


Human Nutrition

Poultry and processed meats business

INSTALLATION DETAILS

Location: Cargill human nutrition processing plant in Nicaragua

Models:  **Vulcan S25** is installed on: 2" steel pipe at the refilling line of the refrigeration area.
Water capacity: 20 m³/h

 **Vulcan S100** is installed on: 6" PVC pipe at the close circuit of the condenser of the refrigeration area.
Water capacity: 40 m³/h

ABOUT CARGILL IN NICARAGUA

 **Cargill de Nicaragua S.A.**
Managua, Nicaragua

Cargill has been operating in Nicaragua since the year 2000 at Masaya. This processing plant in Nicaragua is for human nutrition, it is a chicken processing plant.

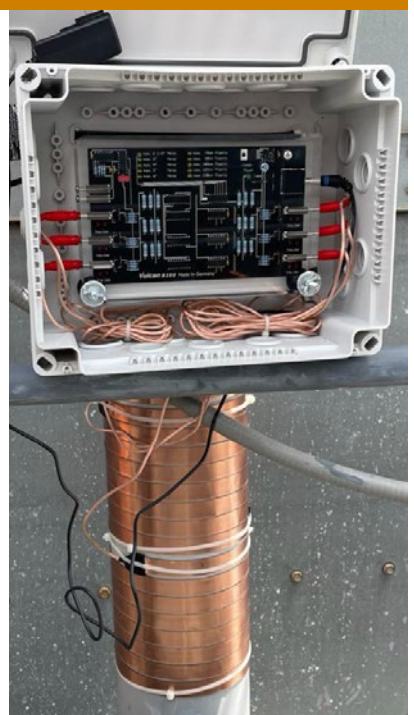
Refrigeration area



Installation of Vulcan S25 on a 2" (DN50) steel pipe



Installation of Vulcan S100 on a 6" (DN150) PVC pipe



3 Months Test Report



THE SCALE PROBLEMS WHICH CARGILL WANTED TO SOLVE

There is limescale in the cooling tubes, due to the minerals present in the water and the heat exchange.

This happens in all the evaporative condensers there in this area. Limescale reduces the capacity of the condenser reducing its performance.

HOW CARGILL SOLVED THE SCALE PROBLEMS BEFORE USING VULCAN

There is water softening equipment in the engine room. The water from the well that goes to the condensers is treated to reach 60 ppm hardness (expected); then in the condensers with the water „softened to 60 ppm“, a chemical treatment is added using 3 chemicals: Antiscaling, antioxidant and algacide. Good results are not obtained despite these two treatments.

VULCAN TEST RESULTS AFTER 3 MONTHS

Four witness points were selected (portions of about 15 cm of pipe) and the limescale was removed mechanically, this to verify if there is re-incrustation with Vulcan during the test period. After 3 months, the results are as follows:

1. The witness pipes remain free of new limescale.

2. The areas around the witness pipes shows that the limescale is more fragile, so it is proven that VULCAN is removing the old limescale, cleaning little by little.

3. Old layers of limescale are coming off, as can be seen in the photo.

Before using Vulcan



After 3 months using Vulcan



The formation of new limescale has stopped



Old layers of limescale are falling off