



Carmel Process Solution  
 484 E. Carmel Dr. #213  
 Carmel, Indiana 46032  
 Phone: 317-705-0217



**Hydro-Thermal Corporation**  
 400 Pilot Court, Waukesha, WI 53188  
 Phone: 262-548-8900 Fax: 262-548-8908  
 Toll Free: 800-952-0121  
 www.hydro-thermal.com

**INDUSTRY FOOD PROCESSING**

**APPLICATION COOKING STARCH BASE FOR MAYONNAISE**

**OBJECTIVE** *Provide 3A approved product for cooking starch slurries used in processing food products in line.*

**DESIGN CONDITIONS**

Fluid:	<b>34% Starch Slurry</b>
Flow Rate:	<b>7 GPM</b>
Inlet Temperature:	<b>140 Degrees F</b>
Discharge Temperature:	<b>198 Degrees F</b>
Steam Supply Pressure:	<b>24 PSIG</b>
Hydroheater® Model:	<b>A106AL</b>
Viscosity:	<b>75,000 Cp (after cook out)</b>

**PROBLEM**

The customer was using a non sanitary competitive direct contact steam injection heater in their process to heat the starch slurry used in processing various starch based products. It was difficult to accurately control the temperature on this devise and also to adequately clean the unit. It had to be removed from the line for over an hour and a half every day for cleaning.

**SOLUTION**

The solution was to install a sanitary Hydroheater. This equipment is manufactured to 3A standards. It has no moving parts in the product contact area, is self draining and is sealed for external wash down, It provides precise temperature control to  $\pm 1/2^\circ F$  ( $1/4^\circ C$ ), produces instant heating of the product, and is 100% thermal efficient. The Hydroheater injects a precise amount of steam through the nozzle at a constant velocity, which results in a better more homogeneous blending of the starch base, while also eliminating the risk for plugging and fouling. The instant heat transfer which takes place in the Hydroheater causes the steam to disperse into the product quickly, eliminating hammer and vibration associated with other similar type devises.

**RESULT**

Installation of the Hydroheater in this application resulted in reduced maintenance, as well as reducing the CIP time required to clean the equipment by a third, and a better cook out of the starch which also contributed to better cost control by utilizing less raw starch in the process. The Hydroheater is an integral part of the process in this facility and eliminated the need to shut down the production line to remove the heater for cleaning.