

PALACOS[®]

The Element of Success
in Joint Replacement.

60 YEARS

Pa
PALACOS[®]

30,000,000+ PROCEDURES GLOBALLY¹

#NothingLikePalacos

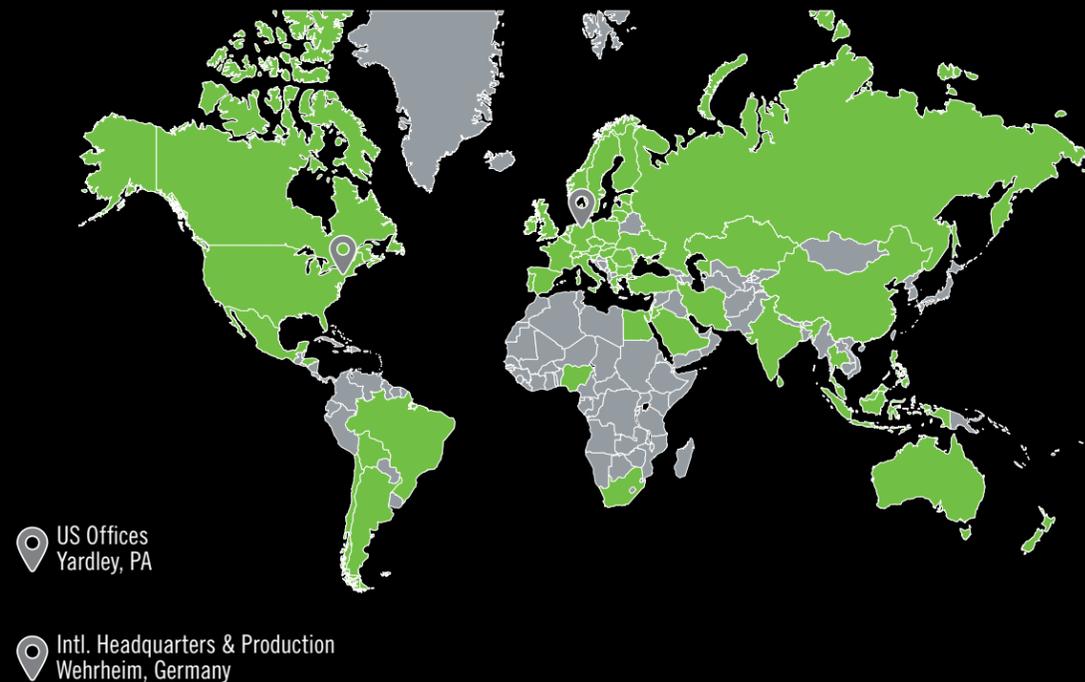
1. Data on file.

GLOBAL SUCCESS. FOR MORE THAN 160 YEARS.

Heraeus, a Fortune 500 technology group headquartered in Hanau, Germany, is a leading international family-owned company formed in 1851. With expertise, a focus on innovations, operational excellence and an entrepreneurial leadership, we strive to continuously improve the businesses of our customers around the world.

Heraeus Medical, the inventor and exclusive manufacturer of PALACOS®, is a global leader in joint fixation and infection management, driving continued innovation, simplicity, and clinical results.

Heraeus Medical operates in almost 60 countries*



*Based on sales in 01/2015 – 06/2016

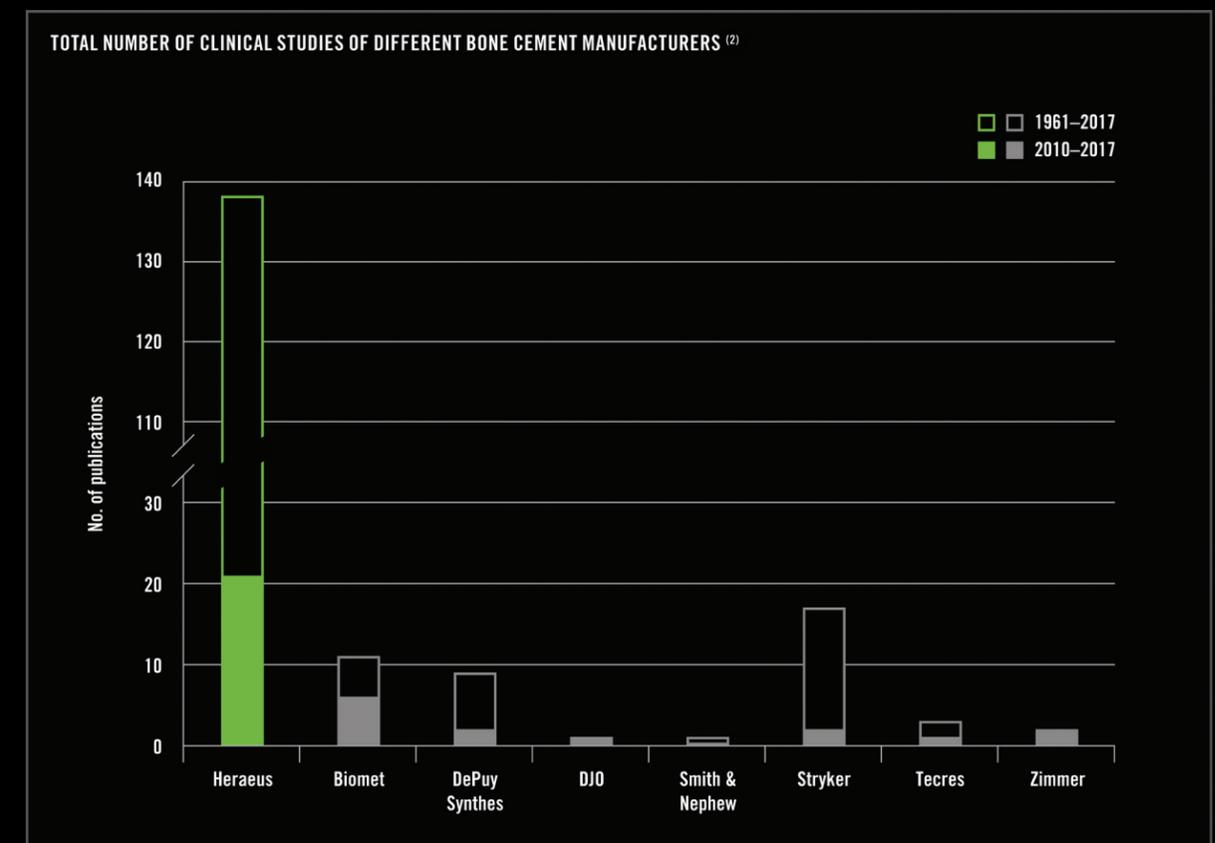
TRUST ISN'T GIVEN. IT'S EARNED.

The gold standard in arthroplasty, the high-quality PALACOS® portfolio delivers consistency, predictable outcomes, and low revision rates.

- Proven in 30 million cases worldwide¹
- The most extensively studied bone cement²
- Innovator in antibiotic-loaded bone cement

30 MILLION
PROCEDURES
WITH PALACOS®

EVIDENCE: MOST STUDIED BONE CEMENT



2. Pilz V, Hanstein T. A Literature Review of the Clinical Evidence Situation of Bone Cements. *Journal of Medical and Health Sciences*. 2018;1:31-36.

THE ORIGINAL. MADE IN GERMANY.

PALACOS®

With a proven formula and raw materials of consistently high quality, PALACOS® cements have enabled successful surgical interventions for over 60 years. Characteristically green in color, PALACOS® contrasts optically with the surrounding tissue to facilitate easier handling during surgery. PALACOS® is available in various viscosities for flexible handling during various orthopedic procedures.

HIGH RELEASE. LOW REVISIONS.

All PALACOS® cements are also available with added gentamicin. PALACOS® is known for eluting the highest proportion of antibiotic to surrounding tissue³. The initial high dose released matches the period when the risk of infection is the highest and enables the effective kills of bacterial pathogens while minimizing mechanical compromise caused by manual addition of antibiotics⁴⁻⁶.

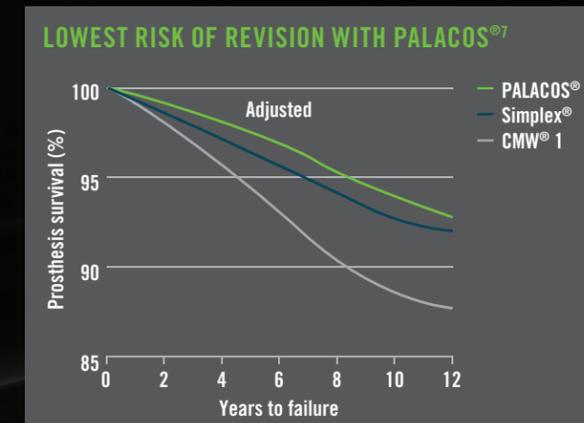


Figure 2

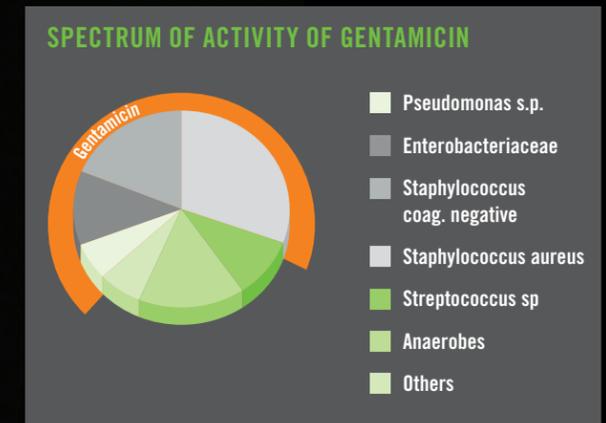


Figure 3

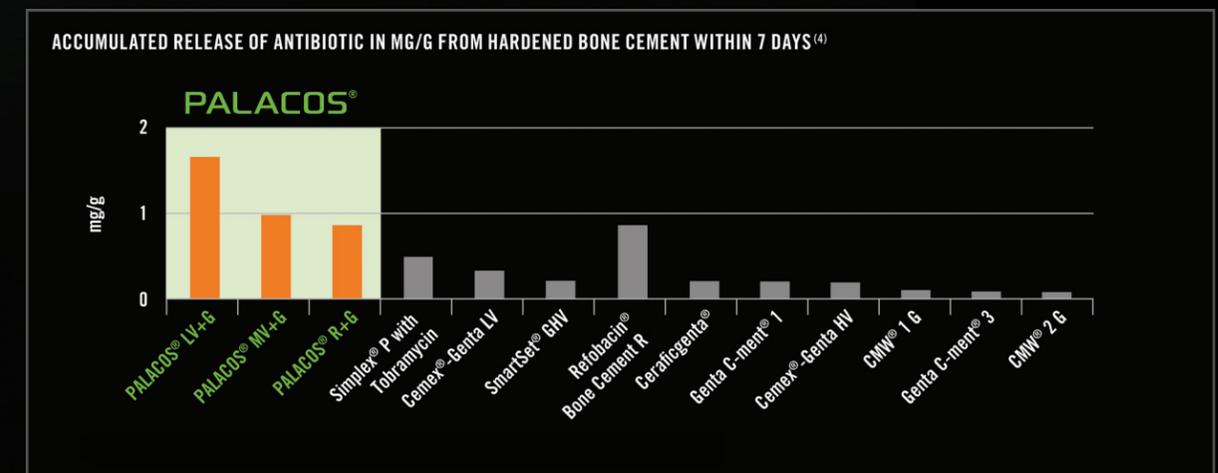


Figure 4

3. Modified from Furnes et. al.: Properties of bone cement: which cement should we choose for Primary THA, in: Breusch S.J., Malchau H.: The Well-cemented Total Hip Arthroplasty. Springer 2005; 104. 4. Kühn K.D.: PMMA Cements. Springer 2014; 147. 5. Webb, J.C.J., Spencer, R.F. The role of polymethacrylate bone cement in modern orthopaedic surgery. The Journal of Bone and Joint Surgery, 2007, Vol 89-B, No.7: 855. 6. Gristina A. et. al. Infections from biomaterials and implants: a race for the surface. Medical Progress through Technology 1988; 14:205-204: 218. 7. Espehaug et al. The type of cement and failure of THR - data from the Norwegian Arthroplasty Register. J Bone Joint Surg. Br 2002; 84: 832-838.



ONE PALACOS®. MANY OPTIONS.

Flexibility at the highest level.

The PALACOS® product portfolio from Heraeus comprises an extensive range of high-quality bone cements for anchoring endoprosthetic implants. Different viscosities, either with or without added antibiotic, ensure utmost flexibility for diverse applications.

PALACOS® R & PALACOS® R+G:

Trust in green.

Known as the gold standard in joint arthroplasty, PALACOS® stands for lowest revision rates⁷. The high-viscosity PALACOS® R bone cement is also available with added gentamicin as PALACOS® R+G*. The local release of the antibiotic minimizes the risk of infection in the implant with a reduced systemic load⁸.

*PALACOS® R+G is indicated for use in the second stage of a two stage revision for the total joint arthroplasty after the initial infection has been cleared.

ADVANTAGES AT A GLANCE

- Gold standard in implant fixation, with proven clinical history (see fig. 1)
- Highest antibiotic release rates (see fig. 4)
- Reliable working properties: Offers a comfortable application window with consistent viscosity throughout the application
- Lowest risk of revision with PALACOS® (see fig. 2)

PALACOS® LV & PALACOS® LV+G:

For tough tasks with a deft touch.

PALACOS® LV is a low-viscosity bone cement. Thanks to its low viscosity, PALACOS® LV enables precise application even through thin nozzles, making it ideal for small and medium-sized joints such as the shoulder and elbow. PALACOS® LV penetrates better into fine bone structures and provides good anchorage. This cement is also available with added gentamicin for antibiotic prophylaxis, under the name PALACOS® LV+G*.

ADVANTAGES AT A GLANCE

- Precise application thanks to low viscosity

PALACOS® MV & PALACOS® MV+G:

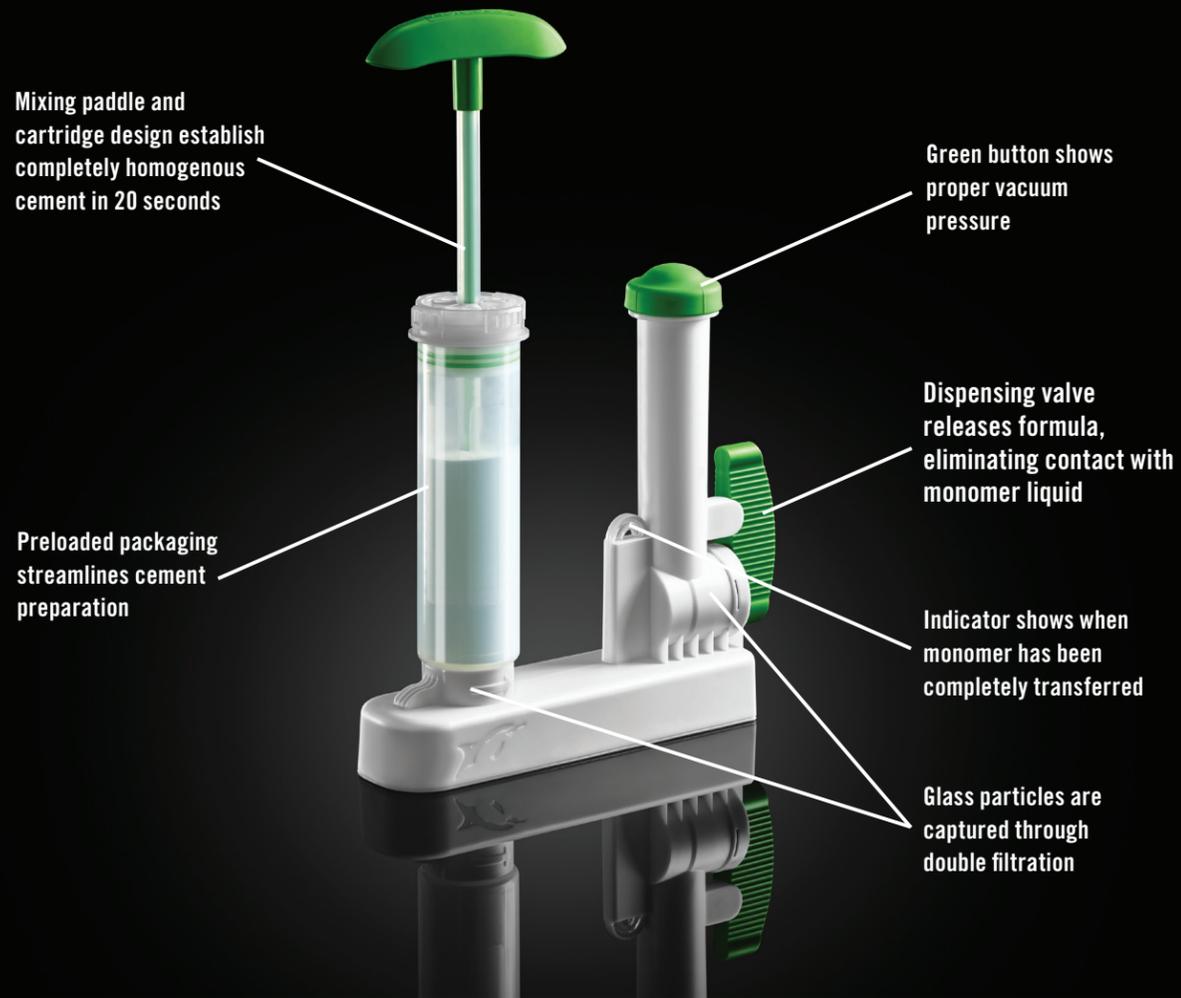
Ideal for vacuum mixing.

PALACOS® MV is a medium-viscosity bone cement. It contains the same raw materials as PALACOS® R and has excellent mechanical properties. PALACOS® MV is especially suitable for use with vacuum mixing systems. This cement is also available with added gentamicin for antibiotic prophylaxis, under the name PALACOS® MV+G*.

MODERN MIXING. ENDURING STRENGTH.

PALACOS® R+G pro – all in one.

The innovative PALACOS® R & R+G pro All-in-One Fixation System™ integrates the renowned quality of PALACOS® bone cement into a ready-to-mix closed vacuum system. By adding an efficient, sterile workflow to the gold standard in cement⁹, PALACOS® R & R+G pro brings a new level of simplification and standardization in joint arthroplasty procedures.



PALAMIX® – safe and simple

The PALAMIX® vacuum mixing system is the key to the outstanding workability of PALACOS® cements. Exclusively developed for all PALACOS® cements, it delivers a perfectly homogeneous cement mixture.

- Safe and easy handling
- Filling funnel with particle filter prevents glass particles in the bone cement
- Standardized mixing process produces consistent results
- Easy and time-saving use, thanks to collection under vacuum
- Selection of nozzles for different indications
- Diverse pressurizers for optimal cementing techniques
- Mix up to 80 g of bone cement uno (or up to 160 g of bone cement duo in 2 cartridges)
- Apply bone cement directly from the mixing cartridge



PALABOWL® – efficient and effortless

The PALABOWL® vacuum mixing bowl allows excellent visibility and monitoring of the blending process.

- Rotating axis paddle design allows mixing from all angles to create a thorough cement mix with the least possible unmixed powder
- Shaped spatula and curette included, exactly matching the contour of the bowl to help remove cement without waste
- The bowl allows for a high capacity, up to 3 batches of 40 g of bone cement can be mixed at once



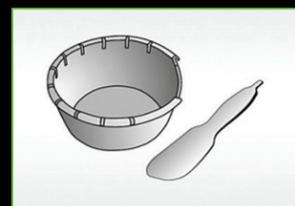
9. Olerud et. al., Comparison of Refobacin Bone Cement and Palacos with Gentamicin in Total Hip Arthroplasty: an RSA Study with Two Years Follow-up. Hip Int., 2013:1.

BENEFITS OF VACUUM MIXING.

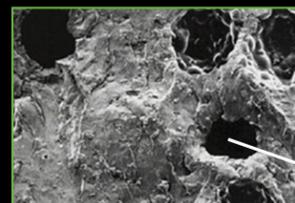
Air-induced porosity within the cement mantle leads to a rapid propagation of fractures and weakens the cement mantle. A fractured and fragile cement mantle compromises the integrity of the interfaces, and therefore the survivorship of the implant¹⁰.

Vacuum mixing reduces porosity, improves cement homogeneity and strengthens the cement-prosthesis interface¹⁰.

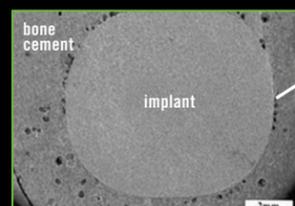
Conventional mixing



Porosity of 5 – 15%



Photomicrograph of hand-mixed bone cement



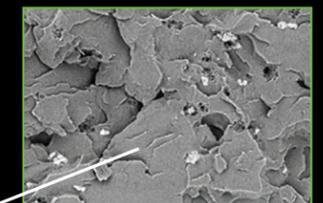
Samples from a cemented implant



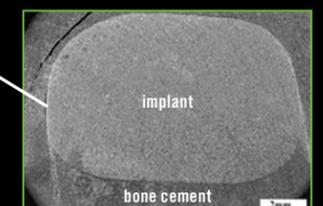
Vacuum mixing



Porosity of 1 – 3.4%



Photomicrograph of vacuum-mixed bone cement



Samples from a cemented implant

10. Wang: The benefit of Vacuum Mixing, in Breusch et.al. The Well-Cemented Total Hip Arthroplasty, 1998; 108, 111.

INSIST ON PALACOS®.

Product	Description	Content	REF
PALACOS® R+G Pro	High-viscosity bone cement with gentamicin. All-in-One Fixation System™.	Net 75	5075298
PALACOS® R Pro	High-viscosity bone cement. All-in-One Fixation System™.	Net 75	5075299
PALACOS® R+G	1 package containing 40 g of high-viscosity bone cement with gentamicin	1 x 40	5036964
PALACOS® R	1 package containing 40 g of high-viscosity bone cement	1 x 40	5036963
PALACOS® MV+G	1 package containing 40 g of medium-viscosity bone cement with gentamicin	1 x 40	5051207
PALACOS® MV	1 package containing 40 g of medium-viscosity bone cement	1 x 40	5051206
PALACOS® LV+G	1 package containing 40 g of low-viscosity bone cement with gentamicin	1 x 40	5036966
PALACOS® LV	1 package containing 40 g of low-viscosity bone cement	1 x 40	5036965
PALAMIX® uno	Vacuum mixing system with collection under vacuum which can handle up to 80 g of bone cement	10 units	66057893
PALAMIX® duo	Vacuum mixing system with collection under vacuum and two cartridges which can handle up to 160 g of bone cement	10 units	66057897
PALAMIX® nozzle slim	Nozzle to apply low-viscosity bone cements (approximately 7 mm)	10 units	66036747
PALAMIX® nozzle medium	Flexible, conical nozzle (approximately 8.7 to 12.6 mm)	10 units	66043960
PALAMIX® cement gun	Reusable application gun	1 unit	66036163
PALAMIX® vacuum pump	Reusable vacuum pump with one-way valve	1 unit	66036748
PALABOWL®	Vacuum mixing bowl	15 units	5050166

For more information, visit www.heraeus-medical-usa.com or call 1.833.PALACOS.