

# Advanced Temperature Sensors

**A GLASS  
INDUSTRY VISION:**

**ONGOING RESEARCH  
PROJECT**

## ***Opportunity for Industry***

While maintaining the correct temperature of molten glass is critical to producing high quality glass products, current temperature sensors have difficulty providing reliable data in the hot, hostile environments of molten glass. This unreliable data forces furnace operators to make decisions by "best guess" and "feel," a method that often leads to unnecessary cost and reduced product quality.

AccuTru International Corporation is developing an advanced temperature sensor that provides consistently reliable data to help prevent "best guess" decision making. This sensor will be designed to withstand thermal shock and corrosion and for easy replacement while the furnace is operating. Collaborating with leading representatives from the Idaho National Engineering Laboratory and the Department of Energy's Office of Industrial Technologies, AccuTru has assembled an impressive array of experts from industry and academia to accelerate the development of this advanced temperature sensor.

With successful commercialization, the glass industry will recognize:

- Reduced solid waste
- Energy savings
- Fuel savings
- Reduced emissions
- Increased productivity
- Improved product quality
- Reduced costs

## ***Project Partners***

Office of Industrial Technologies  
U.S. Department of Energy  
Washington, D.C.

AccuTru International Corporation  
Kingwood, Texas

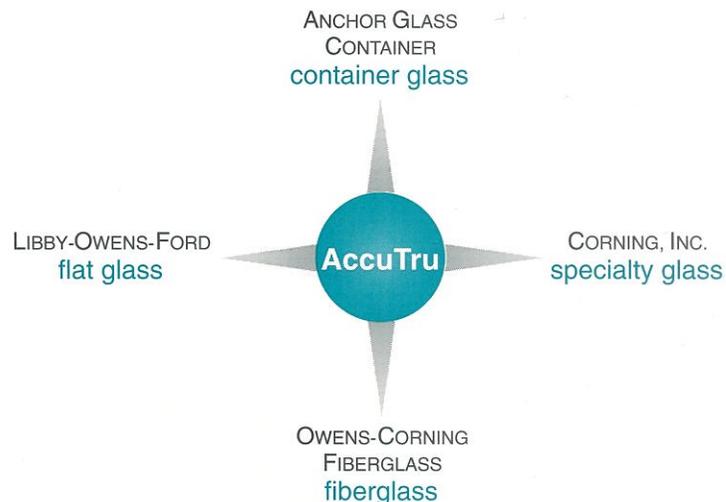
Anchor Glass Container  
Tampa, Florida

Corning, Incorporated  
Corning, New York

Idaho National Engineering  
Laboratory  
Idaho Falls, Idaho

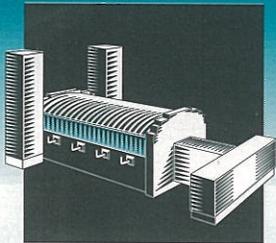
Libby-Owens-Ford  
Toledo, Ohio

Owens-Corning Fiberglass  
Granville, Ohio



*To focus the development of an advanced temperature sensor that meets industry needs, AccuTru International Corporation will collaborate with representatives from the four glass industry segments.*

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## Project Contact

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## Project Description

In Phase I of a four-phase process, AccuTru will confer with representatives from each segment of the glass industry — Corning, Incorporated (specialty glass), Anchor Glass Container (container glass), Owens-Corning Fiberglass (fiberglass), and Libby-Owens-Ford (flat glass) — to determine what the glass industry requires from this new technology.

In Phase II, experts will select materials that can withstand the high temperature and corrosive environment of the glass-melting furnace and will investigate self-diagnosing systems that can verify temperature readouts. In Phase III, prototype sensors will be built, evaluated for accuracy and ruggedness, and refined in laboratory settings. And in Phase IV, prototype sensors will be field-tested at various glass manufacturing plants to ensure the highest possible performance.

## Benefits

The development of advanced temperature sensors will directly impact energy consumption in the glass-melting process and will provide substantial benefits to the glass industry:

- **Reduced Waste** — Use of the new sensor is expected to reduce the generation of solid wastes by 2 million tons per year.
- **Energy Savings** — More accurate, reliable data will enable operators to melt glass using less energy. AccuTru estimates an energy savings of 2,420 million Btu. per year, a 15 percent savings over conventional technology.
- **Fuel Savings** — Since the sensor can be replaced during furnace operation, fuel will be saved and, thereby, reduce emissions.
- **Improved Productivity and Product Quality** — The quality of glass products is dependent largely on the temperature of the batch. Maintaining consistent temperatures with the sensor will improve quality, resulting in reduced cost.

## Commercialization Plan

Following successful field-testing at various glass manufacturing plants, AccuTru plans to commercialize its advanced temperature sensor.

**Project Span:** 3rd Quarter 1995 - 3rd Quarter 1997



**U.S. Department of Energy**  
Office of Industrial Technologies  
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Washington, D.C. 20858-0121