

# ZF<sup>®</sup>/ZS<sup>®</sup> for Bonded Abrasives

## Product Codes: 1525 and 1526

Used in industrial bonded-abrasive applications, these extremely wear-resistant, anti-friable alumina-zirconia grains are produced by fusing zirconia and alumina at extremely high temperatures (1950°C, or 3542°F).

**ZF ALUNDUM<sup>®</sup> 1525** is a dense and tough abrasive with a very fine crystal size. Crushed to produce a blocky shape with sharp edges, these grains are used in resin bonded, foundry-type grinding wheels, where it has demonstrated remarkable life and stock removal properties.

**ZS ALUNDUM<sup>®</sup> 1526** is a dense and tough abrasive with a very fine crystal size. Based on the original ZF material, this maximum-impact resistant abrasive has a very blocky shape with rounded, mulled edges, and is used principally in resin bonded steel conditioning wheels.

### Applications

Code	Grain Shape	Treatment	Sizing Convention	Grit Sizes	Applications
1525 ZF <sup>®</sup>	Strong	Untreated	Modified ANSI	4-36	Bonded
1526 ZS <sup>®</sup>	Ultra Strong	Untreated	Modified ANSI	4-36	Bonded

### Chemical Properties: (Typical)

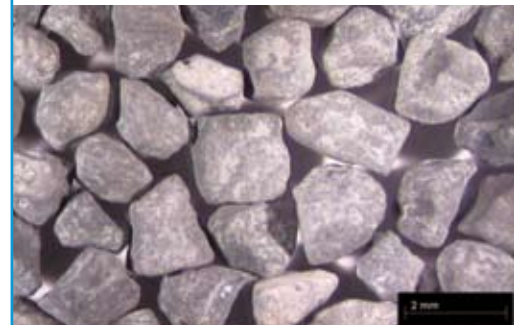
Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )	75.0%
Zirconium Oxide (ZrO <sub>2</sub> )	23.0%
Titanium Oxide (TiO <sub>2</sub> )	0.10%
Silica (SiO <sub>2</sub> )	0.30%
Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	0.30%
Sodium Oxide (Na <sub>2</sub> O)	0.08%
Calcium Oxide (CaO)	0.10%
Magnesium Oxide (MgO)	0.03%
Sulfur (S)	0.01%

### Physical Characteristics

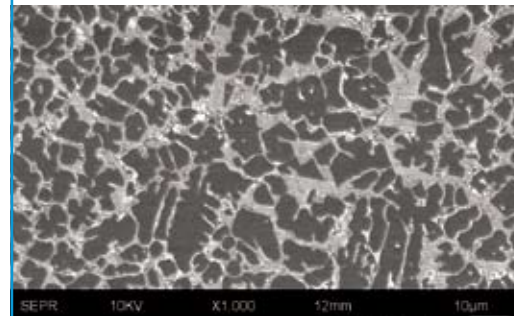
Crystal Size	17 microns
True Density	4.30 gms/cc
Vickers Hardness	21 GPa for 50 gram load
Melting Point	1950°C



Macrostructure of 1525 ZF<sup>®</sup> grains.



Macrostructure of 1526 ZS<sup>®</sup> grains.

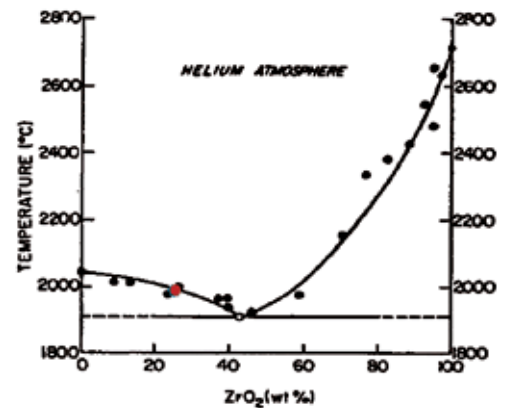


Microstructure of AZ<sup>®</sup> grains.

## Loose Packed Density—U.S. Standard Sieves

Size	1525 LPD	Size	1526 LPD
4	Record	4	Record
6	Record	6	Record
8	2.105-2.275	8	2.300-2.440
10	2.200-2.380	10	2.420-2.530
12	2.160-2.340	12	2.385-2.495
14	2.100-2.280	14	2.350-2.460
16	2.050-2.260	16	2.315-2.425
20	2.005-2.235	20	2.285-2.395
24	1.990-2.220	24	2.250-2.360
30	1.985-2.215	30	2.230-2.340
36	Record	36	Record

## Alumina-Zirconia Phase Diagram



## U.S. Standard Sieves/Limits—Modified ANSI Code 1525

Size	Oversize	Coarse Grit	1st Nominal	2nd Nominal	Pan
4	(+5/16)/0	(+3-1/2)/(0-20)	+4/40+	(+4+5)/70+	-6/(0-5)
6	(+3-12)/0	+5/(15-30)	+6/35+	(+6+7)/55+	-8/(0-3)
8	+4/0	+6/(8-23)	+7/30+	(+7+8)/65+	-10/(0-3)
10	+5/0	+7/(2-17)	+8/20+	(+8+10)/60+	-12/(0-8)
12	+6/0	+8/(1-16)	+10/20+	(+10+12)/60+	-14/(0-5)
14	+8/0	+12/(20-40)	+14/35+	(+14+16)/60+	-18/(0-5)
16	+10/0	+14/(5-25)	+16/30+	(+16+18)/60+	-20/(0-5)
20	+12/0	+16/(0-20)	+18/25+	(+18+20)/60+	-25/(0-10)
24	+16/0	+20/(0-25)	+25/45+	(+25+30)/65+	-35/(0-3)
30	+18/0	+25/(0-25)	+30/45+	(+30+35)/65+	-40/(0-3)
36	+20/0	+30/(0-25)	+35/45+	(+35+40)/65+	-45/(0-3)

## Code 1526

Size	Oversize	Coarse Grit	1st Nominal	2nd Nominal	Fines	Pan
4	(+5/16")/0	(+3-1/2)/(5-15)	+4/30+	(+4+5)/60+	+6/---	-6/(0-5)
6	(+3-1/2")/0	+5/(15-30)	+6/35+	(+6+7)/55+	+8/---	-8/(0-3)
8	+4/0	+6/(9-24)	+7/30+	(+7+8)/65+	+10/---	-10/(0-3)
10	+5/0	+7/(2-17)	+8/20+	(+8+10)/60+	+12/---	-12/(0-3)
12	+6/0	+8/(2-17)	+10/20+	(+10+12)/60+	+14/---	-14/(0-5)
14	+8/0	+12/(20-40)	+14/35+	(+14+16)/60+	+18/---	-18/(0-5)
16	+10/0	+14/(5-25)	+16/30+	(+16+18)/60+	+20/---	-20/(0-5)
20	+12/0	+16/(0-20)	+18/25+	(+18+20)/60+	+25/---	-25/(0-10)
24	+16/0	+20/(0-25)	+25/45+	(+25+30)/65+	+35/---	-35/(0-3)
30	+18/0	+25/(0-25)	+30/45+	(+30+35)/65+	+40/---	-40/(0-3)
36	+20/0	+30/(0-25)	+35/45+	(+35+40)/65+	+45/---	-45/(0-3)

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