Tank and Heat Exchanger Data Requirements for System Certification

In order for FSEC to model a heat exchanger in a solar water heating system, we must know how effectively the heat exchanger transfers heat from the collector loop to the tank loop at temperatures and flow rates typical of solar water heating systems. The information must provided to FSEC in the following formats:

1. Heat transfer coefficient (UA) as a function of the operating temperature and flow. This UA should include the operating conditions for when it is valid. We will need multiple UA's to handle the various operating conditions.

2. Test data on the the heat exchanger shall be provided at regular intervals (1-15 minutes or so), at flow rates of the intended design, and at ± 50% of typical design temperatures, to include the following measurements:

   a. Hot side flow

   b. Hot side inlet temp

   c. Hot side outlet temp

   d. Cold side flow

   e. Cold side inlet temp

   f. Cold side outlet temp

Additional Criteria:

1. The information must indicate the fluids used for testing (should be the same as the system design) and the units of the data (if not obvious).

2. This information must have been derived by an independent laboratory. This could be the manufacturer's laboratory, if the testing was observed by an independent party.