

# Reclaiming Waste Heat

## Containers load and store emitted heat

Shipping containers are so much a part of modern life that they barely register when we see them. But sometimes there's a moment of idle speculation as to what they could have in them: TV sets? Auto parts? Food? But what about heat? That's right: heat.

The LaTherm corporation of Dortmund has developed portable heating units, called latent tanks, which load and store the heat emitted by steel factories, chemical plants, garbage incinerators and other intensely hot enterprises in ingeniously-outfitted standard containers. These can then be set up outside buildings to transfer the heat to swimming pools, hospitals, or schools via a heat-pump outside the facility to be heated. The CO<sub>2</sub> savings – given that the heat is a waste product which has already been made and would otherwise be dissipated – are obvious. The contents of a container last between twenty to sixty hours in most circumstances, at which point another is delivered and the previous one is sent back for reloading.

### ■ Storing the heat in sodium acetate

The loading temperature is between 90° C and 100° C (194° to 212° F) and the daily heat loss is only about 0.1 percent. The heat is stored in sodium acetate, an inexpensive chemical used for everything from pickling to synthetic rubber production. Sodium acetate crystals melt at 58° C, and then release heat slowly as they re-crystallize. LaTherm's objective is to realize a savings of approx. 15 percent compared to previous annual heating costs. Starting from this (customer-specific) level, the price increases only at the rate of inflation, which makes it independent of the changes in oil and gas prices. This gives the customer not only a basis for reliable cost calculation, but also a savings of about 50 percent in heating costs over the typical contract term of 10–15 years. The company envisions a network of uploading stations, and delivery of the containers by biodie-



*Latent tank used to heat a swimming pool*

sel-powered trucks, thereby reducing the carbon footprint even further – by up to 95 percent in most instances. A pilot project to demonstrate the system in

Dortmund in 2009 went very well, and the company has already won a number of awards.