

MAGNESIUM ALLOYS

Magnesium alloys offer the potential to combine the mechanical property benefits of metallic implants with the bio-absorbable nature of degradable polymers.

The last decade has seen a significant increase in the amount of research being undertaken across the globe on bio-absorbable materials, particularly in the fields of orthopaedic trauma fixation and vascular intervention, where the use of metallic implants is commonplace.

MATERIAL	PLLA*	IRON**	MAGNESIUM ALLOY**
Tensile Strength (MPa)	30-40	300	280
E-Modulus (GPa)	1.2-3.0	200	45
Elongation (%)	2-6	25	23
Total Degradation Time	2-3 Years	> 4 years	9-12 months

* *Ranter B.D., et al, editors: Biomaterials Science, An Introduction to Materials in Medicine, 2nd Edition (2004).*

** *Hermawan H, et al: Acta Biomateriala 6 (2010), 1693-1697).*

Magnesium Elektron is a world leader in the development, manufacture and supply of high performance magnesium alloys with seventy year history of creating new platform technologies involving magnesium, previously focusing on the aerospace, defence and nuclear power sectors. Development and production of bio-absorbable magnesium alloys has been taking place at its Magnesium Technology Centre in Manchester, UK. The work has involved extensive

research into numerous alloy systems and the development of novel manufacturing technologies. The new Elektron Syn-ermag® range of bio-absorbable alloy technologies has already undergone considerable in-vitro and in-vivo evaluations.

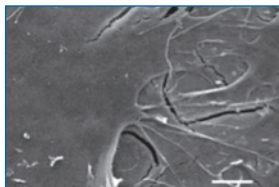


FIGURE 1 : Osteoblasts on Mg

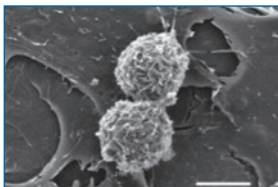


FIGURE 2 : Macrophages on Mg

Partner

Magnesium Elektron is wholly owned by the Luxfer Group, an international materials technology company specialising in the design, manufacture and supply of high-performance materials and components to the environmental, healthcare, protection and speciality markets.

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