	---
Thru 170 mesh	---	---	100
Thru 200 mesh	---	50 max	98 min
Thru 325 mesh	---	25 max	---
Sub-sieve			
<20 microns	---	---	10.0 max
<10 microns	---	2.0 max	---

Particle size requirements for type II zirconium

Sieve (percent by weight)	Class 1	Class 2	Class 3
Thru 120 mesh	100	100	99.5 min
Thru 200 mesh	---	50 max	98 min
Thru buckbee mears 26 sieve (20 microns)	99 min	99 min	---
Sub-sieve			
<9 microns	85 min	85 min	---
3 microns	70-90	70-90	---
0.75 microns	12-30	12-30	---
Average Particle Size	1.5 - 3.5	1.7 - 2.3	2.0 - 4.0