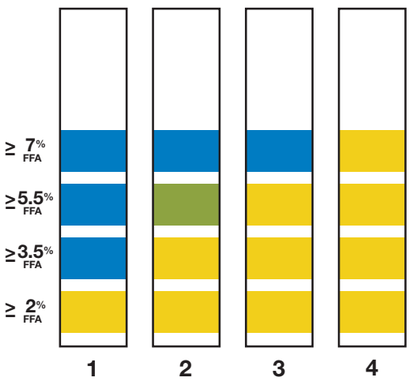
## What Does the Color Change Mean?

The 3M™ Shortening Monitor is used by dipping the strip into hot shortening until all four blue bands are submerged. *After* the strip is removed, the number of bands observed to *change from blue to yellow* indicates the exposure to a specific free fatty acid (FFA) concentration. For instance, if the bottom band completely changes from blue to yellow, but the top three stay blue, then there is a greater than 2% free fatty acid concentration but less than 3.5% FFA. As an operator, you can use the 3M™ Shortening Monitor test strips to determine the discard point for your shortening.



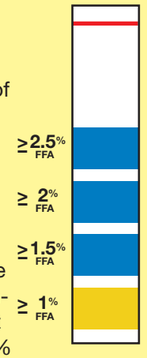

*Free fatty acids concentrations indicated on the Shortening Monitor strip are equivalent to those that can be obtained by A.O.C.S. Official Test Methods Te la-64 and Ca 5a-40.

**3M™ Shortening Monitor**

1. Shortening breakdown has begun. Indicates greater than 2% free fatty acids concentration.*
2. Check breaded food quality (color/taste, particularly of chicken and fish). Discard shortening if unacceptable. Indicates greater than 3.5% free fatty acids concentration.*
3. Check fried food quality (color/ taste, particularly of chicken, fish and french fries). Discard shortening if unacceptable. Indicates greater than 5.5% free fatty acids concentration.*
4. Recommend discarding shortening. Indicates greater than 7% free fatty acids concentration.*

### Now Available... 3M™ Low Range Shortening Monitor

When a more precise reading of early degradation of oil is desired, try the 3M™ Low Range Shortening Monitor. This monitor strip measures free fatty acid concentrations at 1%, 1.5%, 2% and 2.5%—ideal for food processing applications or to meet regulatory requirements.




## Product Specifications

| Product Number | Stock # | Description | UPC | PKG | Case Weight | Case Cube |
|---|---|---|---|---|---|---|
| 1004 | 70-0709-1690-6 | 3M™ Shortening Monitor<br>40 strips/plastic bottle, 4 bottles/case | 500-48011-25851-0 | 4/40 | 0.33 | .044 |
| 1010 | 70-0709-7474-9 | 3M™ Shortening Monitor Kit<br>40 strips/kit, 10 kits/case | 500-48011-05510-2 | 10/40 | 5.16 | 0.99 |
| 1024 | 61-5000-3456-8 | 3M™ Shortening Monitor (Bulk)<br>40 strips/glass bottle, 4 bottles/box, 6 boxes/case | 500-48011-05847-9 | 6/4 | 3.04 | 0.22 |
| 1024P | 70-0705-8359-9 | 3M™ Shortening Monitor (Bulk)<br>40 strips/plastic bottle, 4 bottles/box, 6 boxes/case | 500-48011-19890-8 | 6/4 | 2.10 | .236 |
| 1005 | 70-0709-7406-1 | 3M™ Low Range Shortening Monitor<br>40 strips/plastic bottle, 4 bottles/case | 500-48011-26416-0 | 4/40 | 0.33 | .044 |

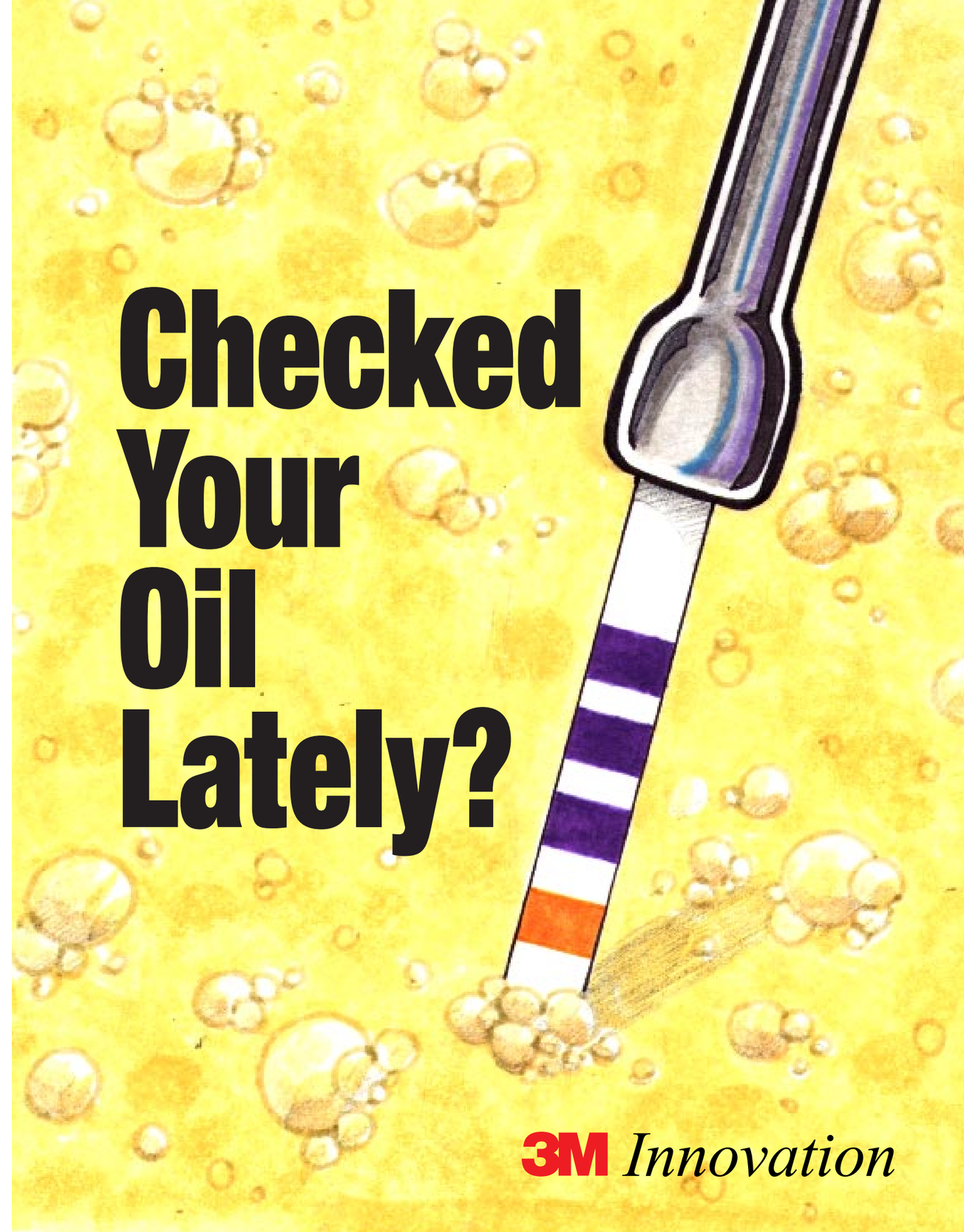

3M

**Food Service Business**

1-800-698-4595
www.3M.com/foodservice

3M Center, Building 223-4N-15
St. Paul, MN 55144-1000



# Maintain Consistent Quality in Your Fried Food with the 3M™ Shortening Monitor… Your Image Depends Upon It

The quality of your fried foods depends on the quality of the frying shortening. Shortening will break down after prolonged use affecting the flavor, color and texture of fried foods. Bad oil means bad fried food and that hurts your business.

The 3M™ Shortening Monitor can help prevent poor food quality and customer dissatisfaction. It's a simple test designed to measure the degree of shortening breakdown in deep frying vats.

The 3M™ Shortening Monitor objectively and consistently measures one of the major by-products of shortening breakdown—increased concentrations of free fatty acids (FFA). When your shortening has too much free fatty acids, the quality of your food suffers.

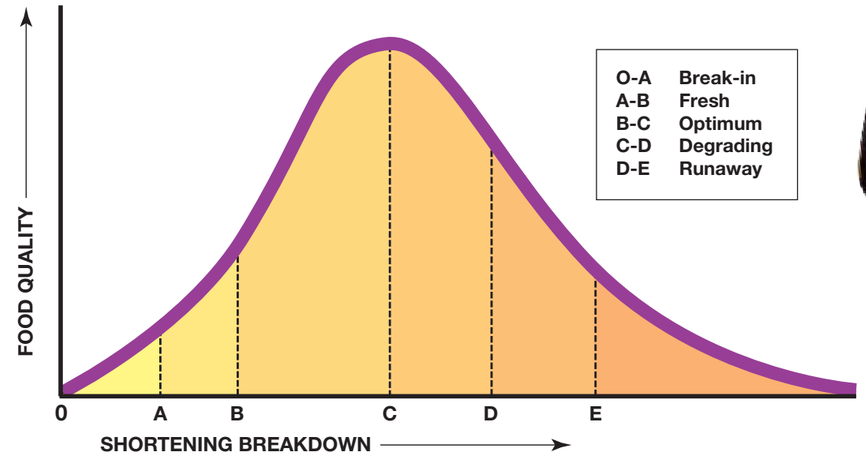
The 3M™ Shortening Monitor is a paper test strip with four colored bands that change color from blue to yellow as the levels of free fatty acids increase in your shortening.

Just dip the non-toxic paper strip into your shortening at operating temperature (325°-400°F/163°-204°C) and remove. In seconds, the bands change color to indicate the degree of shortening breakdown.

Because the 3M™ Shortening Monitor is a fast and accurate way to measure shortening breakdown, you can easily develop procedures to help control fried food quality and to insure customer satisfaction.

At the same time, you can reduce shortening cost. You no longer need to prematurely discard shortening to protect product quality.

- Easy to use, easy to read and eliminates guesswork
- Keeps all types of fried food quality high
- Helps save money by preventing the premature disposal of shortening
- Works equally well in animal, vegetable or A/V blend shortenings




## Frying Oil Quality Curve

The quality of the oil as a frying medium and the quality of the food produced in it are intimately bound. The five phases that an oil passes through during the degradation process are explained below.

**A. Break-in Oil:** White product; no cooked odors, no crisping of the surface; little oil pickup by the food

**B. Fresh Oil:** Slight browning at the edges of the fry; crisping of the surface; slightly more oil absorption

**C. Optimum Oil:** Golden-brown color; crisp, rigid surfaces; delicious potato and oil odors; optimal oil absorption

**D. Degrading Oil:** Darkened and/or spotty surfaces; excess oil pickup; product moving toward limpness; case-hardened surfaces

**E. Runaway Oil:** Dark, case-hardened surfaces; excessively oily product; surfaces collapsing inward; centers not fully cooked; off-odor and off-flavors (burned)

*Source: 1988 Libra Laboratories*

**GOOD OIL**
**Optimum cooking means a delicious looking golden brown color.**

**BAD OIL**
**Oil has degraded and food is dark in color and unappetizing.**