

## PLANT TECHNOLOGY

### MONITORING ICE CREAM TEMPERATURE FLUCTUATIONS

**F**or premium ice cream makers, preserving product quality during long distance distribution is a prime goal. Experts say ice cream quality suffers when it experiences temperature changes.

"Ice cream quality deteriorates and the product breaks when the temperatures fluctuate," says John Goobic, consultant to ice cream and frozen food companies and former president of the Refrigerated Transporter Foundation. "When ice cream warms and refreezes, ice crystal size grows geometrically," resulting in a product that is, according to Goobic, "grainy, chewy, crystalline and sandy."

To prevent an inferior product from reaching freezer cases — and to pinpoint inadequate temperature maintenance during distribution — Haagen-Dazs uses time/temperature monitors (TTMs) from the Redmond, Wash.-based Ryan Instruments. Also known as recorders, TTMs measure and record temperature fluctua-

tions that occur during storage and transportation of temperature-sensitive products.

Haagen-Dazs uses TTMs on all long-distance hauls (more than 24 hours) from its ice cream plants in Dayton, N.J., Rochelle, Ill., and Tulare, Calif., according to Patricia Hoffman, corporate distribution manager at Haagen-Dazs.

The company stores and ships all ice cream at a constant temperature of minus 20 Fahrenheit. "We don't use any natural or artificial stabilizers in our product. So without stabilizers, we need to have stringent temperature requirements," Hoffman says. "We use time/temperature recorders to monitor the temperature performance of our contract carriers. By using the recorders, we know if a shipment doesn't meet our quality standards. It prevents an inferior product from going to market."

Haagen-Dazs has been using Ryan TTMs for the last two years, relying on them to monitor between 5,000 to 7,000 shipments per year. It also uses Ryan products on all overseas shipments.

Because Ryan TTMs provide a record of temperature fluctuations,



Haagen-Dazs, according to Hoffman, "uses them to substantiate claims against contract carriers if they don't keep the ice cream at minus 20 degrees." Though that rarely happens, she says, the carriers usually acknowledge responsibility and pay the claims.

Ryan Instruments President Pat Vache says his company recognizes the needs of premium ice cream makers. "Knowing the temperature conditions throughout a shipment at various times will indicate whether the ice cream experienced temperatures that are going to maintain — or harm — its quality. ■