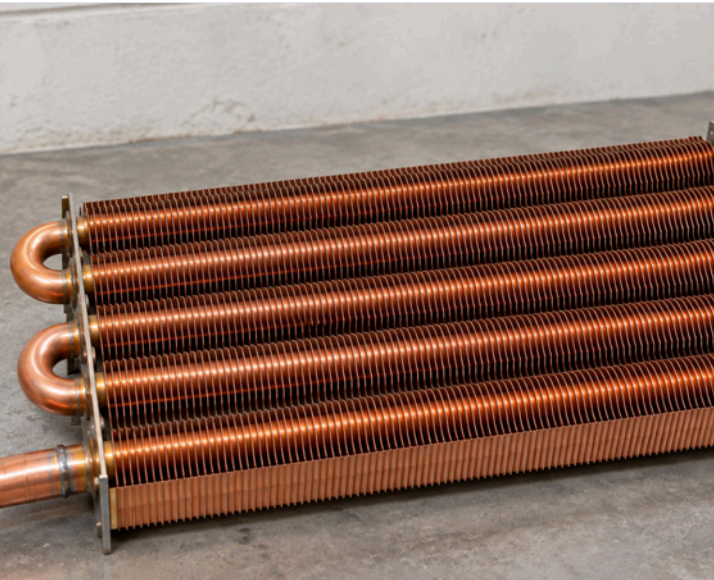




• DOMESTIC BOILER

# Domestic Boiler Heat Exchanger Case Study

## Santiago, Chile

After about five years with *HydroFLOW*®, the opened domestic boiler heat exchanger showed negligible scale despite water hardness of around 500 ppm.

5 years

Negligible Scale

~500 ppm

Operating Water Hardness



Heat Exchanger Scaling



Heat-Transfer Sections Protected



### BEFORE & AFTER

• BEFORE

- Boiler operated five years before *HydroFLOW*®
- Water hardness increased towards 500 ppm
- Very hard water created a high scaling risk

• AFTER

- ✓ Heat-transfer sections remained protected
- ✓ Internal pipework remained largely clear
- ✓ Negligible scale found on exchanger fins



### OVERVIEW

A 140 m<sup>2</sup> home in eastern Santiago used a domestic boiler supplying three bathrooms and a kitchen. Water hardness increased from below 425 ppm to around 500 ppm. After the boiler was removed following an electronics failure, its heat exchanger was opened to inspect the internal water system after about five years with *HydroFLOW*® protection.



### CHALLENGE

Very hard water created a persistent risk of scale on the boiler heat exchanger and internal waterways.

- Water hardness increased to around 500 ppm
- The boiler had already operated for five years before treatment
- Scale could restrict heat transfer and internal flow



### SOLUTION

*HydroFLOW*® was installed to protect the domestic boiler. After about five years of operation, the boiler was opened and the heat exchanger inspected internally for scale.

UNIT INSTALLED

1× *HydroFLOW*® HS38

OPERATING WATER HARDNESS

Around 500 ppm



## RESULTS



### Negligible Scale on Exchanger

The opened heat exchanger showed negligible scale on the fins after about five years.



### Negligible Scale in Pipework

Inspection found negligible limescale inside the exchanger pipework.



### Five Years in Very Hard Water

The boiler operated with HydroFLOW® for about five years as hardness reached around 500 ppm.



### Heat-Transfer Sections Protected

Inspection found negligible scale on the heat-transfer surfaces after about five years.

#### KEY TAKEAWAY

## Summary

After about five years with *HydroFLOW®*, the opened boiler heat exchanger showed negligible scale on the fins and inside the pipework despite water hardness of around 500 ppm.

**5 years**

NEGLECTIBLE SCALE

**~500 ppm**

OPERATING WATER HARDNESS



HEAT EXCHANGER SCALING



## ADDITIONAL PHOTO EVIDENCE



#### INSPECTION

*Opened heat exchanger showing negligible scale on the fins*



#### INSPECTION

*Internal pipework with negligible limescale after five years*

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