

**PRODUCT STABILITY REPORT**

**RJR**  
**SECRET**

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No. 434 By           

**PS #:** PS #125

**DATE:** January 5, 1994

**CLIENT:** Sara Divine

cc: HG-7 Team

**FROM:** Diane Roberts Frye  
Product Stability Group

**PROJECT TITLE:** PROJECT GTC - MIGRATION STUDY #2

**Purpose/Research Objectives:**

- 1) To determine the stability of glycerin in GTC prototypes over time.
- 2) To determine the effect of time and temperature on product performance yields.

**Background:**

Carbonyls have been monitored in past studies as an indicator of migration of glycerin to the heat source. If carbonyls exceed levels of products in market, this would limit product shelf life. This study is a screen for glycerin migration at accelerated aging conditions.

**Methodology/Procedures:**

Products were placed in sealed pouches in 98/20 and freezer conditions on 10/25/93. Various analytical and performance testing was conducted at 0 time, 3 weeks, and 6 weeks time periods.

**Product Descriptions:**

Please refer to Trial 3-117 for product component specifications and descriptions. Product 3-117/HG7-106 was produced in October, 1993 and made available for testing.

**Results:**

Due to the limited number of products provided, we were unable to request all of the analyses necessary to make direct comparisons of data over all time periods. However, a comparison of smoke analysis, carbonyls, and Harris smoking results revealed no differences between any of the time periods where data were available. Specifically, the analysis of carbonyls indicate the prototypes contained in this study not to be higher than current market ultra low tar products in any of the time periods or environmental conditions. Also, no visual signs of migration were detected after either time period or environmental condition when products were dissected and inspected.

Results from HG-7 Migration Study #1 (containing 93-086 A & B) also indicated low carbonyls. Therefore, based on results from Studies #1 and #2, formulation changes of this type do not increase glycerin migration.

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**Recommendations/Next Steps:**

The HG-7 recipes used in Migration Study #1 and #2 have been replaced by a new HG-7 recipe. Therefore, Migration Study #3 is in process using the products containing the current HG-7 and cast sheet formulations (3-102-E and CSF-517A). Results will be reported in February, 1994.

It is recommended that for future tests, as done with Study #3, project objectives are discussed prior to product production in order to obtain sufficient quantities of products for appropriate product stability test designs. This will ensure data collection that will yield information for continued product development.

**Limitations of Findings:**

This test was designed strictly as a migration study and was not designed to address consumer preference issues. No informal or formal sensory testing was conducted by the Product Stability area.

**Attachments:**

Spreadsheet with analytical data; product formulation sheets; and Harris Smoking analysis in limited form are attached. Additional data are in the Product Stability file.