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## ACUTE ORAL TOXICITY STUDY IN RATS - LIMIT TEST

TEST METHOD NO.: P203 UDP

STUDY NUMBER: 14270

SPONSOR: BLACKMAN-UHLER CHEMICAL  
P.O. Box 5627  
Spartanburg, SC 29304

TEST SUBSTANCE IDENTIFICATION: BK 726 Treated Fabric

TEST SUBSTANCE DESCRIPTION: Off-white fabric

DATE RECEIVED: September 9, 2003

PSL REFERENCE NO.: 030909-4D

DATES OF TEST: September 15-30, 2003

### 1. PURPOSE

To provide information on health hazards likely to arise following a single dose of BK 726 Treated Fabric in the diet.

### 2. PROCEDURE

A group of Sprague-Dawley derived, albino rats was received from Ace Animals, Inc., Boyertown, PA. The animals were singly housed in suspended stainless steel caging with mesh floors. Litter paper was placed beneath the cages and was changed at least three times per week. The animal room was temperature controlled and had a 12-hour light/dark cycle. The animals were fed Purina Rodent Chow #5012 and filtered tap water was supplied *ad-libitum* by an automatic watering system.

Following acclimation to the laboratory, a group of animals was fasted overnight by removing the feed from their cages. After the fasting period, three female rats were selected for test based on health and initial body weights. Individual doses were calculated based on these body weights, taking into account the concentration of the test substance in the diet.

Due to the physical nature of the test substance, it was not possible to administer a dose by oral gavage. An appropriate amount of test substance was cut into small pieces ( $\pm 1 \text{ mm}^3$ ). Equal weights of test substance and Purina Rodent Chow #5012 were ground in a coffee mill (Krupps, Model 203) to produce a 50% wt/wt mixture. The calculated dose for each rat was then mixed in a jar with 4 grams of corn oil and 4 grams of peanut butter and presented to the animal for a period of approximately 24 hours.

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LABORATORIES**

An initial limit dose of 5,000 milligrams of test substance per kilogram of body weight was administered to one healthy female rat in the diet. Due to the absence of mortality in this animal, two additional females received the same dietary dose level. All animals consumed the test diets within a 24-hour period. Since all animals survived, no additional animals were tested. Females were selected for the test because they are frequently more sensitive to the toxicity of test compounds than males. After administration, each animal was returned to its designated cage. Feed was replaced at approximately 24 hours when empty test diet jars were removed.

The animals were observed for mortality, signs of gross toxicity and behavioral changes during the first several hours post dosing and at least once daily for 14 days. Body weights were recorded prior to initiation and at study termination. All animals were euthanized by CO<sub>2</sub> inhalation at termination.

### 3. RESULTS

Individual body weights and doses are presented in Table 1. Cage-side observations are presented in Table 2.

All animals survived, gained weight and appeared active and healthy. There were no signs of gross toxicity, adverse pharmacologic effects or abnormal behavior.

### 4. CONCLUSION

Under the conditions of this study, the single dose acute oral LD<sub>50</sub> of BK 726 Treated Fabric is greater than 5,000 mg/kg of body weight in female rats.

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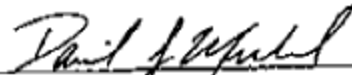
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**SIGNATURES**

BK 726 Treated Fabric

I, the undersigned, declare that the methods, results and data contained in this report faithfully reflect the procedures used and raw data collected during the study.

  
\_\_\_\_\_  
Daniel J. Merkel, B.S.  
Study Director  
Product Safety Labs

\_\_\_\_\_  
Date 10/9/03

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TABLE 1: INDIVIDUAL BODY WEIGHTS AND DOSES

Animal No.	Sex	Body weight (g)		Dose <sup>1</sup>
		Initial	Day 14	g
871	F	170	239	1.7
921	F	155	231	1.6
922	F	156	229	1.6

<sup>1</sup> 50% wt/wt mixture of test sample and Purina Rodent Chow 5012.

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**TABLE 2: INDIVIDUAL CAGE-SIDE OBSERVATIONS**

<u>Animal Number</u>	<u>Findings</u>	<u>Day of Occurrence</u>
<u>FEMALES</u>		
871, 921, 922	Active and healthy	0-14

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**PRODUCT SAFETY  
LABORATORIES**

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## PRIMARY SKIN IRRITATION STUDY IN RABBITS

**TEST METHOD NO:** P201

**STUDY NUMBER:** 14271

**SPONSOR:** BLACKMAN-UHLER CHEMICAL  
PO Box 5627  
Spartanburg, SC 29304

**TEST SUBSTANCE IDENTIFICATION:** BK 726 Treated Fabric

**TEST SUBSTANCE DESCRIPTION:** Off-white fabric

**DATE RECEIVED:** September 9, 2003

**PSL REFERENCE NO.:** 030909-4D

**DATES OF TEST:** September 16 - 20, 2003

### 1. PURPOSE

To provide information on the skin irritation likely to arise from a single topical exposure to BK 726 Treated Fabric.

### 2. PROCEDURE

A group of New Zealand albino rabbits was received from Millbrook Breeding Labs, Amherst, MA. The animals were singly housed in suspended stainless steel caging with mesh floors. Litter paper was placed beneath the cages and was changed at least three times per week. The animal room was temperature controlled and had a 12-hour light/dark cycle. The animals were fed Purina Rabbit Chow #5326 and filtered tap water was supplied *ad-libitum* by an automatic watering system.

Following acclimation to the laboratory, a group of animals was prepared by clipping (Oster model #A5-small) the dorsal area of each animal's trunk free of hair. On the day after clipping, three healthy rabbits (1 male and 2 females) without pre-existing dermal irritation were selected for test. One intact test site, approximately 6 cm<sup>2</sup>, was delineated on each animal.

A 1 inch x 1 inch area of the test substance was moistened with distilled water and applied to one 6 cm<sup>2</sup> intact dose site on each animal and covered with a 1 inch x 1 inch, 4-ply gauze pad. The coated side of the fabric was placed against the skin. The pad and entire trunk of each animal were then wrapped with semi-occlusive 3-inch Micropore tape to avoid dislocation of the pad. Elizabethan collars were placed on each rabbit and they were returned to their designated cages.

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After 4 hours of exposure to the test substance, the pads and collars were removed and the test sites were cleansed of residual test substance. Individual dose sites were scored according to the Draize<sup>1</sup> scoring system at approximately 1, 24, 48 and 72 hours after patch removal.

The classification of irritancy was obtained by adding the average erythema and edema scores for the 1, 24, 48, and 72-hour scoring intervals and dividing by the number of evaluation intervals (4).

The resulting Primary Dermal Irritation Index (PDII) was classified as follows:

<u>PDII</u>	<u>Classification</u>
< 0.5	Non-irritating
0.5 - 2.0	Slightly irritating
2.1 - 5.0	Moderately irritating
> 5.0	Severely irritating

### 3. RESULTS

Individual skin irritation scores are presented in Table 1. Primary skin irritation scores used for calculation of the Primary Dermal Irritation Index are presented in Table 2. The Draize Primary Skin Irritation Scoring System is presented in Table 3.

All animals appeared active and healthy. There were no signs of dermal irritation, gross toxicity, adverse pharmacologic effects or abnormal behavior.

The Primary Dermal Irritation Index for BK 726 Treated Fabric is 0.0.

### 4. CONCLUSION

Based on the scoring and classification system used, BK 726 Treated Fabric is classified as non-irritating to the skin.

<sup>1</sup> Draize, J.H., Woodward, G. and Calvery, H.O. Methods for the study of irritation and toxicity of substances applied topically to the skin and mucous membranes. *J. Pharmacol. Exp. Ther.* 1944; 82:377-390.

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**SIGNATURES**

BK 726 Treated Fabric

I, the undersigned, declare that the methods, results and data contained in this report faithfully reflect the procedures used and raw data collected during the study.

  
\_\_\_\_\_  
Daniel J. Merkel, B.S.  
Study Director  
Product Safety Labs

\_\_\_\_\_  
Date 10/7/03

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TABLE 1: INDIVIDUAL SKIN IRRITATION SCORES

ERYTHEMA/EDEMA

Animal No.	Sex	Hours After Patch Removal			
		1	24	48	72
10275	F	0/0	0/0	0/0	0/0
10276	M	0/0	0/0	0/0	0/0
10277	F	0/0	0/0	0/0	0/0
TOTAL		0/0	0/0	0/0	0/0
MEAN		0/0	0/0	0/0	0/0

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**TABLE 2: SUMMARY OF PRIMARY DERMAL IRRITATION (PDI) SCORES<sup>1</sup>**

	Hours			
	1	24	48	72
Erythema	0	0	0	0
Edema	0	0	0	0
<b>TOTAL (PDI)<sup>2</sup></b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Primary Dermal Irritation Index (PDI):  $\frac{\text{PDI for 1, 24, 48 and 72 hours}}{4} = 0.0$

Classification: Non-irritating

**CLASSIFICATION SYSTEM**

PDI

< 0.5  
0.5 - 2.0  
2.1 - 5.0  
> 5.0

Classification

Non-irritating  
Slightly irritating  
Moderately irritating  
Severely irritating

<sup>1</sup> Average values for 3 rabbits.

<sup>2</sup> PDI = Average Erythema + Average Edema

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**TABLE 3: PRIMARY SKIN IRRITATION SCORING SYSTEM**

<u>Evaluation of Skin Reactions</u>	<u>Value</u>
<b>Erythema and eschar formation:</b>	
No erythema.....	0
Very slight erythema (barely perceptible).....	1
Well-defined erythema.....	2
Moderate to severe erythema.....	3
Severe erythema (beet redness) to slight eschar formation (injuries in depth).....	4
<b>Edema formation:</b>	
No edema.....	0
Very slight edema (barely perceptible).....	1
Slight edema (edges of area well defined by definite raising).....	2
Moderate edema (raised approximately 1 millimeter).....	3
Severe edema (raised more than 1 millimeter and extending beyond the area of exposure).....	4

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Synalloy Corporation  
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 Fax No : (864) 596-1501  
 CHEMTREC: (800) 424-9300

Date of Issue 05/14/03

**Material Safety Data Sheet**

**Section 01**  
 Product Information

Product Name : FIRE RETARD BK 726  
 Chemical Name:  
 Formula .....

**Section 02**  
 Hazardous Ingredients

Ingredient	CAS #	Weight %	TWA / TLV
1. AMINE	TRADE SECRET	10-20	NOT ESTABLISHED
2.			
3.			
4.			
5.			

**Section 03**  
 Health Hazards Information

Recommended Health Guide TWA NO DATA AVAILABLE  
 (Time Weighted Average, Per 8 Hours)  
 Over-Exposure PROLONGED DIRECT CONTACT WITH THIS MATERIAL MAY CAUSE SKIN IRRITATION. DIRECT CONTACT WITH THE EYES MAY CAUSE IRRITATION, PROLONGED EXPOSURE TO VAPORS MAY CAUSE HEADACHE, NAUSEA AND IRRITATION.

**Section 04**  
 First Aid Measures

**Skin** WASH THOROUGHLY WITH SOAP AND WATER. SEEK MEDICAL ATTENTION IF IRRITATION OCCURS.  
**Eyes** FLUSH WITH WATER FOR 15 MINUTES. SEEK MEDICAL ATTENTION IF IRRITATION OCCURS.  
**Inhalation** CONSULT A PHYSICIAN IF IRRITATION OF RESPIRATORY PASSAGES OCCUR.  
**Ingestion** CONSULT A PHYSICIAN.

**Section 05**  
 Fire Fighting Measures

Fire Fighting Procedure  
 USE SELF CONTAINED BREATHING APPARATUS.  
Unusual Fire / Explosion Hazards  
 EMITS TOXIC FUMES UNDER FIRE OR EXTREME HEAT CONDITIONS.  
 Flashpoint: >212 F

Extinguishing Media	
Foam	<input type="checkbox"/> Y
Alcohol Foam	<input type="checkbox"/> N
CO2	<input type="checkbox"/> Y
Dry Chemical	<input type="checkbox"/> Y
Water Fog	<input type="checkbox"/> Y
Other	<input type="checkbox"/> N

Other Media: NONE

**Section 06**  
 Spills & Leaks

CONTAIN, COLLECT AND PLACE INTO APPROPRIATE CONTAINER. SMALL SPILLS MAY BE FLUSHED TO A CHEMICAL DRAIN. HANDLING MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.

**Section 07**  
 Handling & Storage

Max Temp	Min Temp	Indoor	Heated	Refrigerated	Outdoor
NONE	032 F				

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### Material Safety Data Sheet

<b>Section 08</b> Exposure Control & Personal Protection	<p><b>Ventilation:</b> USE LOCAL EXHAUST  <b>Respiratory:</b> NONE REQUIRED UNDER NORMAL USE.</p> <p><b>Eyes :</b> SAFETY GLASSES/GOGGLES  <b>Gloves :</b> CHEMICAL RESISTE  <b>Other :</b> CLOTHING AS NECESSARY TO PREVENT SKIN CONTACT.</p>	
<b>Section 09</b> Physical / Chemical Properties	<p><b>Appearance:</b> WHITE DISPERSION  <b>Melting/Freeze Point:</b> ND  <b>Boiling Point:</b> 220 F  <b>Solubility in Water:</b> DISPERSION</p>	<p><b>Viscosity:</b> 15,000-20,000 cps  <b>% Volatile (By Weight):</b> APPROX 40  <b>Specific Gravity:</b> APPROX 1.15</p>
<b>Section 10</b> Stability and Reactivity	<p><b>Stability:</b> STABLE  <b>Conditions to Avoid:</b> AVOID OPEN FLAMES, LIGHT MAY DISCOLOR MATERIAL  <b>Decomposition Material:</b> OXIDES OF CARBON  <b>Polymerization / Avoid:</b> WILL NOT OCCUR FREEZING  <b>Incompatible Material:</b></p>	
<b>Section 11</b> Toxicity Information		
<b>Section 12</b> Ecological Information	NO DATA AVAILABLE	
<b>Section 13</b> Waste Disposal Methods	DISPOSAL MUST BE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.	
<b>Section 14</b> Transportation	NON-REGULATED	
<b>Section 15</b> Regulatory Information	<p><i>This product contains the following components subject to the reporting requirements under SARA Title III, Section 313 (40 CFR Part 372):</i></p> <p>NONE</p>	<p><b>HMIS Rating</b></p> <p>Health 0                  Flammability 1                  Reactivity 0                  PP X</p>
<b>Section 16</b> Miscellaneous	<p>NA = Not Applicable                  ND = Not Determined</p>	<p><b>Product Code:</b> GHV125  <b>Previous Code:</b> 15100  <b>Date of Issue:</b> 05/14/03  <b>Supersedes:</b> //  <b>Revised Date:</b> 05/10/03</p>
<b>Disclaimer Statement</b>	<p><i>The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding accuracy of these data or the results to be obtained from the use thereof. Vendor assumes no responsibility for injury to vendee or third person proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the Data Sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his or her use of the material.</i></p>	