

Cerpass HTB™

For Bonded Abrasive Tools



CERPASS HTB™ based on the original CERPASS XTL® seeded gel product, offers the latest in ceramic grain technology. Building on the unique nano-structure of the grains, which are composed of extremely uniform, sub-micron crystals, HTB modifies the chemical composition to minimize grain growth at high temperatures. This subtle change in chemistry stabilizes the nano-structure and allows for vitrified bond systems of up to 1250°C.

A second benefit is the grains' low force grinding capability. CERPASS HTB™ is the most versatile, longest lasting ceramic grain on the market today.

Physical properties (typical)

Compound	Alpha Aluminum Oxide	Hardness (GPa)^A	<20
Color	White Translucent to Off-white /Opaque	Density (g/cm³)^B	>3.9
Shape	Weak and Splintery	Crystal Size (µm)^C	0.2

A: by Vickers Diamond Indent Method

B: by Helium Pycnometry

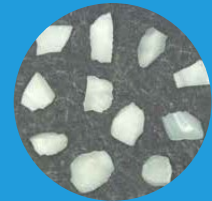
C: by Uncorrected Intercept Method of SEM Photographs

Chemical properties (typical)

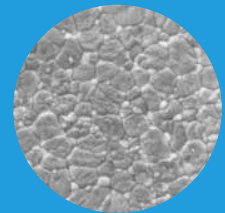
Predominant Chemical Composition		Al ₂ O ₃ ≥ 95%	
Trace Chemical Composition			
Constituent	Typical PPM	Constituent	Typical PPM
ZrO ₂	2-3%	Fe ₂ O ₃	<200
MgO	~ 1%	Na ₂ O	<100
SiO ₂	< 700 PPM	CaO	<100

Product Availability: Macro-Sized Grains Treated and Untreated

CERPASS® Code	Macro Grain Shape	Treatment	Sizing	Grit Sizes
HTB-0535	Weak, Untreated	Vitrified Resin/ Organic	ANSI or FEPA-F	20-150
HTB-0537	Weak, Silane treated		ANSI or FEPA-F	20-150



Macrostructure of 36-grit CERPASS HTB™ grains



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



Sizing Convention and Specifications:

Sizing Fractions – Distribution Control

CERPASS HTB™ is processed to American National Standards Institute (ANSI), Table 2, ANSI B74.12-2001 and Fédération Européenne des Fabricants de Produits Abrasifs (FEPA -F), FEPA -standard 42-GB-1984 R 1993.

	Control Screen Coarse Grain	Oversize	First Nominal	Second Nominal	Control Screen Fines Grain		Control Screen Coarse Grain	Oversize	First Nominal	Second Nominal	Control screen fine 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)	60	+40/0	+50/(0-30)	+60/40+	(+60+70)/65+	-80/(0-3)
22	+14/0	+18/(0-20)	+20/45+	+25/70+	-30/(0-3)	70	+45/0	+60/(0-25)	+70/40+	(+70+80)/65+	-100/(0-3)
24	+16/0	+20/(0-25)	+25/45+	(+25+30)/65+	-35/(0-3)	80	+50/0	+70/(0-25)	+80/40+	(+80+100)/65+	-120/(0-3)
30	+18/0	+25/(0-25)	+30/45+	(+30+35)/65+	-40/(0-3)	90	+60/0	+80/(0-20)	+100/40+	(+100+120)/65+	-140/(0-3)
36	+20/0	+30/(0-25)	+35/45+	(+35+40)/65+	-45/(0-3)	100	+70/0	+100/(0-20)	+120/40+	(+120+140)/65+	-200/(0-3)
46	+30/0	+40/(0-30)	+45/40+	(+45+50)/65+	-60/(0-3)	120	+80/0	+120/(0-20)	+140/40+	(+140+170)/65+	-230/(0-3)
54	+35/0	+45/(0-30)	+50/40+	(+50+60)/65+	-70/(0-3)	150	+100/0	+140/(0-15)	+200/40+	(+200+230)/65+	-325/(0-3)

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

LPD: HTB – Weak Shape

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	1.76	1.96	46	1.71	1.91	90	1.67	1.87
22	1.76	1.96	54	1.71	1.91	100	1.67	1.87
24	1.76	1.96	60	1.67	1.87	120	1.67	1.87
30	1.76	1.96	70	1.67	1.87	150	1.59	1.79
36	1.76	1.96	80	1.67	1.87			

LPD measured on untreated grains

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