



Citra-Lock™

**Safe &  
Superior**

**Catheter  
Lock  
Solution**



**Anti Microbial  
Anti Coagulant  
Anti Biofilm**

**30% & 46,7% TSC  
(trisodium citrate)**



**Dirinco®**  
Always innovating

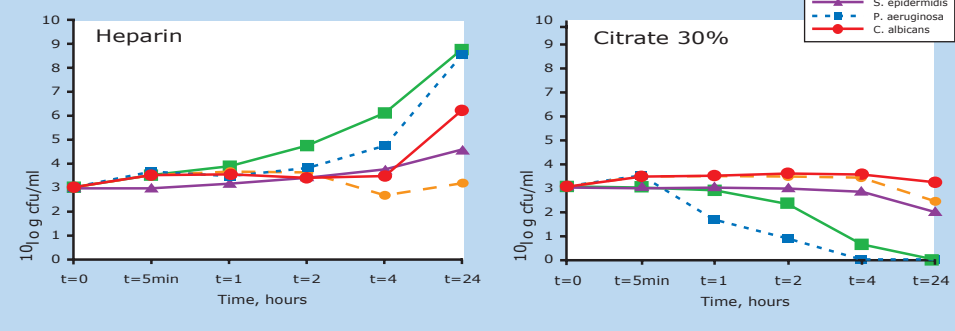


Citra-Lock™

# The safe & superior way to lock every catheter

## Anti Microbial

Citrate is significantly more Bactericidal than heparin as demonstrated by Weijmer from in vitro studies<sup>3</sup>



Randomised, Clinical Trial Comparison of Trisodium Citrate 30% and Heparin as Catheter-Locking Solution in Haemodialysis Patients<sup>2</sup>

	Citrate (30%)	Heparin
Overall catheter removal	28%	43%
Catheter related bacteraemia (per 1000 days)	1.1	4.1
Exit site infections (per 1000 days)	1.3	3.9
Death from catheter related bacteraemia	0	5
Admissions for catheter related infections	6	21
Admissions for catheter related infections (per 1000 days)	0.7	2.7
Bleeding at exit sites (number of patients)	6	19
Thrombocytopenia (number of patients)	2	4
Parathesia or Dysgeusia	9	4

**Study Aim:** To determine whether locking with citrate 30% could increase overall catheter patency and reduce catheter related infections in comparison to heparin. The secondary aim was to determine whether a difference in major bleeding episodes could be demonstrated between citrate and heparin.  
**Study Design:** Multicentre (10 centres), double blind, randomised controlled, 291 catheters (143 heparin and 148 citrate 30%), 98 tunneled catheters, 193 non-tunneled catheters from catheter days 16.547.

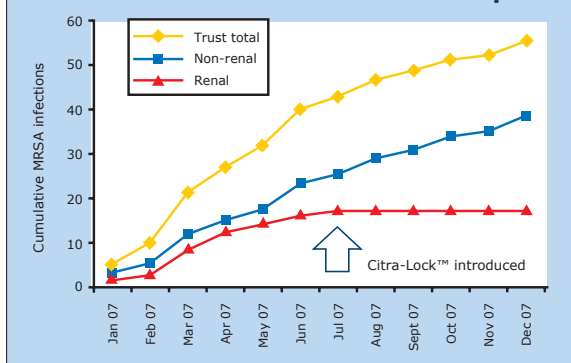
Anti Microbial  
Anti Coagulant  
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30% & 46,7% TSC  
(trisodium citrate)

## Conclusion using Citra-Lock™ 30% or 46,7%:

- improves overall patency rates
- reduces catheter-related infections
- reduces major bleeding for both tunneled and untunneled hemodialyses catheters

### Cumulative incidence of MRSA blood-stream infections at St Bard's Hospital <sup>5</sup>

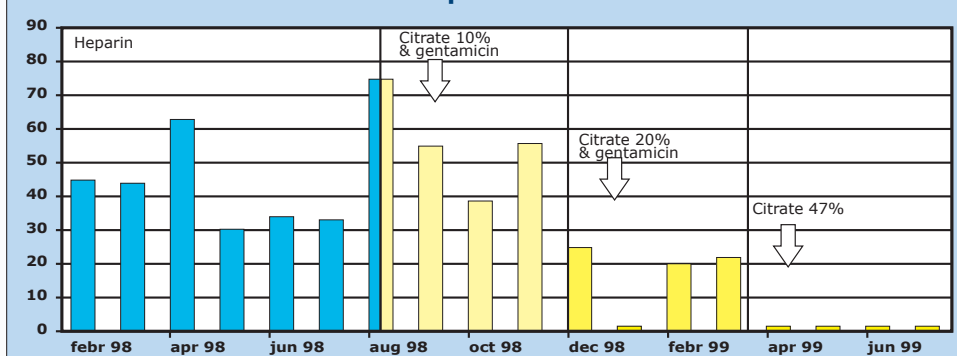


Since the introduction of Citra-Lock™ (46,7%) to the renal department of St. Bard's renal unit (Royal London Hospital) has proven record in managing MRSA. The number of MRSA infections has fallen from 2,27/1000 patients catheter days to 1,36/1000 patient catheter days. Citra-Lock™ intervention provides significant benefit to patients, provides an extra 2-3 bed days to the hospital and provides savings of € 145.000,-.

### Anti Coagulant

Citra-Lock™ is based on highly concentrated trisodium citrate that prevents clotting and therefore helps maintaining high flow rates whilst greatly reducing the need for Urokinase/tPA and other replacements

### No. of vials of Urokinase used per month <sup>1</sup>



### Anti Biofilm

Trisodium citrate (TSC) lowers infection rates by reducing biofilm formation in hemodialysis catheters. The study of Bosma (2009) demonstrates an in vivo reduction of intraluminal catheter biofilm formation and bacterial colonisation with the use of TSC 30% for HD catheter locking. By this mechanism, prevention of catheter-related infections by TSC can be largely explained.



#### REFERENCES:

1. Ash SR, Concentrated Sodium Citrate (23%) for Catheter Lock. Haemodialysis International 4:22-31, 2000
2. Weijmer JC, Randomized, Clinical Trial Comparison of Trisodium Citrate 30% and Heparin as Catheter-Locking Solution in Haemodialysis Patients. J Am Soc Nephrol. Sep;16(9):2769-77, 2005
3. Weijmer JC, Superior Antimicrobial Activity of Trisodium Citrate over Heparin for Catheter Locking. Nephrol Dial Transplant 17: 2189-2195, 2002
4. Shanks RM, Catheter Lock Solutions Influence Staphylococcal Biofilm Formation on Abiotic Surfaces. Nephrol Dial Transplant 21, 2247-2255, 2006
5. Nolan JP, Reducing Catheter Related Bacteraemia in Haemodialysis. Vascular Access Soc. 5th Int. Congress of Vascular Access Soc, Nice, 2007
6. Bosma JW, Siegert CE, Peerbooms PG, Weijmer MC, Reduction of biofilm formation with trisodium citrate in haemodialysis catheters: a randomized controlled trial. Nephrol Dial Transplant, 2009



Citra-Lock™

in a **needle-free** vial

**Safe & Superior**

**Catheter Lock Solution**

**Increased safety & Simplified handling**



**The new Citra-Lock™ vial features a drip free Luer-Slip/Luer-Lock connector:**

- preventing microbial contamination
- protecting against needle stick injuries
- reducing handling steps
- promoting intuitive handling

[www.citra-lock.com](http://www.citra-lock.com) to watch the Citra-Lock™ instruction video



Citra-Lock™  
5ml vial



Boxes contain  
20 x 5ml vials

Art.nr. Citra-Lock™ 46,7%: 24060202

Art.nr. Citra-Lock™ 30% : 24060203

**ORDERING INFORMATION:**

Please email your enquiry to [info@citra-lock.com](mailto:info@citra-lock.com). We will direct you to our local distributor.

**Also Available:** Citra-Lock™ 4%

Citra-Lock™ is a Dirinco product and registered as a medical device

CE 1275

Citra-Lock™ distributor