

Comparison of the Effect of IPS Devices on Scale Formation

Tested samples:

1. Container without a connected device for scale reduction.
2. Container with IPS Active connected.

Water hardness: 15,28 °dH

Water supply: 2x 3/8"

Testing method:

The test containers were equipped with new heating coils. The containers were flushed with distilled water. The tested devices were connected to the containers.

Water exchange occurred at hourly and half-hourly intervals according to DVGW requirements. Each day included 8 hours without water exchange.

The water was not treated in any way and tap water distribution in Prešov was utilized. The test lasted for 21 days.

Container status during the testing period:

During the first week:

Container 1: No signs of scale formation are visible on the electrode. The bottom of the container is free of deposits.

Container 2: No signs of scale formation are visible on the electrode. The bottom of the container is free of deposits.

During the second week:

Container 1: Incipient scale formation can be observed on the electrode. The bottom of the container is free of deposits.

Container 2: No signs of scale formation are visible on the electrode. The bottom of the container is free of deposits.

During the third week:

Container 1: Areas with a continuous layer of scale are forming on the electrode. The bottom of the container shows a larger amount of scale deposits.

Container 2: A continuous gray coating is present on the electrode. Some areas also show a layer of scale. No deposits are visible at the bottom of the container.

Measured results:

For the evaluation of the measurements, the scale deposited on the heating electrodes as well as the scale settled or detached at the bottom of the container were taken into account. The values of the control container were considered as nominal values, and the efficiency of individual devices was calculated based on these values.

Table 1: Values of scale weight in the containers

	Container without modification	IPS Active
Heating element [g]	0,4	<0,1
Bottom [g]	1,0	0

Table 2: Percentage expression of the change in scale content compared to the control container.

	Container without modification	IPS Active
Heating element [%]	0	>90
Bottom [%]	0	100

Photo for measurement:

Container 1:



Pic. 1 The bottom of the first container (without treatment) with sediment.



Pic. 2 The heating element from container 1 without water treatment.



Pic.. 3 Measured weight of deposits from the electrode (left) and from the sediment at the bottom of the container (right).

Container 2:



Pic. 4 View of the bottom of the container without deposits.



Pic. 5 Electrode from the 2nd container.



Pic. 6 Weight of the deposit from the electrode of the 2nd container.