



Test Kit Technologies, Inc.

ESTABLISHING BASELINE DATA ON FRYING OIL DEGRADATION

Problem: The industrial fryer operator would like to improve the operating efficiency of his fryers. How does he go about initiating such a program?

Background: Deep-fat frying is one of the most commonly used processing systems in this country. It is also one of the least understood. It has been, in fact, referred to as an art by some. Frying is used at the industrial level to produce snacks (chips, nuts, extruded snacks, rinds, etc), par-fried products (French fries and onion rings), finished fried items such as chicken and meat products, and many specialty items, including bakery products. It is also commonly used as a first step in products that will be reheated by a consumer in a microwave. Finally, almost every restaurant the world over has one or more fryers to produce fresh, hot food quickly for their clients.

Very few fryers operate at peak efficiencies. Reasons for this include improper sizing of systems; failure to meet the expected quantity of orders, so that a fryer runs at less than optimal capacity; overuse of oil; a lack of understanding of the system; and failure to follow operating parameters. The problem rarely lies with the design of the system, but rather with how it is operated and maintained. The key to optimizing any system is understanding that system, and central to that understanding is knowing how the frying oil degrades.

Libra's Program to Establish Baseline Data on Oil Degradation: In order to establish a baseline for oil degradation, Libra Labs has the capability to integrate oil chemistry, sensory evaluation, computer monitoring of the fryer in question, and simple observation. In most systems, operating parameters (oil temperature, line speed, incoming product quality, etc) tend to be constant, but it is essential that this be monitored. A frying system is simply too complex if there are not adequate controls applied. Once monitoring devices are in place the system is started up. To properly understand what happens, the fryer and lines should be scrupulously clean and oil should be fresh. Libra will provide instructions in how to collect oil samples at regular intervals as frying proceeds, and will subject these samples to a battery of chemical tests. The study should be continued until the oil's endpoint is reached. The true yardstick of oil quality is the food being produced in that oil (no one eats just hot oil, right?), so plant staff need to be involved to assist in defining when the product is "over the hill", so to speak.

Benefits of Understanding Oil Degradation: Once baseline data on a system is established, a fryer operator has the information at hand to optimize his operation. The oil chemistry data provides clues as to how the system can be modified and whether active filtration will be beneficial; and gives engineers and development scientists a point of comparison for any modifications made to the system for best quality and economical performance. This database can streamline the decision making process and help to assure that decisions have a solid basis in fact.