

More than 40 years of clinical experience with ceramic materials from our own ceramics production

1972

Pure alumina (Al_2O_3)

2007

ceramys®
(ATZ – Alumina-Toughened Zirconia)



2015

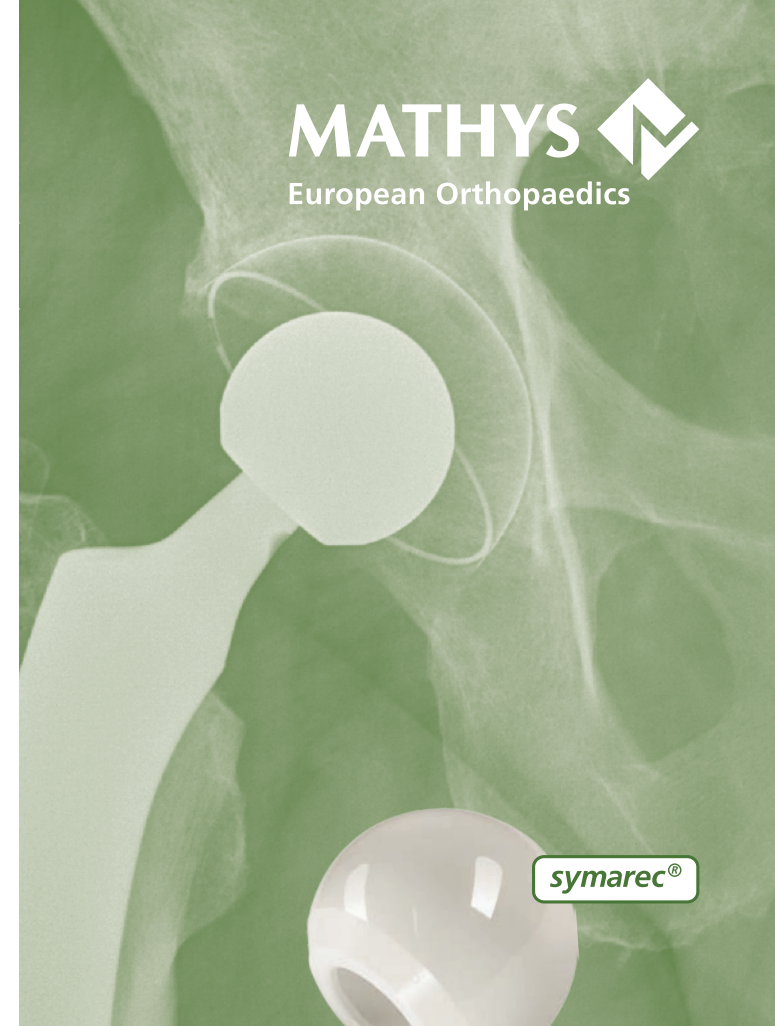
symarec®
(ZTA – Zirconia-Toughened Alumina)



References

- 1 Willmann, G.: Improving Bearing Surfaces of Artificial Joints, Advanced Engineering Materials 2001, 2, No.3, 135-141
- 2 Thomas, P.: Allergien durch Implantatwerkstoffe, Orthopäde 2003, 32, 60-64
- 3 Al-Hajjar, M. et al. : Wear of novel ceramic-on-ceramic bearings under adverse and clinically relevant hip simulator conditions; J Biomed Mater Res Part B, Applied Biomaterials 2013, 101 (8), 1456-1462

MATHYS 
European Orthopaedics



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symarec®

The white high-performance ceramics
by Mathys

symarec® – the new ceramics by Mathys

White high-performance ceramics

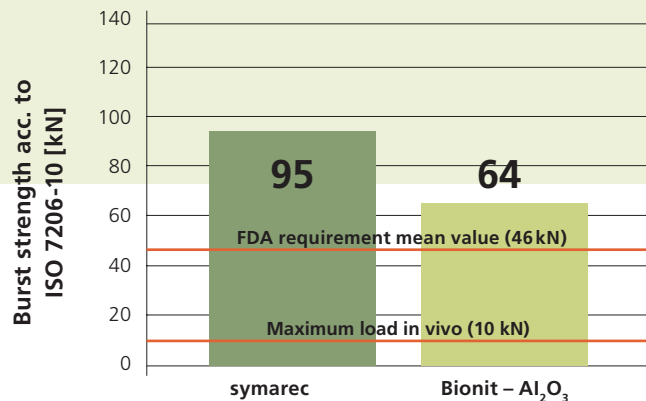
symarec is a ZTA (Zirconia-Toughened Alumina) ceramic and consists of a homogeneous mixture of 75 % alumina and 25 % yttriumoxide-stabilised zirconia.

Material properties	symarec
Al ₂ O ₃ [% wt]	75
ZrO ₂ [% wt] stabilised with yttria	25
Theor. density [g/cm ³]	4,37
Average grain size [µm]	0,8
Biaxial bending strength [MPa]	≥ 700
Fracture toughness (SEVNB) [MPa√m]	≥ 5

High fracture resistance

- Double burst strength in comparison with the FDA specifications
- Burst strength increased by 45 % in comparison with Bionit (Al₂O₃ ceramic)

Burst strength of Mathys ceramic femoral heads (28L) on titanium taper



symarec + vitamys (HXLPE) – Low-abrasion and fracture-proof

symarec can be combined with UHMWPE, HXLPE (vitamys) and all Mathys ceramics.



~ 9'500 kg

symarec® head
Size 28L

Improved lubrication

Improved wettability, surface quality and sphericity¹ compared with metal heads.

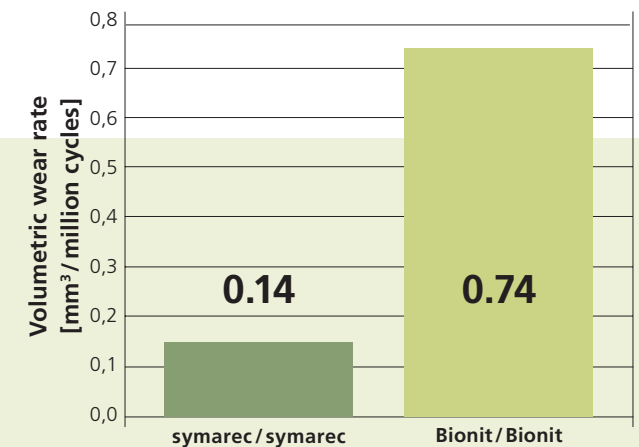
Bio-inert material²

- Avoidance of allergic reactions to nickel (nickel-free)
- High purity, no further doping
- Resistant to corrosion

Reduced wear under micro-separation conditions

Reduced risk of stripe wear and chipping in comparison with Bionit (Al₂O₃ ceramics).

Wear rates in the hip simulator test with micro-separation³



32 XL and 36 XL heads

Additional neck lengths for primary treatment.

White colour

The composition does not contain foreign oxides.