Getting the Most Out of a Little

Small manufacturer competes with petrochemical giants by licensing technology, building small plants

BY ROY HILL*

Near the town of Aalesund north of Bergen, on the rugged west coast of Norway, Sunde Plastic Industries AS makes expandable polystyrene (EPS), little beads looking like sugar which are subsequently processed into insulation and packaging products.

The company also licenses all over the world the plastics technology of Brodr Sunde AS, the petrochemicals group to which it belongs. It has granted more than 50 licenses and supplied 16 complete plants, supervised their installation, brought them on stream and trained local people to operate them, in Eastern Europe, Africa, Japan, and Mexico.

In an industry dominated by corporate giants, Sunde demonstrates that it is possible for a small firm to succeed internationally. "We have found a niche in the market in which small-scale plants can be set up, providing high productivity at low capital cost," says Sverre S. Steen, managing director of Sunde Plastic Industries.

A Sunde plant seldom costs more than $2 million, which is small by the capital investment standards of the industry, and typically will have an output of 2,500 tons of EPS a year. This compares with the 100,000 tons capacity of Shell International Chemical Co.'s U.K. and French plants.

Sunde sells its technology to petrochemicals companies that would like to get into plastics manufacturing; to companies already in plastics but which do not have an EPS facility; and to other corporate and individual investors. Some of the plants are bought by insulation and packaging firms, usually in developing countries, which want to integrate backwards and produce their own raw materials in the shape of polystyrene beads.

Founder

Brodr Sunde was started 65 years ago by two Norwegian farmers, the father and uncle of the present chairman, Olav Sunde. Sunde Plastic Industries does the licensing for the entire group, which includes roofing and marine products companies.

In 1954, while attending an exhibition in West Germany, chairman Sunde purchased from the chemical company BASF AG what he thinks was the first drum of EPS ever manufactured. He later bought some old reactors from Norsk Hydro AS, Norway's biggest company, and after much reading and experimenting learned how to make EPS himself.

The basic raw material is a liquid called styrene monomer, the price of which fluctuates widely and largely dictates the cost EPS. When water and chemicals are added to it in a pressure vessel it turns into the sugar-like beads.

These are expandable polystyrene. When they are subjected to steam they enlarge 40 to 60 times, becoming expanded polystyrene. Finally, when subjected to more steam in a mold, they assume whatever shape is desired by the manufacturer.

When Steen joined Sunde, at the end of 1977, the group had already begun to license its technology. "We had dabbled successfully in licensing without really trying, as the result of word-of-mouth recommendation," Steen says. "I decided that the time had come to really work at it."

Taking wing from Aalesund airport, which passengers have to reach by ferry from the town quay, Steen and other company representatives travel the world, selling the technology.

"We will design a plant, arrange for it to be built, using local contractors, provide the equipment or buy it locally, check it out, train people to operate it and start the plant up and guarantee its performance," Steen says.

Advantages

Among the advantages he claims for his plants are low capital costs, low chemical costs and a low labor requirement. Compared with their value, EPS products, such as insulation board, are costly to import and transport because they comprise anything from 80% to 90% air. Therefore, it pays developing countries to make their own. And, rather than rely on major chemical companies for their supplies of beads, several manufacturers of EPS products—in developing countries but not, it seems, in the sophisticated markets of Western Europe—are prepared to purchase Sunde's integrated plants.

However, a senior manager with one of the world's largest chemical companies, based in Western Europe, which ships EPS around the world in steel drums, suggests that Sunde's beads do not compare in quality with the products of the major suppliers.

"Sunde is reputable and smart," he says. "It has its place in the industry. But the tricky part of the technology is when you apply various coating agents

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to stop the beads from sticking together in transit and use. This is a very delicate operation that does affect quality."

He suggests that while Sunde makes beads that are perfectly acceptable for use in-house, they are not competitive internationally so far as quality is concerned. "When you have a Sunde plant," he says, "you are like a pork butcher who uses every scarp of the pig."

However, Christos Karastergiou, technical director of Monotez SA, a Greek licensee of Sunde, claims that his company is making EPS of such quality that it is supplying other manufacturers in Greece with polystyrene beads, as well as using them in its own products.

A spokesman for another major Western European EPS producer says that there are 40 or 50 manufacturing companies in Western Europe whose production volume would justify them having an in-house Sunde plant, if they wanted one, rather than buying in beads from international suppliers. "So far as I am aware," he adds, "none of them uses Sunde technology."

No Sluggard

Steen suggests that the fact that Sunde has negotiated a new licensing agreement with Kohkoku Chemical Industries, of Tokyo, demonstrates that it is no sluggard in developing EPS technology. The agreement, signed in 1980, was for the provision of insulation for liquefied natural gas tankers, which transport gas from the Middle East to Japan at a temperature of minus-162 degrees C. The aluminum tanks containing the gas shrink, and the insulation has to do the same. So "stress barriers" are being built into the insulation, so that it will not crack as the tanks expand and contract.

This plant, based on Sunde production technology, was completed in Japan. The machinery has now been installed. "We entered into our first licensing agreement with Sunde, for an EPS polymerisation plant, some years ago," says Hideaki Kakino, the manager of Kohkoku's legal department. "We are just as happy to work with them as we were with Imperial Chemical Industries Ltd., of the U.K. with whom we have had a joint venture."

Steen points out, too, that Sunde has directed its licensing at developing countries. He also says that some of the Western European companies that might be in the market for Sunde plants are not only tied contractually to various major chemical companies but may be wholly or partially owned by them.

In Eastern Europe, Sunde has been more aggressive. It has, says Steen, sold four plants in Czechoslovakia, one in Romania and has been involved in "a very large petrochemical plant" in Eastern Germany.

When identifying potential licensees, Steen begins by looking at countries where he thinks the demand for insulation products is growing, or will grow. In the latter category he classifies the U.S. where Brodr Sunde has established a wholly-owned subsidiary.

Chairman Sunde, who at the age of 60 still travels widely on business, and has been round the world three times, points out that insulation in buildings in the U.S. typically is only five centimeters thick, compared with a standard 25 centimeters in Norway. "As the Americans put more emphasis on energy saving, they are going to want to improve those standards," Sunde says. "Undoubtedly, that represents an opportunity for our technology."

Steen says that large users of EPS, who may want to make their own raw material and are fair game for Sunde salesmen, are relatively easy to find through plastics associations, journals and magazines, and the "yellow page" telephone directories now available in many countries.

Financial institutions and individuals with money, who may want to invest in the technology, are more difficult to track down, he says. He identifies them through banks, government export organizations, press coverage, advertising, and "becoming known in the right circles."

They are also more difficult to sell to. "They are used to seeing huge petrochemicals plants, with masses of reactors and gleaming pipes," Steen remarks. "So we bring them to Aalesund and show them our technology in action—how small and simple it can be."

Having identified potential customers, Sunde is careful which of them it approaches, with a view to granting a license. "We would not establish a competitor in a country that already has one of our licensees operating in it," Steen says, "unless that country is as large as the U.S."

From the moment of Sunde's first approach to a potential licensee, or a would-be licensee contacting the company,it can take from six to 18 months of negotiation and technical follow-up before a contract is signed. Thereafter, a plant can be set up in anything from eight to 12 months, Steen says.

Sunde has a standard contract, a basic license package for a certain size of plant and for meeting standard criteria. "Just the same, I always find a lawyer who knows the local snags," Steen says. "I go through our standard contract with him, line by line. The advice a lawyer can give, up front, will often save money downstream."

He says that it is also important to agree with the licensee what country's law should be involved in any subsequent litigation. Naturally, Steen prefers to use Norwegian law. But he also recommends U.K. law "because it is neutral and widely known."

If a licensee, or government, insists on its own law being used, as happens often in Latin America, Sunde may charge more for the license to cover any future legal costs.

The fee can be a one-time payment linked to the size of the plant, which is the arrangement Steen likes to have in countries where the political situation, or contract enforcement, is difficut. Or it can be on the basis of a down-payment plus a running royalty based on sales.

Steen prefers the latter method, although it means that Sunde has to continue to police the licensee in case it becomes reluctant to continue the payments. The initial fee on such a deal, Steen says, can be "somewhere between $25,000 and $100,000."

When it negotiates remuneration, Sunde includes the costs it has incurred up to the signing of the contract plus the travel costs and living expenses of the

Sunde people who help install the plant and bring it on stream.

"This keeps everybody honest," Steen says. "It means that the licensee will not try and keep our people on as semi-permanent operators, instead of training and paying for his own people. It also means that we, having given the licensee an estimate of how long the job will take and how much it will cost, can plan the deployment of our people."

Steen says he is thinking of increasing the fee in countries where contracts are subject to arbitrary changes by the government. "Some governments are over-protective toward their licensees," he says. "When a government eliminates points in a contract that has already been negotiated, without saying why, it adds to our costs."

In order to preserve the confidentiality of know-how supplied to licensees, Sunde writes into its contracts non-disclosure clauses. Steen claims not to have had any problems in this area. "Apart from any legal steps we might take," he says, "licensees know that although it is not our policy to set up competing plants in their country, we have the opportunity of doing so should they not play the game by us."

Playing fair, Steen says, works both ways. "We also have to be jealous of our reputation," he points out. "In order to sell a license, we have to invite potential licensees to visit and talk with existing licensees, without us being present. If we were not trusted, or had let existing licensees down, that would be the end of our growth."

Although Sunde does not have a large formal research and development program—keeping down overhead is one of the reasons for its competitiveness—it is improving its technology constantly, emphasizing efficiency and cost effectiveness.

For example, two people now work in the molding department of the company's own EPS facility, at Aalesund, compared with 30 to 50 a year or two ago. The process has been automated by Sunde's own engineers, led by a chairman who, according to Steen, is as active and inventive as ever.

"Here, people are allowed to be creative and are expected to produce," Steen says. "It is not a company where, if you don't want to do too much, you can hide in an office somewhere."