

Cerpass XTL™

For Bonded Abrasive Tools



CERPASS XTL™, the original seeded gel product, offers the most durable ceramic grains available today. The unique nano-structure of the grains, composed of extremely uniform, sub-micron crystals, are designed to fracture conchoidally when stressed. The combination of grain shape and microstructure allows for an aggressive cutting but long-lasting ceramic grain, ideal for use in organic and vitrified bond-systems.

Physical properties (typical)

Compound	Alpha Aluminum Oxide	Hardness (GPa)^A	21.60
Color	White Translucent to Off-white /Opaque	Density (g/cm³)^B	3.91
Shape	Extruded Rods	Crystal Size (µm)^C	0.17

A: by Vickers Diamond Indent Method

B: by Helium Pycnometry

C: by Uncorrected Intercept Method of SEM Photographs

Chemical properties (typical)

Predominant Chemical Composition		Al ₂ O ₃ ≥ 99.6 %	
Trace Chemical Composition			
Constituent	Typical PPM	Constituent	Typical PPM
TiO ₂	<2000	CaO	<100
SiO ₂	<700	Fe ₂ O ₃	<200
NaO ₂	<100	MgO	<150

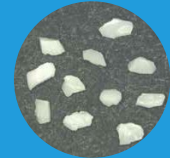
Product Availability: Macro-Sized Grains – Treated and Untreated

CERPASS® Code	Macro Grain Shape	Sizing	Grit sizes
XTL-0560 (1)	Strong, blocky	ANSI or FEPA-F	20, 22, 24, 30, 36, 40, 46, 54, 60, 70, 80, 90, 100, 120, 150, 180, 220 & 240††
XTL-0565 (2)	Weak, splintery	ANSI or FEPA-F	20, 22, 24, 30, 36, 40, 46, 54, 60, 70, 80, 90, 100, 120 & 150

†† ANSI only

Note: (1) Code XTL-0560 is available in an Amino-Silane Treated version; use Code XTL-0576

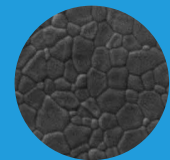
(2) Code XTL-0565 is available in an Amino-Silane Treated version; use Code XTL-0547



Macrostructure of 36-grit Strong Blocky-shaped CERPASS XTL™-0560 grains



Macrostructure of 36-grit Weak Splintery-shaped CERPASS XTL™-0565 grains.



An actual scanning electron microscope (SEM) photograph, at 50,000 magnification, shows the unique and sub-micron crystal structure of CERPASS XTL™ grains.

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Loose Pack Density (LPD) Limits: (Macro Sizes)

Codes XTL-0560 and XTL-0576 – Strong, Blocky Shape

American National Standards Institute (ANSI), ANSI B74.4-1992 (R2002), and Fédération

Européenne des Fabricants de Produits Abrasifs (FEPA-F), FEPA-standard 44-GB-1986 R 1993.

Grit size	Lower Limit (g/cm ³)	Upper Limit (g/cm ³)	Grit Size	Lower Limit (g/cm ³)	Upper Limit (g/cm ³)	Grit Size	Lower Limit (g/cm ³)	Upper Limit (g/cm ³)
20	1.77	2.02	46	1.78	2.02	100	1.74	1.86
22	1.77	2.02	54	1.81	1.97	120	1.70	1.86
24	1.80	2.03	60	1.77	1.95	150	1.67	1.85
30	1.79	1.99	70	1.72	1.94	180	1.66	1.84
36	1.81	1.99	80	1.75	1.91	200	1.62	1.80
40	1.78	2.01	90	1.73	1.89	240††	1.62	1.80

††ANSI only LPD measured on untreated grains

Grit size	Lower Limit (g/cm ³)	Upper Limit (g/cm ³)	Grit Size	Lower Limit (g/cm ³)	Upper Limit (g/cm ³)	Grit Size	Lower Limit (g/cm ³)	Upper Limit (g/cm ³)
20	1.69	1.94	40	1.70	1.93	80	1.67	1.83
22	1.69	1.94	46	1.70	1.94	90	1.65	1.81
24	1.72	1.95	54	1.73	1.89	100	1.66	1.78
30	1.71	1.91	60	1.69	1.87	120	1.62	1.78
46	1.73	1.91	70	1.64	1.86	150	1.56	1.72



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	Control Screen Coarse Grain	Oversize	First Nominal	Second Nominal	Control Screen Fines Grain		Control screen coarse grain	Oversize	First nominal	Second nominal	Control screen fines grain
Grit Size	Test Sieve 1	Test Sieve 2	Test Sieve 3	Test Sieve 3&4	Through Test Sieve 5	Grit Size	Test Sieve 1	Test Sieve 2	Test Sieve 3	Test Sieve 3&4	Through Test Sieves 5
20	+12/0	+16/(0-20)	+18/45+	(+18+20)/70+	-25/(0-3)	70	+45/0	+60/(0625°)	+70/40+	(+70+80)/65+	-100/(0-3)
22	+14/0	+18/(0-20)	+20/45+	+25/70+	-30/(0-3)	80	+50/0	+70/(0-25)	+80/40+	(+80+100)	-120/(0-3)
24	+16/0	+20/(0-25)	+25/45+	(25+30)/65+	-35/(0-3)	90	+60/0	+80/(0-20)	+100/40+	(+100+120)/65+	-140/(063)
30	+18/0	+25/(0-25)	+30/45+	(+30+35)/65+	-40/(0-3)	100	+70/0	+100/(0-20)	+120/40+	(+120+140)/65+	-200/(0-3)
36	+20/0	+30/(0-25)	+35/45+	(+35+40)/65+	-45/(0-3)	120	+80/0	+120/(0-20)	+140/40+	(+140+170)/65+	-230/(063)
40	+25/0	+35/(0-30)	+40/40+	(+40+45)/65+	-50/(0-3)	150	+100/0	+140/(0-15)	+200/40+	(+200+230)/65+	-325/(0-3)
46	+30/0	+45/(0-30)	+45/40+	(+45+50)/65+	-60/(0-3)	180	+120/0	+170/(0-15)	(+200+230)	(+200+230+270)/65+	
54	+35/0	+45/(0-30)	+50/40+	(+50+60)/65+	-70/(0-3)	220	+140/0	+200/(0-15)	(+230+270)/40+	(+230+270+325)/60+	
60	+40/0	+50/(0-30)	+60/40+	(+60+70+)/65+	-80/(0-3)	240††	+170/0	+200/(0-5)	(+230+270)/8+	(+230+270+325)/38+	

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