

Testing Laboratory:

**Natick Soldier Research, Development and Engineering Center
Performance Enhancement and Food Safety
AMSRD-NSC-CF-P
Natick, MA 01760-5000**

Research Questionnaire

Walk-in Refrigerator Test

Finding

- | | |
|---|---|
| 1. Was an unpleasant odor present in the refrigerator when the Premier All Natural Filters were installed? | _____ <u>Yes</u> _____ |
| 2. Was the odor absorbed by the filters? | _____ <u>Yes</u> _____ |
| 3. After the Premier All Natural Filters were installed, was there any odor contamination of food? | <u>N/A; All food was sealed in air tight packages</u> |
| 4. Overall, during the test, was there an improvement of smell? | _____ <u>Yes</u> _____ |
| 5. What was the length of the refrigerator test period during which the Premier All Natural Filters were present? | <u>From: 1/17/08 To:2/25/08</u> |
| 6. Before the test, with no Premier All Natural Filters installed, was there any wetness: | |
| a. On ceiling | _____ <u>No</u> _____ |
| b. On walls | _____ <u>No</u> _____ |
| c. On evaporator | _____ <u>Yes in drainage troughs</u> _____ |
| b. On shelves | _____ <u>No</u> _____ |
| c. On floor | _____ <u>No</u> _____ |
| d. On food (droplets or condensation) | _____ <u>No</u> _____ |

e. On packaging (droplets or condensation) No

7. At the conclusion of the test, with Premier All Natural Filters installed, was there any wetness:

a. On ceiling No

b. On walls No

c. On evaporator No

d. On shelves No

e. On floor No

d. On food (droplets or condensation) No

e. On packaging (droplets or condensation) No

8. Was a baseline airborne mold test (without Premier All Natural Filters) performed? Yes

9. What was the result of the baseline mold test? Mold present (11 colonies, 30 min exposure time)

10. What was the length of the mold test period during which the Premier All Natural Filters were present? From: 1/17/08 To:2/25/08

11. Was an airborne mold test performed after the test period? During

12. What was the result of the final airborne mold test? Mold was not detected (0 colonies, 30 min exposure time)

13. Was a baseline airborne bacteria test performed? Bacteria/Mold Detected (Nutrient Agar, 40 colonies; 30 min exposure time)

14. What was the length of the bacteria test period during which the Premier All Natural Filters were present? From: 1/17/08 To:2/25/08

15. Was an airborne bacteria test performed after the test period? During

16. What was the result of the final airborne bacteria test? Significant reduction (7 bacterial/mold colonies)

17. What was the average temperature of the refrigerator at the end of the baseline test? °F 48.7

18. What was the average temperature of the refrigerator? at the conclusion of the test period, with Premier All Natural Filters installed? °F 48.2

19. Did sensitive perishables like strawberries, cut lettuce, raspberries and mushrooms stay fresher than previously in this refrigerator? N/A

20. Did perishables last longer in the refrigerator without deterioration than previously in this unit? N/A

21. Did Meat and fish retain more of their initial weight after the Premier All Natural Filters were installed? N/A

22. Were flavor tests on peaches and apples stored in the refrigerator before and after being treated with Premier All Natural Filters conducted? N/A

23. Was there a change in refrigerator compressor running time in minutes per day (electrical use), measured from the baseline test to the average for the last two days of the test? 7% reduction

Walk-in Freezer Test

Finding

1. What was the length of the freezer test period during which the Premier All Natural Filters were present? From: 1/2/08 To:1/16/08

2. Was an unpleasant odor present in the freezer when the Premier All Natural Filters were installed? _____ No _____

3. Was the odor absorbed by the filters? _____ N/A _____

4. After the Premier All Natural Filters were installed, was there any odor contamination of food ("freezer burn")? _____ No _____

5. Overall, during the test, was there an improvement of smell in the freezer? _____ N/A _____

6. Before the test, was there any icing:

a. On ceiling _____ Yes _____

b. On walls _____ No _____

c. On evaporator fan covers _____ Yes _____

d. On evaporator fins _____ Yes _____

e. On shelves _____ No _____

f. On floor _____ Yes _____

g. On packaging _____ Yes _____

7. What was the length of the test period, during which the Premier All Natural Filters were installed? _____ From: 1/17/08 To:2/25/08 _____

8. After the test, with Premier All Natural Filters installed, was there any icing:

a. On ceiling _____ No _____

b. On walls _____ No _____

c. On evaporator fan covers _____ No _____

d. On evaporator fins _____ No _____

e. On shelves _____ No _____

f. On floor _____ No _____

g. On packaging

Yes, but amount of icing
was reduced slightly

9. What was the average temperature of the freezer
at the end of the baseline test (No Premier All Natural Filters present)?

What was the date?

-1.8 °F Date: 1/16/08

10. What was the average temperature of the freezer
at the conclusion of the test period, with Premier All Natural Filters installed?

What was the date?

-1.9°F Date: 2/26/08

11. What were the dimensions of the test freezer?

15'x15'x8' OD

12. How many Premier All Natural Filters
were installed?

10

3/12/08
Date

Paul Maguire
Signature-Reporting Researcher

Food Technologist
Title

Natick Soldier RDEC
Organization

Kansas St
Street Address

Natick, MA 01760
City State Zip Code