

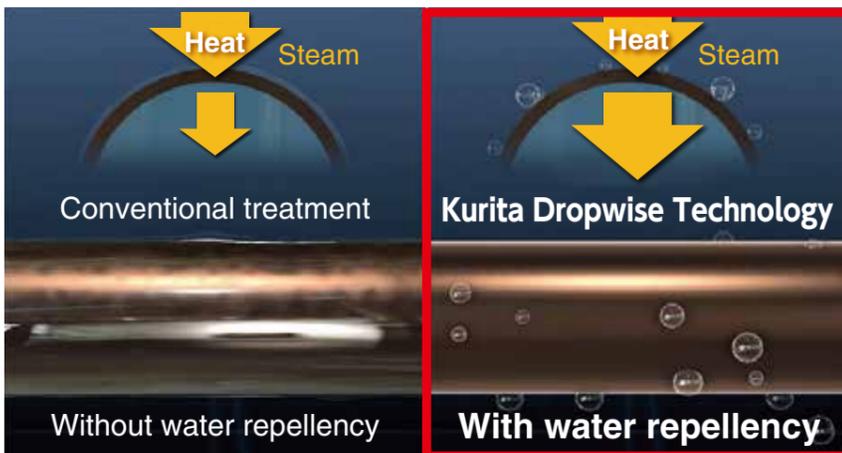
# Agency of Natural Resources and Energy Commissioner's Award

Improved Heat Transfer Efficiency through Dropwise Condensation Technology

## Kurita Dropwise Technology



Kurita provides an first-in-industry technology that improves the heat transfer efficiency of heat exchangers to **help increase the operating efficiency of production facilities** and **conserve energy**.



-  **Higher heat transfer efficiency**
-  **Higher productivity**
-  **Lower steam consumption**



YouTube video

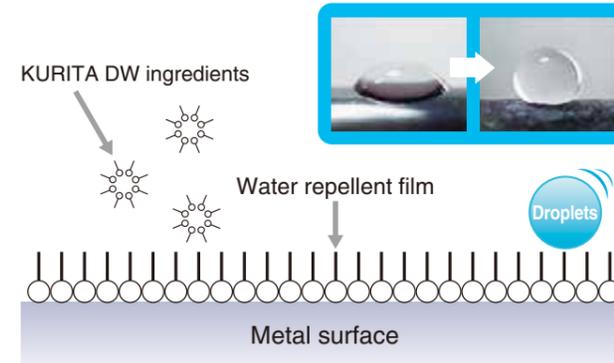
During steam condensation, this technology transforms the water film acting as thermal barrier into droplets to increase heat transfer efficiency.

## The award-winning technology

The business model was designed for this new energy conservation technology, which improves the heat transfer efficiency of heat exchangers using Dropwise Condensation Technology to condense steam. In heat exchangers, a film of water on the metal acts as a thermal insulator, which restricts heat transfer. With this new technology, instead of a film of water, the steam condenses into droplets that are repelled increasing overall heat transfer by up to 30%. While the facilities remain in operation, it not only improves production quantity and quality but also greatly decreases per-unit steam consumption, depending on the model. Water repellent chemicals produce this effect when they are added to the steam line just before the targeted heat exchanger, which means this technology can be adopted while production facilities stay in operation. In addition, the technology does not interfere with existing water treatment systems, so it can be used for many applications, such as the dryer processes of paper mills, where it reduces per-unit steam consumption by 5-10%. It has already been introduced to at least 70 systems in Japan and other countries.

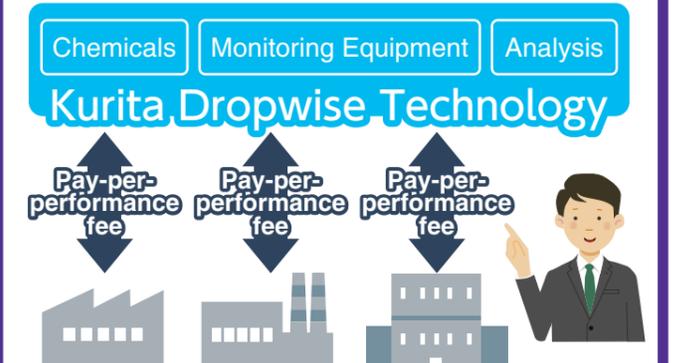
### Point 1

Easily applicable through the successive addition of chemicals to the steam line just before a heat exchanger\*



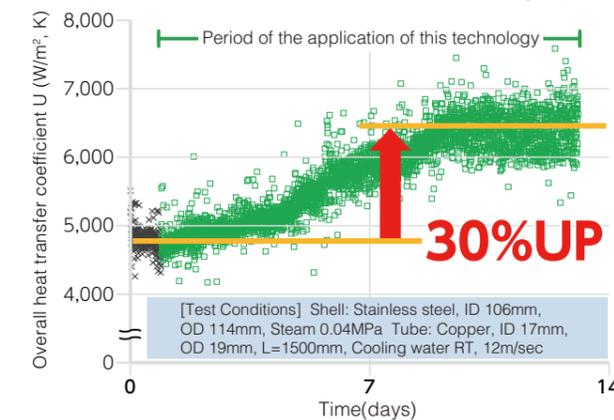
### Point 2

Providing this technology to a larger number of users through pay-per-performance package agreements.

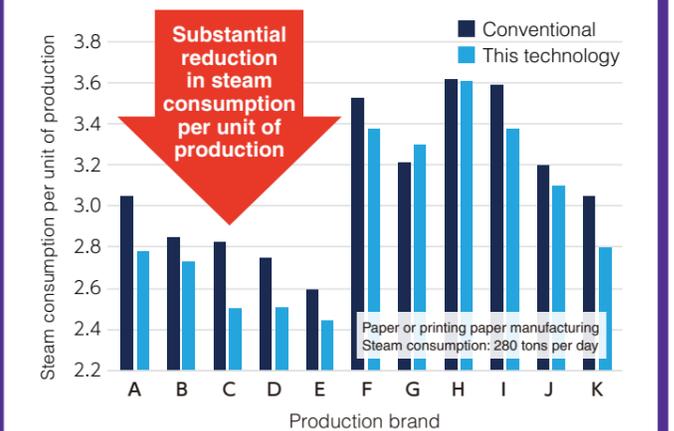


\*No interference with existing water treatment systems means that JIS-compliant water treatment may be performed.

### Verification Results (with shell and tube heat exchanger)



### Application Example (drum dryer)



This technology is now being adopted in many manufacturing processes.

**At least 70 systems in Japan and overseas**

Why not try to **make more effective use of steam** at your factories?

