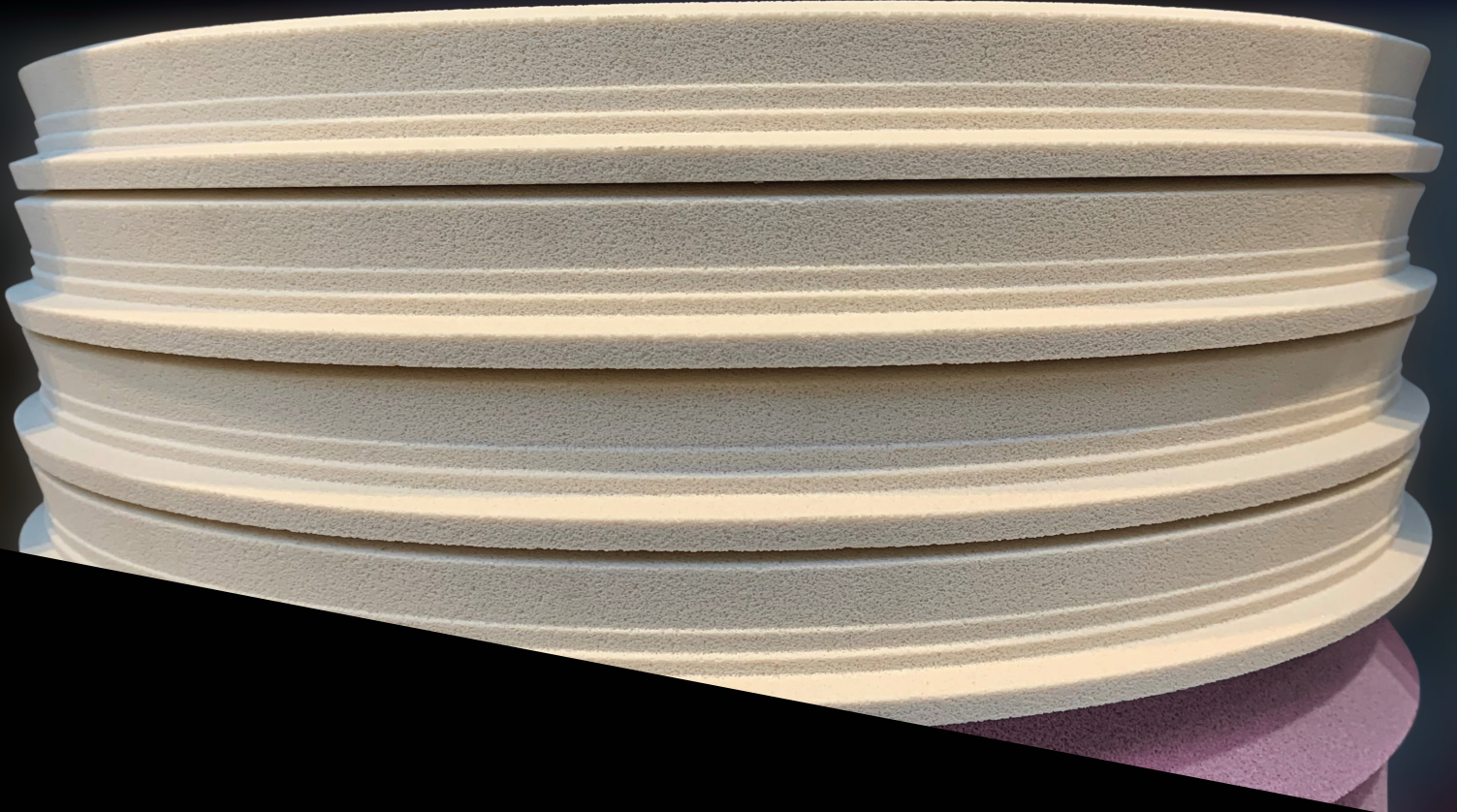


3M Science.
Applied to Life.™



3M™ Vitrified Bond V450 **Where performance meets quality.**

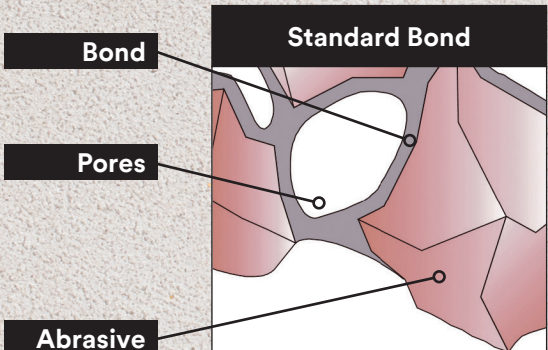
Our Advanced Grinding Solutions



Upgraded 3M™ Technology

When it comes to bond volume, less really is more.

Bond is necessary to hold abrasive grains together in a grinding wheel, but the bond itself does not grind. It does, however, generate pressure and friction which may lead to thermal damage on the surface of the part. Reducing the amount of bond volume in the grinding wheel matrix may combat thermal issues and can expose more active mineral grains for improved overall grinding performance throughout the life of the wheel.



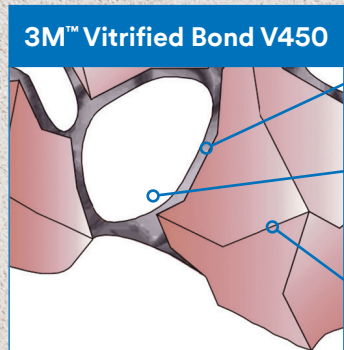
Standard Bond

Bond

Pores


Abrasive

Upgraded Features

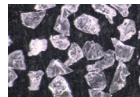


3M™ Vitrified Bond V450

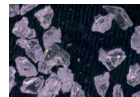
- Stronger Bond**
Lower bond volume
- Larger Pores**
Larger pores without compromising hardness structure
- More Abrasive**
More active minerals



Monocrystalline Al_2O_3



White Al_2O_3



Pink Al_2O_3

Markets



Gears

Planetary gears
Automotive and E-drive gears
Gears for general industry



Powertrain

Turbo chargers, rear axles,
precision pins, valves, etc.
Camshafts and crankshafts



Bearings

Outer rings
Inner rings
Rollers



Turbines

Blades
Vanes
Segments

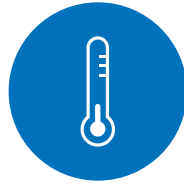
Performance that meets demanding quality expectations.



Lasts Longer

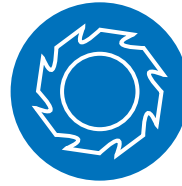
Extended lifetime up to 20% higher than regular wheels.

Delivers high performance G ratio, in certain cases, as high as ceramic grains specifications.



Runs Cooler

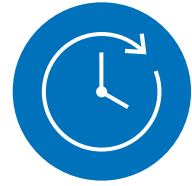
Lower bond volume, larger pores and more active minerals reduces friction and heat generation.



Cuts Faster

Stock removal rate Q'_w up to 30–40% higher and grinding cycle time (ts) up to 25% lower.

Leading to potential capacity increase and productivity improvement.



Less Dressing

Excellent profile retention and stable profile geometry minimizes wear.

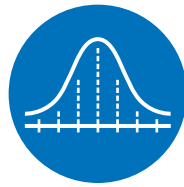
Longer intervals between each dressing cycle.



Cost Savings

Substantial cost per part improvement — ideal for producing large series.

Used in combination with standard aluminum oxide minerals for optimum price performance ratio.



Stable Quality

Very stable and repetitive grinding performances throughout life of wheel.

Sustain performances into narrowest deviation through end of life.



Prevent Burning Risks

Helps prevent thermal damages from appearing on the work parts even in extreme grinding conditions.



When Quality Matters

Compatible with the smallest and the tightest profiles and shapes requirements.

Specifications available down to #240 grit size to meet even the most drastic surface roughness expectations.

Compared to standard bond, upgraded 3M™ Vitrified Bond V450 wheels **cut faster, last longer, run cooler and can lead to substantial cost savings while meeting the most demanding quality expectations.**

Applications



Gear Grinding

Threaded gear
Single rib
Bevel gear

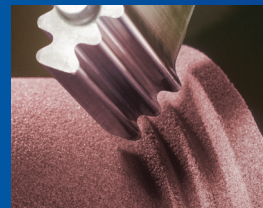


Outer Diameter Grinding

Cylindrical grinding
Plunge grinding
Profile grinding



Inner Diameter Grinding



Surface and Creep-feed Grinding

Surface
Creep-feed
High speed reciprocating



Centerless Grinding



3M Precision Grinding & Finishing is your reliable partner for helping you to meet your productivity and sustainability goals.

Less energy is required to run our production.

Upgraded 3M™ Vitrified Bond V450 formulation with sustainable raw materials can be manufactured through most modern production equipment.

Our kilns employ the latest technologies for enhanced monitoring of the overall sintering process and for related temperatures cycles management which allows for very repetitive and stable product characteristics.

3M™ Vitrified Bond V450 Standard Specification System

Product Code	Mineral	Grit Size	Hardness	Porosity	Bond Code
33VJ	28A	46	H8	V	450W
33VF	29A	60	J7	VPLF	
33VA	40A	80	K5	VPMF	
—	—	120	L5	VP	
—	—	150	E15	VPH	
—	—	180	F15	VPHH	
—	—	240	H15	—	
—	—	—	L15	—	

Illustrative example of a standard 3M™ Vitrified Bond V450 non porous specification: 28A120 K5V450W.

Illustrative example of a standard 3M™ Vitrified Bond V450 porous specification: 28A120 F15VPMF450W.

Other applications can be evaluated and additional specifications are available. Please consult your local Application Engineers for a specification recommendation based on your personal application environment.



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