

MEDICAL COST COMPARISON OF TWO CHEMICAL DISINFECTION PRODUCTS IN STERILIZATION



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Objectives: In application of instruction 449¹, at our sterilization unit, a total prion decontamination had been undertaken during the cleaning step of medical devices. The aim of this study was to compare the medical cost of two prion decontamination agents (DA): **Prolystica 100 Steris (P)** versus **Actanios LDI Anios** currently used, in order to optimize the cleaning stage (cleaning quality, cycle duration, costs).

Methods: This study is performed on **31 decontamination cycles** on 2 identical cleaners (Steelco 610/2 2S). The cleaning cycle programs are described in table 1. The drying step duration was voluntarily increased by 3 minutes (min) with P. The average number of baskets/cycle is 6,3 with P and 4,7 with A.

14 soil-tests Pure check A (Ansell) and 24 surface protein tests Clean-Trace (3M) are performed on each DA.

15 tests (62,5%) Clean-Trace are done on locations less accessible to cleaning for P and 12 (50%) for A.

A visual control is performed at the end of the cleaning stage.

Results-Discussion:

• Cleaning quality

For A, 1 test (7%) presents traces of organic soils.

For P, 100% of Pure Check tests are negatives.

For both DA, 100% of Clean-Trace tests have turned to green (medical devices surfaces considered cleaned).

Similar results regarding the cleaning quality

• Cycles duration

During the tests, average cleaning time is 44,4min for A and 41,4min for P, showing a significant reduction of 3min ($p < 0.05$), with at the same time a 3 minute-increase of drying duration with P.

The use of P allows to reduce the cleaning time (-4min) and to replace the neutralization stage by a simple water wash (-2min) and therefore permits to eliminate the use of an acid agent.

This **potential gain of 6min** could allow us to do one more cycle/day/cleaner (increase of medical devices care rate in within 24h) and/or to improve the drying stage, currently judged not enough satisfactory.

3min/cycle gain + 3min of drying with P

Steps	Decontamination agent "A"		Decontamination agent "P"
Cleaning	Actanios LDI 1% (DA) 55°C 10 min 14 min	- 4 min	Prolystica 100 0,8% (DA) 55°C 7,5min 10 min
Cleaning	RN Anios (acid agent) 45°C 3 min	- 2 min	Water 0°C 1 min
Thermal disinfection	RHW Anios (drying accelerator) 90°C 6 min		Dry N Shine (drying accelerator) 90°C 6 min
Drying	90°C 13 min	+ 3 min *	90°C 16 min

■ real times

* : voluntarily increase of drying time with P

Table 1: Cleaning cycle programs

• Costs

The replacement by P could induce an economy of **908 €/year** in chemical products (- 35% of the actual budget) and a decrease of 44% in the volume of chemical products/year (table 2).

35% of budget economy with P

	Volume/ cycle (mL)	Cost/L (euros)	Cost/cycle (euros)	Nb cycles/ year	Use/year (L)	Annual budget (euros)
Decontamination agent "A": Anios LDI 1%						
DA	150	5,70	0,86	2000	300	1710
Acid agent	45	5	0,23	2000	90	450
Drying acc	45	5	0,23	2000	90	450
Total			1,32		480	2610
Decontamination agent "P": Prolystica 100 0,8%						
DA	120	6,32	0,76	2000	240	1517
Drying acc.	15	6,16	0,09	2000	30	185
Total			0,85		270	1702

Table 2: Economical comparison of the 2 DA

Conclusion:

This study confirms the replacement of the actual Actanios LDI by Prolystica 100 regarding the economic impact and time saving with the same prion decontamination and cleaning quality.