



ADVANCED
i n g r e d i e n t s

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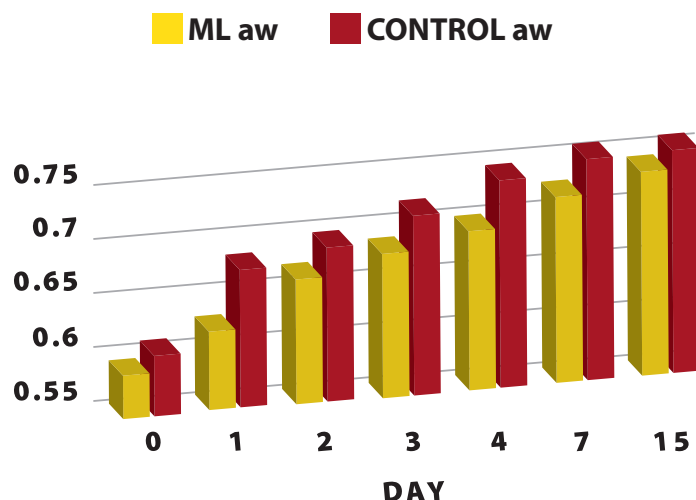
MoisturLok[®] Organic

CASE STUDY: GLUTEN FREE COOKIES

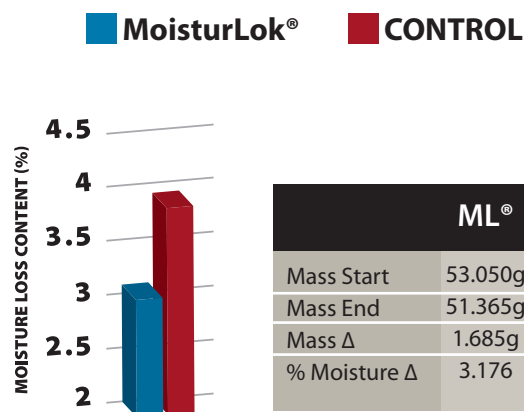
CASE STUDY OBJECTIVES

- To demonstrate that **MoisturLok[®]** extends shelf life in gluten free cookies by:
 - Lowering the water activity of the product throughout the entire shelf life
 - Holding more water (moisture) in the product for a longer period of time
- To demonstrate that **MoisturLok[®]** enhances sensory attributes of gluten free cookies

WATER ACTIVITY OVER 15 DAYS



MOISTURE LOSS OVER 15 DAYS



	ML [®]	Cont.
Mass Start	53.050g	54.770g
Mass End	51.365g	52.573g
Mass Δ	1.685g	2.197g
% Moisture Δ	3.176	4.011

CONCLUSIONS :

- MoisturLok[®] Liquid** significantly decreased moisture loss by 20.8% compared to the control cookies
- MoisturLok[®] Liquid** reduced water activity by 2.3% after 15 days as compared to the control cookies
- The test product made with **MoisturLok[®] Liquid** was preferred over control for the attributes of mouthfeel, overall taste, and sweetness

MATERIALS & METHODS:

Formulas (in Ounces)	Control	Test (with ML)
Unsalted Butter	8.0	8.0
Corn Starch	11.0	11.0
Tapioca Flour	1.25	1.25
Xanthan Gum	0.0352	0.0352
Salt	0.18	0.18
Baking Soda	0.16	0.16
Sugar	2.0	2.0
Light Brown Sugar	10.0	10.0
MoisturLok®	0.0	0.77
Whole Eggs	1.67	1.67
Egg Yolks	0.67	0.67
Whole Milk	1.0	1.0
Vanilla Extract	0.25	0.25
Semi Sweet Chocolate Chips	12.0	12.0
Total:	48.22	48.99

Test Procedures:

- Mix sugar with shortening for 2 min on medium speed
- Mix the wet ingredients (including MoisturLok) with the sugar and shortening
- Sift the dry ingredients together and add slowly to wet ingredients while mixing slowly for 3 min
- Roll dough out to a thickness of 6 mm and cut out using a steel cookie cutter
- Bake on greased pans at 180°C for 12-15 min
- Cool for 10 minutes
- Store in airtight containers

Evaluation Procedures

- **Moisture:** Measure moisture content of finished gluten free cookies at daily intervals
- **Water Activity:** Measure water activity of finished cookies at key increments of shelf life
- **Sensory:** Evaluate key sensory attributes with a 10 person consumer panel

Testing conducted in conjunction with the
Department of Food Sciences at the University
of Minnesota

