STANDARD OPERATING PROCEDURE – Cream Standardization

INTRODUCTION
Pasteurized cream is an ingredient used to manufacture many food products. It is also packaged for wholesale distribution. To ensure the consistency of foods prepared using cream it is advantageous for that cream to have a known butterfat content. This is accomplished by adding skim milk to the cream until the desired butterfat content is achieved.

MATERIALS
1. Supplies
   a. Sample bottles
   b. Fat determination instrumentation and materials
2. Cautions
   a. Chemicals used in fat determinations may cause damage to eyes and skin.

PROCEDURE
1. Circulate the cream until it is thoroughly mixed.
2. Determine the total number of gallons of cream.
3. Collect a representative sample.
4. Determine the fat content of the cream sample.
5. Calculate the volume of skim milk that needs to be added to the cream in order to reduce the creams measured fat content to the desired fat content.
6. Add the proper volume of skim milk to the cream and mix thoroughly.

CALCULATIONS
1. One gallon of skim milk weighs 8.63 pounds.
2. Find the weight of one gallon of cream:
   - 38 % fat 8.36 pounds
   - 39 % fat 8.35 pounds
   - 40 % fat 8.35 pounds
   - 41 % fat 8.33 pounds
   - 42 % fat 8.33 pounds
   - 43 % fat 8.33 pounds
   - 44 % fat 8.32 pounds
   - 45 % fat 8.30 pounds
   - 46 % fat 8.30 pounds
   - 47 % fat 8.29 pounds
   - 48 % fat 8.29 pounds

3. Weight of cream = number of gallons of cream * weight of one gallon of cream
4. Skim factor = measured fat content of cream - desired fat content of cream
5. Gallons of skim milk needed = (weight of cream * skim factor) / (desired fat content of cream * 8.63)

Example: Gallons of cream = 180
Measured fat content of cream = 46 %
Desired fat content of cream = 40 %

Weight of cream = 180 gallons * 8.30 pounds per gallon = 1494 pounds
Skim factor = 46 % - 40 % = 6
Gallons of skim milk needed = (1494 pounds * 6) / (40 * 8.63 pounds per gallon)
= 8964 / 345.2
= 26 gallons
REFERENCES
1. Information on sample collection and fat determination methodology:
   Standard Methods for the Examination of Dairy Products
   Published by the American Public Health Association
   www.apha.org
2. Operating instructions:
   SMART System 5 Moisture / Solids Analyzer Operation Manual
   SMART Trac Rapid Fat Analysis System Operation Manual
   CEM Corporation
   3100 Smith Farm Road
   Matthews, NC  28104
   Phone  704-821-7015
   E-mail  info@cem.com
   Website http:\\www.cem.com

The following individual is responsible for implementation of this SOP and has the overall authority on-site:

Name: ____________________________ Title: __________________________ Date: _______________