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Section: Disinfection. No. 1.

Hospital experiments on the prevention and removal of scale in sterilizers using “**Scalewatcher**[™]”

The end-user

The Leiden University Hospital (picture 1) is a large hospital in the Western part of The Netherlands.



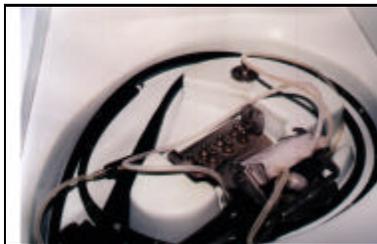
1



2

The process

The hospital uses sterilizing equipment (picture 2 and 7) to disinfect its endoscopes. Scale deposits were clogging the small sprinkler openings in the sterilizers. (Pictures 3, 4 and 5)



3



4



5

Prior to use, the endoscopes are tested for leaks in the Sterilising Unit (JW2200), manufactured by Dyped in the Netherlands. Picture 3 shows the JW2200 in the enclosure. When it is confirmed that there are no leaks in the equipment, the endoscope is rinsed through with soap and water, which also establishes whether there are any blockages in the equipment. Air is pumped through to remove any traces of soap from the apparatus. The endoscope is then thoroughly cleaned with disinfectant and is rinsed twice. The tank is emptied and all tubes are cleared. A computerised system controls the process. The disinfecting unit is self-regulating and in addition to controlling both the water and disinfectant it is also capable of automatic thermal disinfection.

The problem

The element inside the sterilizer continually scaled-up, necessitating regular maintenance to keep the machine fully operational. Scaling was occurring in the boilers being used to heat water for the thermal self-rinsing as well as the washing equipment. This caused choking up of the sprinkler openings and poor water temperature control. The unit was therefore not working effectively, which not only led to increasing energy costs but could result in the endoscopes not being fully sterilized. Picture 3 shows a rinsing unit with an endoscope around it.

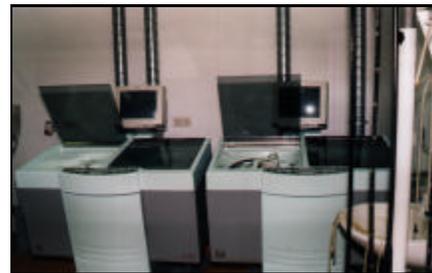
The experiment

After discussions between the management at the Leiden University Hospital and Dyped, the **Scalewatcher™** Electronic Descaling System was purchased to control the scaling problems. **Scalewatchers™** were fitted to two of the three sprinkler systems. One of the systems was new (B) and the others (A and C) had been in use for some considerable time and had scale build-up.

Table 1. The machines.

	A	B	C
Scalewatcher™	Yes	Yes	No
New sprinkler unit	No	Yes	No

The **Scalewatcher™** Commercial was attached to 15 mm (0.6 inch) diameter tubes. (Picture 6)



The following table gives the result of a water analysis.

Table 2. Water quality data

<i>Tap water</i>		
pH	8	-
Conductivity	700	µS/cm
Hardness	150	PPM
P-alkalinity	-	mmol/l
M-alkalinity	4	mmol/l

Conclusion

An inspection two months after the **Scalewatcher™** system was installed, showed the new unit (B) was completely scale free whilst in the older unit (A) (picture 4) far less scale was visible. Unit C (picture 5) showed an increasing scale build-up as usual. An inspection six months later showed even a better result and it was concluded that the experiment was a success.

Leiden University Hospital Endoscopic Ward is very satisfied with the results achieved by **Scalewatcher™**.

Mr J. van Nierop, the Managing Director of Dyped had confirmed that its JW2200 Sterilising Equipment has remained free of scale so ensuring that the equipment is working effectively. He has decided to incorporate the **Scalewatcher™** Commercial into Dyped's complete range of sterilizing equipment.

Source: Scalewatcher NL BV, Alphen a/d Rijn, The Netherlands