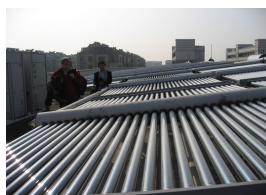
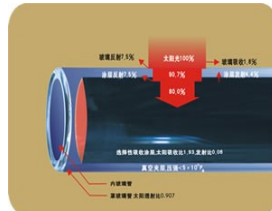


## Techniques of Evacuated Tube

Good quality evacuated tube is the key parts of solar water heater, Kaidun use only the first class evacuated tubes that are highly absorptive, highly durable to hot and cold weather conditions to collect heat from the sun.



## Evacuated-tube

Each solar tube consists of two glass tubes made from extremely strong borosilicate glass. The outer tube is transparent allowing light rays to pass through with minimal reflection. The inner tube is coated with a special selective coating (Al-N/Al) which features excellent solar radiation absorption and minimal reflection properties. The top of the two tubes are fused together and the air contained in the space between the two layers of glass is pumped out while exposing the tube to high temperatures. This "evacuation" of the gasses forms a vacuum, which is an important factor in the performance of the solar tubes.

The insulation properties are so good that while the inside of the tube may be 150° C /

304° F , the outer tube is cold to touch. This means that solar tube water heaters can perform well even in cold weather when flat plate collectors perform poorly due to heat loss (during high Delta-T conditions).

In order to maintain the vacuum between the two glass layers, a barium getter is used (the same as in television tubes). During manufacture of the solar tube this getter is exposed to high temperatures which cause the bottom of the evacuated tube to be coated with a pure layer of barium. This barium layer actively absorbs any CO, CO<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, H<sub>2</sub>O and H<sub>2</sub> out-gassed from the solar tube during storage and operation, thus helping to maintaining the vacuum. The barium layer also provides a clear visual indicator of the vacuum status. The silver colored barium layer will turn white if the vacuum is ever lost. This makes it easy to determine whether or not a tube is in good condition. See picture below.



The Getter is located at the bottom of the solar tube.



Left Tube = Good

Right Tube = Faulty