

# Production of Specialty Chemicals Doubles With New Cryogenic Heat Transfer Fluid

**Danbury, Conn.** – The new Paratherm CR™ (Cryogenic Range) heat transfer fluid from Paratherm Corporation was put into production at Bedoukian Research Inc., a specialty chemical company in Danbury, Conn.

Bedoukian specializes in food ingredients, fragrances and insect pheromones, as well as other chemicals with pharmaceutical and agrochemical applications. Founded in 1972, the company offers more than 500 specialty chemical products. The company's need to find a more effective way to achieve lower temperature processing had become critical.

Paratherm CR quickly proved to be a far more efficient at reducing temperatures from chemical reactions than any heat transfer fluid the company had previously used. "We were looking for a long time to find a thermal fluid that would do what we need it to do," General Manager, Greg Pignone said. "This is it."

Liquid nitrogen chills the Paratherm CR fluid before it circulates through jackets that surround reactors with capacities that range from 50 to 200 gallons. The fluid removes heat generated by chemical reactions that occur during manufacturing processes.

However, many of Bedoukian's applications require cooling with temperatures below  $-60^{\circ}\text{C}$ , which was outside the range of their previous fluid. "Many fluids used for cooling thicken or even freeze up below a certain point," Pignone said, "usually at minus  $-50^{\circ}\text{C}$  to  $-60^{\circ}\text{C}$ . Paratherm CR doesn't do that. It allowed us to use colder temperatures."



***"Not only does Paratherm CR run reactions at colder temperatures, it enables us to run them faster."***

Greg Pignone, General Manager  
Bedoukian Research Inc.

Since the changeover, there have been larger yield batches. In addition, production time has been reduced by more than 50%. "We are able to run some of our cooled chemical reactions twice as fast now," President Robert Bedoukian said. "We can run at much lower temperatures than before with better heat transfer. This opens the door for us to produce custom syntheses that we couldn't have attempted before." Bedoukian added that competitive heat transfer fluids were either too expensive or didn't function at cold

enough temperatures. The company considered using hydrocarbon-based fluids, but was concerned about safety due to the inflammability of those materials. Paratherm CR has an ASTM D-56 flash point of 43 degrees Celsius (110 degrees Fahrenheit) and an ASTM D-92 flashpoint of 49 degrees Celsius (120 degrees Fahrenheit).

"We learned about the new Paratherm CR at a trade show. It sounded really exciting," Bedoukian said. "So we tried it. It worked beautifully. This will change how we do things. It will enhance our capability and double our through-put."

In addition to the product's benefits, Bedoukian and Pignone were impressed with the quality of Paratherm's service. "The reps were great at getting things rolling," Pignone said. "They spent a good chunk of time here. A lot of vendors don't do that much anymore."

Paratherm CR is patent pending.



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