

Report

on the

**QUANTITATIVE ASSESSMENT OF
THE EFFECTIVENESS OF PERMANENT
MAGNETIC WATER CONDITIONING DEVICES**

by

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V. SUMMARY

This investigation was designed to ascertain relative changes in the physical and chemical characteristics of water passed through commercially-available permanent magnetic water conditioners as compared with a control, un-conditioned water. In addition, this investigation examined the scale-formation tendencies of conditioned waters relative to the control, un-conditioned water.

The study involved six (6) PMWCD units purchased from American vendors. Each conditioner unit was installed ahead of a 6-gallon electric water heater and supplied a virgin groundwater known to exhibit scale-forming characteristics at a flow rate (i.e. discontinuous) of one gallon per minute and a daily throughput of 24 gallons.

These water heaters (including the one control unit and six PMWCD-equipped units) were maintained on the employed test stand for a period of four (i.e. WH3; PMWCD No. 2) to seven (i.e. all remaining PMWCD units and the control) months.

None of the assayed physical parameters, including temperature, specific conductivity, surface tension, and boiling point depression, showed any substantial indication of beneficial variation between the conditioned and control water parameter values.

None of the assayed chemical parameters, including pH, alkalinity, total hardness, and calcium, showed any significant sign of beneficial variation between the conditioned and control water parameter values. Significant differences which were observed in comparison with the control were uniformly **greater** changes.

All four metal coupon types, including copper, brass, stainless steel, and mild steel, exhibited substantial scale formation within each water heater (control and conditioned, alike) during the applied period of study. None of the scaling rates calculated for the PMWCD units were significantly different from the control in the context of having **lower** scale formation rates. However, one water heater equipped with a PMWCD (i.e. WH1) actually demonstrated a significantly **higher** scaling rate on three of its four coupon metal types.

VI. CONCLUSION

The results obtained through this study collectively indicated that none of the six tested permanent magnetic water conditioners were able to uniformly effect a statistically verifiable, beneficial change in the assayed physical or chemical qualities of the applied water, or its related scaling characteristics.