

✦ UPRYZE-BLACK ENABLES TO ACHIEVE AESTHETIC BLACK CERAMIC WITH HIGH TOUGHNESS

UprYZe-Black is a pigmented yttria-stabilized zirconia leading to a ceramic with a deep black. Based on a patented engineered composition, UprYZe-Black provides unique combination of aesthetic and mechanical performance:

- Toughness of $15\text{MPa}\cdot\text{m}^{0.5}$
- Bending strength of 1000MPa
- Improved impact resistance: +50% vs. regular yttria doped zirconia.

UprYZe-Black is proposed either as a dry powder (UprYZe-Black) for injection molding or casting or as ready-to-press granules (UprYZe-Black-G) for uniaxial pressing or CIP.

🔍 TYPICAL PARTICLE SIZE & SPECIFIC SURFACE AREA

	Particle size ^a (μm) D50	Granules size ^a (μm) D50	Specific Surface Area ^b (m ² /g)
UprYZe-Black	0.2	/	9,5
UprYZe-Black-G	0.2	50	9,5

^a : Laser diffraction - ^b : B.E.T. measurement

⚙️ MAIN APPLICATIONS

- High performance decorative ceramic (watch parts, jewelry, automotive interior, ...)
- High performance technical ceramic with a black color



Black zirconia watch

🔬 TYPICAL CHEMICAL ANALYSIS

	Chemistry ^a (wt%)						L.O.I ^b (wt%)
	Y ₂ O ₃	Pigment	Al ₂ O ₃	SiO ₂	Na ₂ O	TiO ₂	
UprYZe-Black	3.3	5.0	1.0	<0.02	<0.02	<0.005	≤1.0
UprYZe-Black-G							3.5 - 5.0

^a : XRF for Y₂O₃, Al₂O₃ and pigment, ICP for the other elements ; ^b : Loss weight 20°C to 1000°C

🔍 CERAMIC PROPERTIES

	Density ^a	Fracture toughness K _{1c} ^b (MPa·m ^{0.5})	Bending strength ^c (Mpa)	Hardness ^d (HV05)
UprYZe-Black UprYZe-Black-G	≥5.99	15	1000	1250

^a : 1450°C for 2hrs in air ; ^b : DCM (ISO 14627) ; ^c : 3 points bending (NF EN843-1) ; ^d : Vickers indentation (ISO 6507)

📦 PACKAGING

- 20kg cardboard box

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