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MATHYS 
European Orthopaedics

cemSys®
PMMA Bone Cement
Product information



Manufacturer

EMCM B. V.

The first total hip replacement using a PMMA cement took place in the 1950's. Since then cemented implants have become a gold standard in total hip and knee arthroplasty. Today surgeons can choose between a variety of cements with different viscosities, available with and without added antibiotics.

cemSys® fulfils all requirements of a proven high quality bone cement

- More than 10 years of clinical history
- Mechanical properties superior to the International ISO 5833 standards
- Two different viscosities for various applications
- Short waiting time and an efficient application time
- Stable packaging, liquid in an ampule and powder in a bottle





Chemical composition of cemSys®

Liquid (ml)

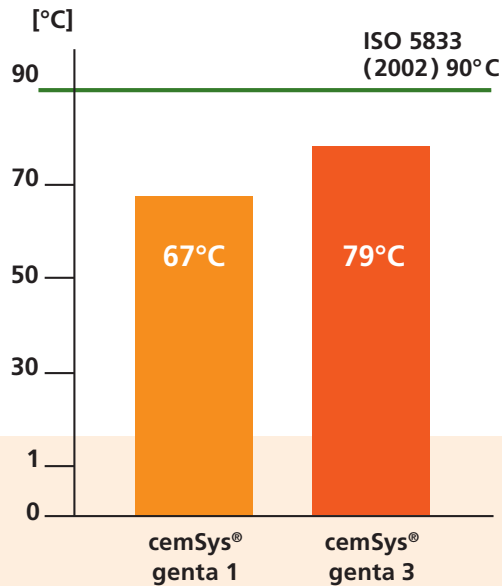
Liquid	cemSys® 1	cemSys® genta 1	cemSys® 3	cemSys® genta 3
Methyl methacrylate	12.9	12.9	14.7	14.7
Butyl methacrylate	2.1	2.1	2.4	2.4
N, N-dimethylptoluidine	0.4	0.4	0.4	0.4
Hydroquinone (ppm)	20	20	20	20
Total Content	15.4	15.4	17.5	17.5



Powder (gram)

Powder	cemSys® 1	cemSys® genta 1	cemSys® 3	cemSys® genta 3
Polymethyl methacrylate	35.0	35.3	34.9	35.2
Benzoyl peroxide	1.0	1.0	1.1	1.1
Barium sulfate	4.0	4.0	4.0	4.0
Gentamicin	–	0.5	–	0.5
Total Content	40	40.8	40	40.8

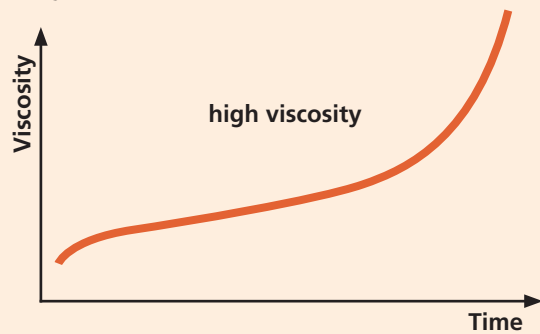
The peak reaction temperature of cemSys genta



Low hardening temperature

The polymerization of PMMA bone cements is an exothermic chemical reaction. As the cement starts to harden, the temperature will increase as a result of the polymerization process. This could potentially lead to tissue necrosis, which is why the ISO 5833 (2002) standard places a limit of 90°C on the hardening temperature of bone cements. The peak reaction temperature of cemSys is well within this limit.

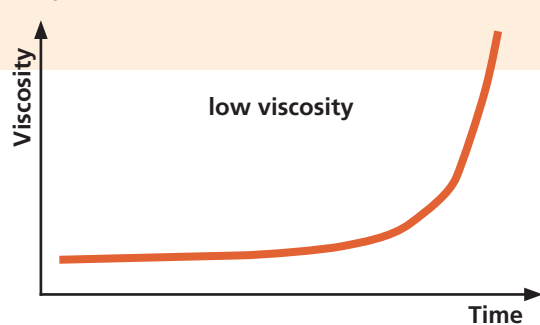
cemSys® 1



Different viscosities to match surgeon's preference

Viscosity is an essential handling property for surgeons. To match the needs and preferences of different surgeons, we supply both a high and low viscosity bone cements. cemSys 3 is our low viscosity bone cement, which is initially more liquid, while cemSys 1 is our high viscosity cement, which is initially slightly thicker.

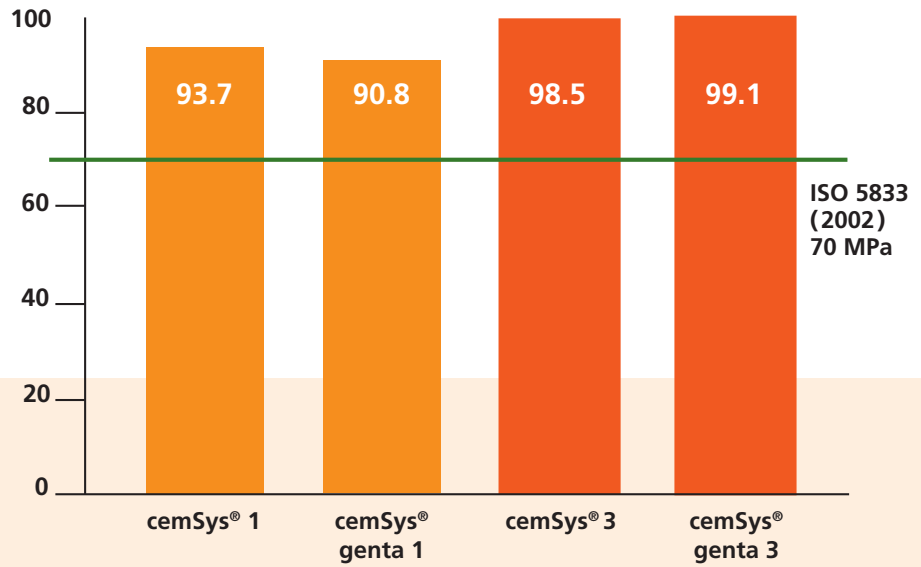
cemSys® 3



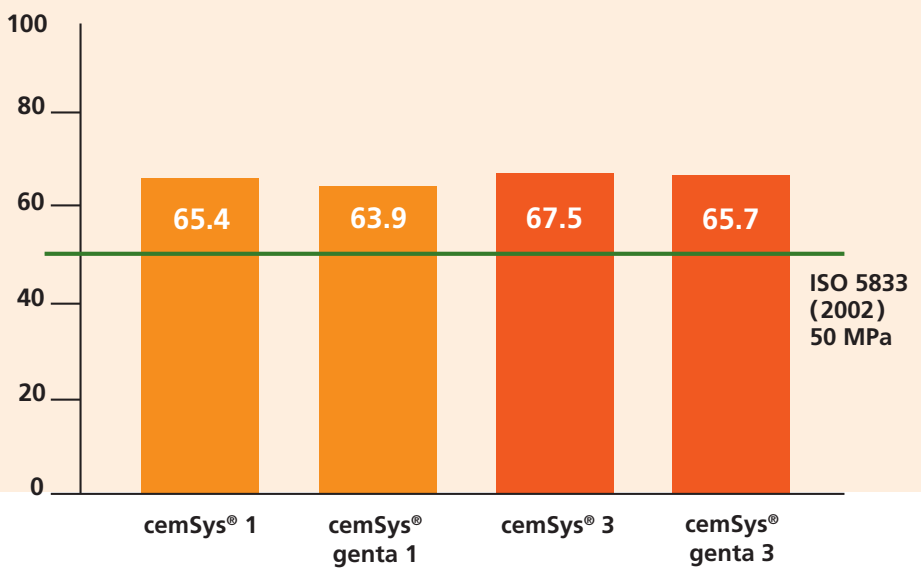
The products are available with and without antibiotics. All cements comply with the International ISO 5833 standard for PMMA bone cements which define the physical, mechanical, packaging and labelling requirements.

Mechanical properties

Compressive strength
[MPa]



Bending strength
[MPa]



Antibiotic bone cements

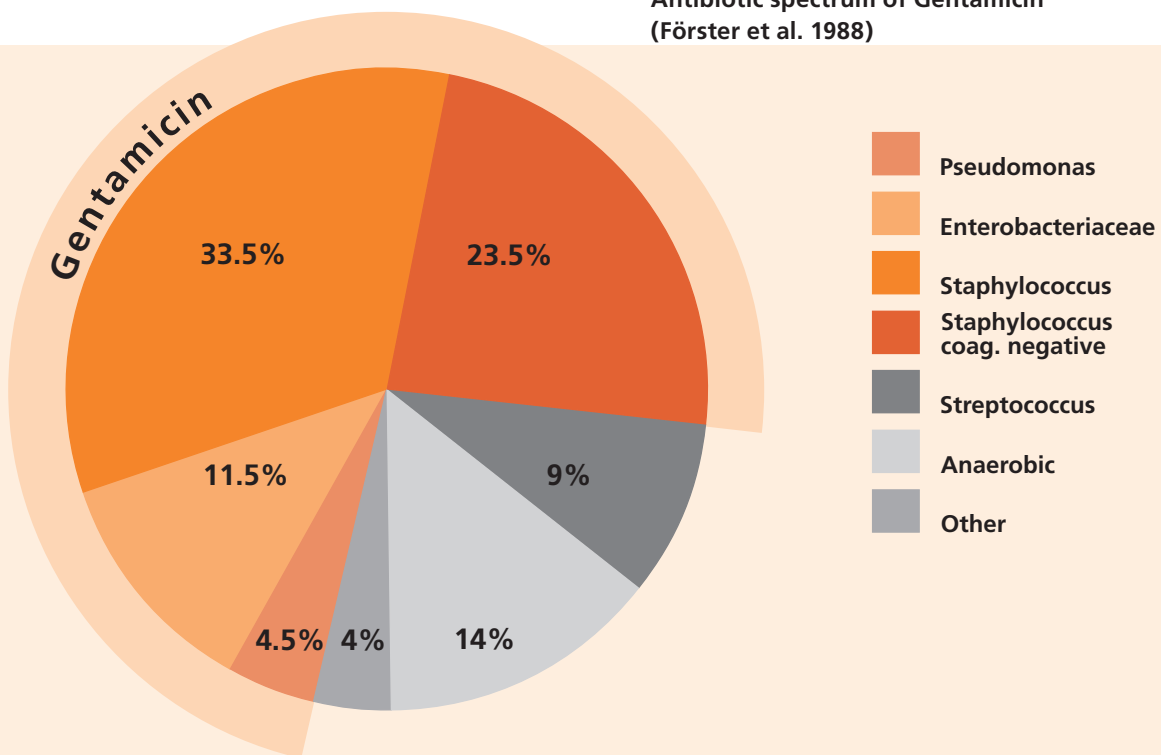
Our cemSys genta products include some added antibiotics for local antibiosis. To ensure effective antibiosis without compromising the mechanical strength of the product, we limit the amount of antibiotics to about 3–4% of the total powder volume.

Release of gentamicin

In Europe, the most frequently used bone cements – including our own cemSys genta – have Gentamicin added to them. Gentamicin is an antibiotic which covers approximately 75% of all bacteria-based pathogens. Its addition to bone cements prevents the adherence of bacteria to the cement surface and surrounding tissue, reducing the risk of bacterial growth and infection.

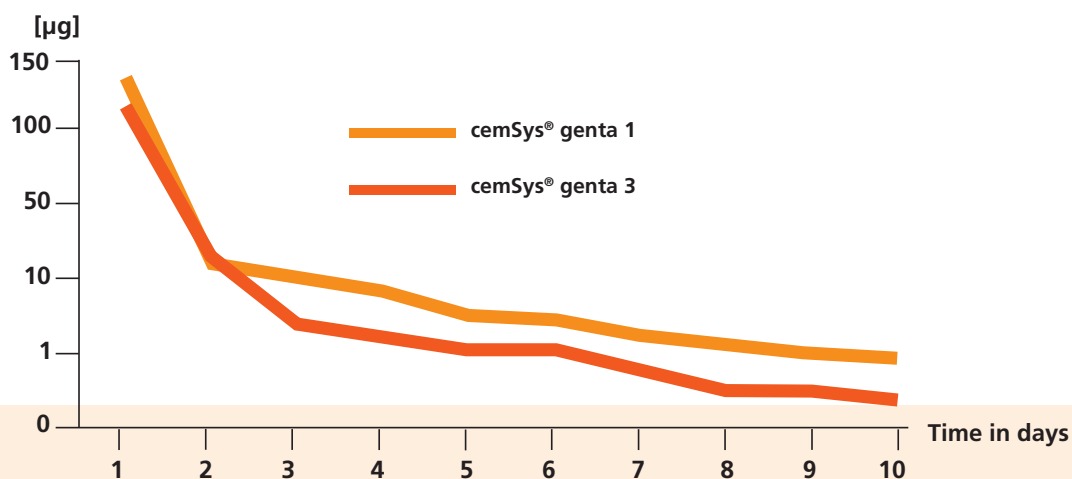
cemSys genta starts with a high initial release of antibiotics, which steadily decreases over time.

Antibiotic spectrum of Gentamicin
(Förster et al. 1988)



Antibiotic bone cements

The release of Gentamicin over time



Ordering information



Item no.	Description
52.34.0080	cemSys 1 (1 x 40 g)
52.34.0081	cemSys 3 (1 x 40 g)
52.34.0082	cemSys genta 1 (1 x 40 g)
52.34.0083	cemSys genta 3 (1 x 40 g)

For more information about our product portfolio, please contact your local dealer

Manufacturer

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