

Project and contact details

The name of the quality sustainability project (max. 100 characters)

Intelligent electric water heater products that use strontium ore and fiber composite new materials to improve the water quality of the inner tank

Contact Person

Shuisheng Yu

Telephone

18553288238

Email

yussh@haier.com

Organisation(s), country, where the project-members are working, including Web-page links

Organisation: Qingdao Economic and Technological Development Zone Haier Water Heater Co., Ltd

Country: China

Workplace: Qingdao, Shandong

Project description

Since the development of the water storage electric water heater industry, sheet metal enamel inner liner has been widely used. Due to the inherent properties of the material itself, the inner liner requires magnesium rods for anti-corrosion, and the magnesium rods cause pollution to the bathing water quality during consumption, affecting bathing health. And the enamel liner needs to be welded, pickled, enamel, high-temperature sintering and other pre-treatment processes in the production process. According to the current annual sales of electric water heaters, it produces about 10 billion tons of wastewater and consumes about 30,760 degrees of electricity, which puts pressure on environmental protection and energy consumption. And due to the corrosion and leakage of the inner liner weld, the internal replacement machine accounts for 20% of the defective rate of the water heater, causing economic losses of about 40 million per year.

As a pioneer in the home appliance industry, Haier has always advocated the product design concept of solving user pain points, low carbon, and sustainable development. Driven by this concept, the team designed and developed the first fiber composite liner product in the electric water heater industry. This new material liner has much higher anti-corrosion properties than metal enamel liner, does not require magnesium rods for anti-corrosion, can reduce water pollution, and uses strontium ore scale inhibition module to improve bath water quality, achieving the function of purifying water, anti-corrosion, and healthy bathing. Moreover, the inner liner does not require pre-treatment processes such as welding, pickling, enamel, and high-temperature sintering, which can save energy and reduce the discharge of wastewater and exhaust gas. And through AI cloud intelligence AI-assisted Learning user bathing habits, not only can the heating waiting time be shortened, but also the heating is not repeated during the period without bathing needs, saving energy.

The project uses the DIDOV method for product design, mainly achieving breakthrough innovations in three aspects: inner liner material, strontium ore scale inhibition module, and AI cloud intelligent learning function. The project started from 2020.1.1 design and development, 2023.1.25 successfully listed, the entire development process team members include two senior engineers, five deputy high, two engineers, the project total investment of about 5.50 million yuan.

The project has made outstanding contributions to the sustainable development of energy due to its outstanding performance in energy conservation and emission reduction. And due to the improvement of the anti-corrosion performance of the inner liner, as well as the improvement of the water quality of bathing with strontium ore and scale inhibition modules, it has contributed to the good health and well-being of human beings. In line with United Nations Sustainable Development Goals 3: Good Health and Well-being and 11: Sustainable Cities and Communities.

Project leverage potential

Picture/Image describing the project

After the new product was launched, it achieved good market response. The inner liner platform is undergoing rapid iteration and upgrading. The planned annual production capacity in the later stage is 500,000 units, which can save about 3.85 million degrees of electricity and about 12,500 tons of water each year.

The fiber composite new material inner liner used in this project can be applied to other water-related products due to its excellent anti-corrosion performance and water quality improvement. The functions of strontium ore and scale inhibition modules can be applied to bath products such as gas, heat pumps, and solar water heaters. After the product was launched, it was promoted and promoted from the aspects of fiber composite liner, strontium ore water purification, intelligent control, AI cloud wisdom AI-assisted learning, etc., and the market effect was good. This platform liner product is bound to attract industry attention, using the same material or looking for other new materials with good corrosion resistance, promoting healthy competition in the electric water heater industry and overall development.

