

Excellent Companies

in Y O K O H A M A



Achieving Energy Conservation and Savings through Environmentally Friendly Water Treatment

CALFA CHEMICAL CO.,LTD.

For detailed information on this company, please see p.11

"CALFA BAS", a water treatment agent developed by Calfa Chemical Co., Ltd. for cooling towers (cooling towers used in factories, facilities, etc.), clears the strict environmental standards of Europe and is gaining market share overseas. In Japan as well, the performance of "CALFA BAS" has been evaluated, and widespread use is now eagerly anticipated. In addition, Calfa Chemical also acquired a patent in 2014 for "CALFA SEP", a device for separating impurities in water. I had an opportunity to talk with Takayuki Koike, Marketing and Sales Department, at Calfa Chemical's headquarters near the Tsurumi Station. (Interview: February 3, 2014)



—Please tell me about your company and the business you are involved in.

We're engaged in a variety of activities as an R&D company that handles areas that relate to "cells", but our biggest specialty is the area of water treatment agents. As for what water treatment agents are, well, when calcium and silica in the water are cooled by coolant, evaporation occurs, resulting in scale formation, and as a result, heat conduction of the cooling tower is inhibited. In terms of something that is familiar to everyone, when a white film (*this is scale) accumulates at the bottom of an electric pot, it becomes harder to heat water. The product that is used to remove that white film is a water treatment agent. Ordinarily, material that contains phosphorus or nitrogen is used, but the unique feature of our "CALFA BAS" water treatment agent is that it uses only inorganic materials that are environmentally-friendly.



—Please tell me about "CALFA BAS" in detail.

The phosphorus and nitrogen used in conventional water treatment agents from the United States disrupt the ecosystem. Therefore, recently regulations have been established regarding the total amounts of these substances in water as an effort to deal with today's environmental problems, and there is a worldwide movement to eliminate the use of phosphorus and nitrogen. "CALFA BAS" uses only components that are found in ordinary soil, or in other words, only inorganic materials, and is therefore eco-friendly. In addition, handling hydrofluoric acid based components to dissolve silica is extremely dangerous, but "CALFA BAS" is a solid glass agent, so it can safely dissolve silica. All you have to do is put the "CALFA BAS"

in a 1kg box-shaped case, and then place the case at the bottom of a cooling tower. We are smashing the stereotypical idea that a "water treatment agent must be a liquid" and have even cleared the world's strictest environmental standards in Europe based on a significant amount of proven data. In fact, water treated with "CALFA BAS" has even been cleared for use as water for domestic use in Europe.

—Did you face any difficulties in the development process?

"CALFA BAS" contains a silica component that is used to remove silica. It's kind of like the saying, "it takes a thief to catch a thief". We succeeded in stabilizing silica as ionic silica to prevent scale formation and capture silica, and it didn't take long for us to reach the development stage. However, it did take some time to improve the accuracy. Overall, it took about 15 years. No one had ever done what we were doing, so we had to search for all the answers on our own, and it was very difficult to bridge the gap between laboratory testing and the actual data. We perfected the formula for our current product about 5 years ago.

—What made you decide to advance into overseas markets?

When we first developed "CALFA BAS", we really struggled getting customers in Japan to accept it, and the fact was that we had no choice but to try to launch the product in overseas markets. Thankfully, we were blessed with corporate matches overseas. We first started in Spain, and from there we moved into Italy and Portugal as we grew the market in Europe. Then with our connections in Spain, we were able to move into South America and Mexico. In Asia, we're capturing market share in Taiwan, and we're approaching Japanese-affiliated companies in countries such as Singapore, Indonesia, Malaysia and Thailand. However, we've found that it's difficult to break into the U.S. market where water treatment is performed using phosphorus and nitrogen.

—What are the conditions in Japan?

Currently, our market share overseas is 70 percent, while in Japan it's 30 percent. However, compared to when we first developed the product, recognition in Japan has definitely changed. It may be due to increases in electric and water utility fees and efforts to deal with environmental issues. A leading company that turned us away at the door 10 years ago adopted "CALFA BAS" last year, and we were of course delighted by that. Japan is a vertically segmented society, so we still haven't been able to expand horizontally. However, the reputation of our "CALFA BAS mini", which we reduced to 50g, is growing.



—What can you tell me about "CALFA BAS mini"?

"CALFA BAS mini" is used by molding plants and other such facilities. A narrow channel of water used for cooling run along the insides of molds, and when those water channels become plugged with impurities, it shuts down the entire production line. We received a request to solve that problem by introducing a small amount of water treatment agent into those channels, and from that request, we developed our "CALFA BAS mini" product. Once "CALFA BAS mini" became the recommended water treatment agent by Matsui MFG. Co., Ltd., we started receiving numerous inquiries from molding plants around Japan. In fact, you might even say that molding plants have become sacred grounds for our water treatment agent.



—You mentioned you recently acquired a patent for "CALFA SEP". What is "CALFA SEP"?

Because factories and other facilities do not necessarily have a water treatment expert, we needed dedicated equipment that would enhance the features of "CALFA BAS". The idea was that if we could develop a machine, then we could entrust the machine with the water treatment duties. The "SEP" of "CALFA SEP" is an abbreviation for separator, and "CALFA SEP" is an original machine from Calfa Chemical that separates dirty water from clean water. Equipment that competes against "CALFA SEP" includes sand filtration separators, but sand contains foreign debris, and there is the cost of sand and water for reverse cleaning. On that point, "CALFA SEP" does not cost time or money, so the response has been good from every direction. The market is

broad ranging and includes large commercial facilities and buildings in city centers, the heavy industry, and casting, and I'm pleased to say that we were able to obtain a patent in Japan in 2014.

—Is "CALFA SEP" also helpful in earthquake disaster reconstruction?

"CALFA SEP" removes impurities having a specific gravity of 1.0 or less, and because cesium and strontium are heavier than water, the device can separate those components from water as well. In other words, "CALFA SEP" is also a means of water treatment. With that in mind and with a desire to contribute to efforts to purify radioactively contaminated water from the Fukushima nuclear power plant, we applied first thing to the open recruitment for help by the International Research Institute for Nuclear Decommissioning (IRID) and the Ministry of Economy, Trade and Industry (METI). The IRID issued the opinion that our equipment can be used to efficiently purify the contaminated water that has accumulated and can remove strontium released into the bay. Because "CALFA SEP" can be used in a variety of applications, we were happy merely to have our equipment be the topic of this type of serious debate, but our real desire is for the equipment to actually play a useful role in purifying the contaminated water.

—What can you tell me about the relationship between water treatment and energy savings?

Since the Great East Japan Earthquake, Japan has had a heightened awareness of the need to conserve and save energy, but the way we see it, there is still a lot of waste occurring, and we believe that more can be done to save energy. Switching to LED lighting has only a minimal impact in this area, and in fact, significant more waste is occurring in the areas that we can't see compared to those that we can. For example, our water bills include sewage charges, and as our sewage system pipes deteriorate with age, our sewage charges increase, resulting in higher overall water bills. However, by using water treatment agents in sewage lines, we can reduce costs. The Yokohama Port has numerous refrigerated warehouses, and 95% of the power that is used there goes towards maintaining the temperature. If water treatment agents are used to restore the soundness of the cooling systems, energy can be reliably conserved. In large hotels, money is spent on advertising that is visible to the customers, but unfortunately, there is little awareness of the behind-the-scenes aspects of the hotel. If water treatment and heat exchange are skillfully implemented, huge cost reductions can be realized. We can eliminate a lot of waste. At Calfa Chemical, we refer to "conservation" as "sales".

—Lastly, what is your outlook for overseas expansion?

We're searching for a reliable partner that can help us advance into the U.S. market, but we're having a hard time finding a good match. The United States is a free country where there is fairness, equality, and transparency, so it is a place where true capabilities can be seen. We hope that "CALFA BAS" will be legitimately evaluated and be used extensively throughout all of the United States. Our specialty is manufacturing, but there are still some areas of sales that we don't fully understand. For sales, we will continue to rely on the help of trading firms and public agencies as we continue to focus on manufacturing as an R&D company in the future as well.