

# SETHNESS PRODUCTS COMPANY

## SHELF LIFE OF SETHNESS PRODUCTS CARAMEL COLOR POWDERS

Sethness' shelf life limits are a minimum not a maximum. In determining a maximum shelf life, three factors must be considered: Chemical changes, Microbiological changes, and Physical changes.

### **Chemical Changes**

Caramel Colors are manufactured in liquid solutions at high temperature. When a liquid Caramel Color is dried, the reactions that generate a Caramel Color are essentially stopped. A 17 year old sample of a Caramel Color powder was analyzed and found to be within analytical error of the results listed when the lot was manufactured.

### **Microbiological Changes**

Due to the low pH and high solids content, Liquid Caramel Colors are very inhospitable to microorganisms. In one study, microorganisms were inoculated into a lot of liquid Caramel Color. The organisms did not proliferate, in fact they died. When a Caramel Color is dried to make the powdered version, the water activity is reduced even further. As long as the water activity is maintained at this low level, the powder is microbiologically stable.

### **Physical Changes**

Caramel Color powders are very hygroscopic. When exposed to any type of moisture, the powder will absorb the water. This is a limiting factor for shelf life. When a Caramel Color absorbs enough water it forms lumps. While the powder may still be chemically and microbiologically acceptable, it is no longer easy to handle.

The second physical problem is due to compaction. Caramel Colors can be compressed into solid lumps. This is due to the plasticity of the particles. Sethness limits the size of the containers used to contain the powders in order to limit the compression factors. If compressed, the powder forms hard lumps and is hard to handle. Just as stated above, the product may be chemically and microbiologically acceptable, but due to handling problems it is no longer acceptable for use.

Dave Tuescher  
Technical Director

SHELF LIFE POWDERS 001/LAB/STMT	PAGE 1 OF 1	Authorized by DLT
---------------------------------	-------------	-------------------

Lincolnwood, IL Phone #847/329-2080 Toll Free #888/772-1880 mail@sethness.com	Clinton, IA Phone #563/243-3943 clinton@sethness.com	Avenel, NJ Phone #732/634-2161 Avenel@sethness.com
---	---	---