



HOOVER APPLIANCES LIMITED

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Ray,

Trial of Magnetic Treatment of Phosphate System at Hoover Appliances Limited Refrigerator Factory

Hoover Appliances Limited has been using one HP/VHP magnetic unit upon its zinc phosphating system since January 13th 1994. Prior to this, the phosphate riser tubes, spray jets, filter system (same size as main bath) & heat exchange had been cleaned over the Xmas break and had been running for 2 days in production.

Normal practise for the phosphate bath has involved the following:

- Variations in the phosphate build as checked daily. As a week had progressed, the build had progressively lowered.
- Phosphate sludge build up in the spray jets which required cleaning on a weekly basis to avoid complete block ups and improperly phosphated parts.
- Weekly cleaning of the heat exchange to maintain the short heat up time. The phosphate collects on the outside of this heat exchange & boiler water is internal to the piping.

In the four weeks since the magnetic system has been added to a 3 ft section of stainless steel pipe directly after the pump, the following has occurred:

- An even phosphate build from day to day and week to week i.e. a quality improvement.
- No need to clean the phosphate spray jets and risers at all. All the jets have been clear with a small amount of phosphate lining the jets. This phosphate has not built up over these four weeks. However, four jets did need to be removed at the end of the first seven days of operation to clear "lumps" of phosphate caught in them.

- The cleaning of the heat exchanger seems to be easier as the sludge collected on it is "softer" than that previously deposited.

Although only one month has passed, the immediate results indicate that we may not have to do anything more than a weekly check rather than a maintenance cleaning of the sludge. If so, the cost of the magnetic unit will be paid back in seven months combined with an improved quality level of phosphated parts.

A handwritten signature in cursive script, appearing to read "A. Firman". The signature is written in dark ink on a light-colored background.

A Firman
Production Manager