Mixture No. 7
5948 - Enamel, white 183-508
5949 - Thinner 3810

File

HLO-73-69[4]

ETON LABORATORIES, INCORPORATED
FINAL REPORT

terial Tested: Mixture No. 7

Haskell No.: 5948, 5949
MR-1172-1

terial Submitted By: Haskell Laboratories
E. I. du Pont de Nemours and Company, Inc.

Project No. 201-238

EYE IRRITATION TEST

ocedure

Preparation of Mixture: A (Haskell No. 5948) was thinned 15% by volume with B (Haskell No. 5949).

Administration: Four albino rabbits weighing 2.1 to 2.6 kg. were used. A dose of 0.1 ml. of the liquid was placed int the left conjunctival sac of each rabbit. The treated eyes of two rabbits were washed for one minute with tap wat 20 seconds after contact; the treated eyes of the other two rabbits were not washed. In all cases, the right eye each rabbit served as an untreated control. Observations were made grossly at one and four hours and at one, two, three, and seven days. Eye irritation was graded and scored according to the numerical scoring system of Draize, from the Appraisal of the Safety of Chemicals in Foods, Drugs, and Cosmetics, Assn. of Food and Drug Officials of U. S., Austin, Texas, 1959. All treated eyes were examined with 2.0% sodium fluorescein stain at one and four hou and at seven days to detect any evidence of corneal damage.

sults

Dose	Ocular Effects in Treated Eyes
0.1 ml. liquid, eye washed; Rabbit No. 69-976, 2.1 kg.	Iris: None. Cornea: None.

Dose	Ocular Effects in Treated Eyes
	Conjunctivae: Moderate redness from one through 24 hours, slight at 48 hours; slight to moderate chemosis from one through 24 hours; slight discharge from four through 24 hours.
	Fluorescein Examination: Negative at one and four hours and at seven days.

Summary Mixture No. 6 was evaluated for acute eye irritation. Eye irritation generally subsided by 72 hours except in one unwashed eye (persisted through seven days) and was characterized by slight iritis, slight to moderate conjunctival redness and chemosis, and slight discharge.

Report By: Joan M. Wood

Approved By: G. Carl Holsing

G. CARL HOLSING, Ph.D.
Senior Research Coordinator
Toxicology Division

mtg

Date: April 11, 1969
Project No. 201-238

File

HLO- 74-69 4

DUP040000827

Mixture No. 6
5945 - Enamel, white, polyurethane 9350-37
5946 - Activator 9350-37
5947 - Promotor 9350-37

PORATED

Material Tested: Mixture No. 6

Haskell No.: 5945, 5946, 5947
MR-1172-1

Material Submitted By: Haskell Laboratories
E. I. du Pont de Nemours and Company, Inc.

Project No. 201-238

EYE IRRITATION TEST

Procedure

Preparation of Mixture: Mixed with 7.1 parts by weight of A (Haskell No. 5945) were 2.35 parts of B (Haskell No. 5946) and 0.55 parts of C (Haskell No. 5947).

Administration: Four albino rabbits weighing 2.0 to 2.3 kg. were used. A dose of 0.1 ml. of the liquid was placed into the left conjunctival sac of each rabbit. The treated eyes of two rabbits were washed for one minute with tap water 20 seconds after contact; the treated eyes of the other two rabbits were not washed. In all cases, the right eye of each rabbit served as an untreated control. Observations were made grossly at one and four hours and at one, two, three, and seven days. Eye irritation was graded and scored according to the numerical scoring system of Draize, J. H from the Appraisal of the Safety of Chemicals in Foods, Drugs, and Cosmetics, Assn. of Food and Drug Officials of the U. S., Austin, Texas, 1959. All treated eyes were examined with 2.0% sodium fluorescein stain at one and four hours and at seven days to detect any evidence of corneal damage.

Results

Dose	Ocular Effects in Treated Eyes
0.1 ml. liquid, eye washed; Rabbit No. 69-972, 2.3 kg.	Iris: None. Cornea: None.

Dose	Ocular Effects in Treated Eyes
	Conjunctivae: None.
	Fluorescein Examination: Negative at one and four hours and at seven days.
0.1 ml. liquid, eye washed; Rabbit No. 69-969, 2.0 kg.	Iris: None.
	Cornea: None.
	Conjunctivae: None.
	Fluorescein Examination: Negative at one and four hours and at seven days.
0.1 ml. liquid, eye unwashed; Rabbit No. 69-970, 2.2 kg.	Iris: None.
	Cornea: None.
	Conjunctivae: None.
	Fluorescein Examination: Negative at one and four hours and at seven days.
0.1 ml. liquid, eye unwashed; Rabbit No. 69-971, 2.5 kg.	Iris: None.
	Cornea: None.
	Conjunctivae: None.
	Fluorescein Examination: Negative at one and four hours and at seven days.

Summary Mixture No. 5 was evaluated for acute eye irritation. No irritation was produced in the four eyes tested.

Report By: Joan M. Work

Approved By: G. Carl Holsing

G. CARL HOLSING, Ph.D.
Senior Research Coordinator
Toxicology Division

mtg

Date: April 11, 1969
Project No. 201-238

Mixture No. 3
5938 - Enamel, red, "Alumigrip" 2099
5939 - Catalyst, "Alumigrip"

File

HLO 81-69⁴

ATORIES, INCORPORATED
AL REPORT

DUP040000832

Material Tested:

Haskell No.: 5938, 5939
MR-1172-1

Material Submitted By: Haskell Laboratories
E. I. du Pont de Nemours and Company, Inc.

Project No. 201-238

EYE IRRITATION TEST

Procedure

Preparation of Mixture: One part by volume of A (Haskell No. 5938) was mixed with one part of B (Haskell No. 5939) and allowed to stand 30 minutes before using.

Administration: Four albino rabbits weighing 1.9 to 2.3 kg. were used. A dose of 0.1 ml. of the liquid was placed into the left conjunctival sac of each rabbit. The treated eyes of two rabbits were washed for one minute with tap water 20 seconds after contact; the treated eyes of the other two rabbits were not washed. In all cases, the right eye of each rabbit served as an untreated control. Observations were made grossly at one and four hours and at one, two, three, and seven days. Eye irritation was graded and scored according to the numerical scoring system of Draize, J. H from the Appraisal of the Safety of Chemicals in Foods, Drugs, and Cosmetics, Assn. of Food and Drug Officials of the U. S., Austin, Texas, 1959. All treated eyes were examined with 2.0% sodium fluorescein stain at one and four hours and at seven days to detect any evidence of corneal damage.

Results

Dose	Ocular Effects in Treated Eyes
0.1 ml. liquid, eye washed; Rabbit No. 69-960, 2.0 kg.	Iris: Slight iritis from four through 24 hours. Cornea: None.

Dose	Ocular Effects in Treated Eyes
	Conjunctivae: Moderate redness from one through 24 hours, slight at 48 hours; moderate chemosis at one hour, marked at four hours, slight at 24 hours; moderate discharge from one through four hours, slight at 24 hours. Fluorescein Examination: Negative at one and four hours and at seven days.
0.1 ml. liquid, eye washed; Rabbit No. 69-957, 2.1 kg.	Iris: None. Cornea: None. Conjunctivae: Slight redness from one through 24 hours; slight chemosis from one through four hours; slight discharge at one hour. Fluorescein Examination: Negative at one and four hours and at seven days.
0.1 ml. liquid, eye unwashed; Rabbit No. 69-958, 2.4 kg.	Iris: Slight iritis at 72 hours and at seven days. Cornea: Dull appearance at 72 hours and at seven days. Conjunctivae: Slight to moderate redness from one through 48 hours, marked from 72 hours through seven days; slight to moderate chemosis and discharge from one through 24 hours. Fluorescein Examination: Negative at one and four hours and at seven days.
0.1 ml. liquid, eye unwashed; Rabbit No. 69-959, 2.2 kg.	Iris: Slight iritis at seven days. Cornea: Slight corneal opacity at seven days.

Dose	Ocular Effects in Treated Eyes
	Conjunctivae: Slight to moderate redness from one hour through seven days; slight chemosis from one through four hours; slight discharge at one hour.
	Fluorescein Examination: Negative at one and four hours; positive at seven days.

Summary Mixture No. 2 was evaluated for acute eye irritation. Eye irritation subsided by 48 hours in washed eyes and persisted through seven days in unwashed eyes. Slight to moderate conjunctival redness, chemosis and discharge, slight iritis, and slight corneal opacity were generally observed in all eyes.

Report By: Joan Novak

Approved By:
G. CARL HOLSING, Ph.D.
Senior Research Coordinator
Toxicology Division

mtg

Date: April 11, 1969
Project No. 201-238

File 4

HLO- 82-69

DUP040000835

Mixture No. 2
5935 - Enamel, white, polyurethane 9350-35C
5936 - Activator 9350-35C
5937 - Promotor 9350-35C

ICORPORATED

Haskell No.: 5935, 5936, 5937
MR-1172-1

Material Submitted By: Haskell Laboratories
E. I. du Pont de Nemours and Company, Inc.

Project No. 201-238

EYE IRRITATION TEST

Procedure

Preparation of Mixture: Mixed with 6.9 parts by weight of A (Haskell No. 5935) were 2.67 parts of B (Haskell No. 5936) and 0.43 parts of C (Haskell No. 5937).

Administration: Four albino rabbits weighing 2.1 to 2.4 kg. were used. A dose of 0.1 ml. of the liquid was placed into the left conjunctival sac of each rabbit. The treated eyes of two rabbits were washed for one minute with tap water 20 seconds after contact; the treated eyes of the other two rabbits were not washed. In all cases, the right eye of each rabbit served as an untreated control. Observations were made grossly at one and four hours and at one, two, three, and seven days. Eye irritation was graded and scored according to the numerical scoring system of Draize, J. H from the Appraisal of the Safety of Chemicals in Foods, Drugs, and Cosmetics, Assn. of Food and Drug Officials of the U. S., Austin, Texas, 1959. All treated eyes were examined with 2.0% sodium fluorescein stain at one and four hours and at seven days to detect any evidence of corneal damage.

Results

Dose	Ocular Effects in Treated Eyes
0.1 ml. liquid, eye washed; Rabbit No. 69-956, 2.2 kg.	Iris: Slight iritis from one through 24 hours. Cornea: Slight corneal opacity at one hour; dull appearance from four through 24 hours.

Dose	Ocular Effects in Treated Eyes
	Conjunctivae: Moderate redness from one through 24 hours, slight at 48 hours; moderate chemosis from one through four hours; slight discharge from one through four hours. Fluorescein Examination: Negative at one and four hours and at seven days.
0.1 ml. liquid, eye washed; Rabbit No. 69-953, 2.6 kg.	Iris: Slight iritis from one hour through seven days. Cornea: Slight corneal opacity from one through 48 hours, moderate at 72 hours and seven days. Conjunctivae: Moderate redness from one hour through seven days; moderate chemosis from one through 48 hours, slight from 72 hours through seven days; slight to moderate discharge from one hour through seven days. Fluorescein Examination: Positive at one and four hours and at seven days.
0.1 ml. liquid, eye unwashed; Rabbit No. 69-954, 2.3 kg.	Iris: Slight iritis from one through 24 hours. Cornea: None. Conjunctivae: Slight redness from one through 48 hours, marked redness at 72 hours which could have been due to self-inflicted injury; slight chemosis from one through 24 hours; slight discharge from one through four hours. Fluorescein Examination: Positive at one and four hours and at seven days.
0.1 ml. liquid, eye unwashed; Rabbit No. 69-955, 2.6 kg.	Iris: Slight iritis from one through 72 hours. Cornea: Slight corneal opacity at one hour and from 24 through 72 hours; dull appearance at four hours.

Dose	Ocular Effects in Treated Eyes
	Conjunctivae: Moderate redness from one through 72 hours; moderate chemosis from one through four hours, slight from 24 through 72 hours; slight discharge from one through 72 hours.
	Fluorescein Examination: Positive at one and four hours and at seven days.

Summary Mixture No. 1 was evaluated for acute eye irritation. Eye irritation generally persisted through seven days and included slight to moderate conjunctival redness and chemosis, slight discharge, slight iritis, and slight corneal opacity. The test compound appeared to remain in one washed eye 48 hours after application. No significant difference in ocular effects was observed between washed and unwashed eyes.

Report By: Joan Novak

Approved By: G. Carl Holsing

G. CARL HOLSING, Ph.D.
Senior Research Coordinator
Toxicology Division

mtg

Date: April 11, 1969
Project No. 201-238

Copies to: A. B. Naselow (6)
J. A. Antonelli (1)
H. Fanning (1)

E. I. du Pont de Nemours and Company
Haskell Laboratory for Toxicology and Industrial Medicine

HASKELL LABORATORY REPORT NO. 120-69 MR NO. 1172

Materials Tested	System No.	Haskell No.	Other Codes
Experimental Polyurethane Enamel - Model 11	(1)		
Imron® 836 Enamel - Color Base		5931	836-0185
" " " - Activator		5932	VG-219
" " " - Dry Time Accelerator		5933	VH-218
" " " - Thinner		5934	39055
Experimental Polyurethane Enamel - Model 111-B	(2)		
" " " - Color Base - White		5935	
" " " - Activator - Clear		5936	9350-35C
" " " - Promotor		5937	
U. S. Paint Alumigrip Enamel - #2099	(3)		
" " " " - Color Base - Red		5938	AA-92-R-1
" " " " - Catalyst - Clear		5939	AA-92-C-S
Corlar® Epoxy Chemical Resistant Enamel	(4)		
" " " " " - Color Base - White		5940	823-8022
" " " " " - Activator - Clear		5941	VG-8339
" " " " " - Thinner		5942	T-3871
Flintflex® Moisture Cure Polyurethane	(5)		
" " " " - Topcoat - Clear		5943	RK-808
" " " " - Tinting Base - Blue		5944	29-8030

Materials Tested	System No.	Haskell No.	Other Codes
Experimental Polyurethane Enamel - Model 111-C	(6)		
" " " - Color Base - White		5945	
" " " - Activator - Clear		5946	9350-37
" " " - Promotor		5947	
Dulux® Enamel - 93-Line	(7)		
" " - Color Base - White		5948	183-508
" " - Thinner		5949	T-3810

Materials Submitted by: Herbert Fanning, Fabrics and Finishes Department, Marshall Laboratory

ONE-HOUR INHALATION TOXICITY TEST

Procedure: All test materials were mixed per instructions submitted with the samples and allowed to stand thirty (30) minutes prior to each exposure*. The material was metered, by syringe drive, to a stainless steel pneumatic spray system. Houseline air carried the resulting spray mist into a 16-liter bell jar containing six ChR-CD male rats of 255-267 grams initial body weight per exposure. Chamber concentration was on a nominal basis. There were two, one-hour exposures for each system. Gross and histopathologic examination was performed on two rats at each of one, seven and 14 days post-exposure.

Results:

System No.	Exposure No.	Nominal Concentration (mg/L)	Mortality Ratio	Clinical Signs
(1)	1	15.88	0/4	Mild irregular breathing; lacrimation; face-pawing; red ears; mild weight loss followed by normal weight gain

Results (Cont'd.):

System No.	Exposure No.	Nominal Concentration (mg/L)	Mortality Ratio	Clinical Signs
	2	28.95	0/4	Same as System No. (1)
(2)	3	18.46	0/4	Grooming; red ears; red-tinged discharge from eyes
	4	20.31	0/4	Same as above with mild irregular breathing
(6)	5	22.43	0/4	Lacrimation; mild irregular breathing; red-tinged discharge from eyes; mild weight loss followed by normal weight gain
	6	19.91	0/4	Same as above
(3)	7	22.20	0/4	Shallow respiration; lacrimation; face-pawing; grooming; mild weight loss followed by normal weight gain
	8	20.54	0/4	Same as above
(4)	9	17.19	0/4	Rapid shallow respiration; hypersensitive to sound and touch
	10	17.48	0/4	Same as above
(5)	11	19.16	0/4	Face-pawing; grooming; shallow respiration
	12	28.82	0/4	Same as above
(7)	13	16.42	0/4	1/4 rats convulsed from noise of high pressure air; shallow respiration; lacrimation
	14	19.19	0/4	Same as above except there were no convulsions

Pathology: Gross and histopathologic examination revealed that although the test material produced some discomfort during exposure there was no tissue† damage observed from one to 14 days post-exposure in any of the animals tested. Particles, probably representing the test material, were found in the lungs of almost all animals throughout the recovery period; however, not enough to make any comparison. Their location in lung cells was consistent with a normal reaction to biologically inert, insoluble materials. It appeared that these particles might remain in the lungs for a rather long time and would finally be eliminated without injury to the animal.

HLO- 80-69[4]

HAZLETON LABORATORIES, INCORPORATED
FINAL REPORT

Material Tested: Mixture No. 4
5940 - Enamel, white, epoxy 823-8022
5941 - Activator VG-8339
5942 - Thinner 3871

Haskell No.: 5940, 5941, 5942
MR-1172-1

Material Submitted By: Haskell Laboratories
E. I. du Pont de Nemours and Company, Inc.

Project No. 201-238

EYE IRRITATION TEST

Procedure

Preparation of Mixture: One part by volume of A (Haskell No. 5940) was mixed with one part B (Haskell No. 5941). The AB Mixture was allowed to stand one hour and was then thinned 10% with C (Haskell No. 5942) solvent.

Administration: Four albino rabbits weighing 2.1 to 2.6 kg. were used. A dose of 0.1 ml. of the liquid was placed into the left conjunctival sac of each rabbit. The treated eyes of two rabbits were washed for one minute with tap water 20 seconds after contact; the treated eyes of the other two rabbits were not washed. In all cases, the right eye of each rabbit served as an untreated control. Observations were made grossly at one and four hours and at one, two, three, and seven days. Eye irritation was graded and scored according to the numerical scoring system of Draize, J. H from the Appraisal of the Safety of Chemicals in Foods, Drugs, and Cosmetics, Assn. of Food and Drug Officials of the U. S., Austin, Texas, 1959. All treated eyes were examined with 2.0% sodium fluorescein stain at one and four hours and at seven days to detect any evidence of corneal damage.

Results

Dose	Ocular Effects in Treated Eyes
0.1 ml. liquid, eye washed; Rabbit No. 69-964, 2.3 kg.	Iris: Slight iritis from one through 72 hours. Cornea: Slight corneal opacity at one hour and from 48 through 72 hours; dull appearance at four and 24 hours.

Dose	Ocular Effects in Treated Eyes
	Conjunctivae: Moderate redness from one through 48 hours, slight at 72 hours; moderate to marked chemosis from one through 48 hours, slight at 72 hours; moderate discharge from one through four hours, slight from 24 through 48 hours. Fluorescein Examination: Positive at one and four hours; negative at seven days.
0.1 ml. liquid, eye washed; Rabbit No. 69-965, 2.5 kg.	Iris: Slight iritis from one through 48 hours; iris not visible at 72 hours or seven days. Cornea: Opacity not visible from one through 48 hours due to compound covering cornea; marked corneal opacity at 72 hours and at seven days; vascularization at seven days. Conjunctivae: Moderate to marked redness from one hour through seven days; slight chemosis at one hour, marked from four through 48 hours, moderate from 72 hours through seven days; slight discharge from one through four hours, moderate from 24 hours through seven days. Fluorescein Examination: Positive at one and four hours and at seven days.
0.1 ml. liquid, eye unwashed; Rabbit No. 69-966, 2.6 kg.	Iris: Slight iritis from one hour through seven days. Cornea: Opacity not visible from one hour through seven days due to compound covering cornea; vascularization at seven days. Conjunctivae: Moderate redness from one hour through seven days; moderate chemosis from one through four hours, slight from 24 through 72 hours; slight to moderate discharge from one hour through seven days. Fluorescein Examination: Positive at one and four hours and at seven days.

Dose	Ocular Effects in Treated Eyes
0.1 ml. liquid, eye unwashed; Rabbit No. 69-967, 2.1 kg.	Iris: Slight iritis from one hour through seven days. Cornea: Opacity not visible from one through 48 hours due to compound covering cornea; moderate corneal opacity from 72 hours through seven days; vascularization at seven days. Conjunctivae: Moderate to marked redness from one hour through seven days; moderate chemosis from one through four hours, slight from 24 through 72 hours; slight to moderate discharge from one hour through seven days. Fluorescein Examination: Positive at one and four hours and at seven days.

Summary Mixture No. 4 was evaluated for acute eye irritation. Eye irritation generally persisted through seven days and included slight iritis, slight to marked corneal opacity, corneal vascularization, moderate conjunctival redness, slight to marked chemosis, and slight to moderate discharge. The test material remained in three eyes through 48 hours. No significant difference in ocular effects was observed between washed and unwashed eyes.

Report By: Joan M. Novak

Approved By: G. Carl Holsing

G. CARL HOLSING, Ph.D.
Senior Research Coordinator
Toxicology Division

mtg

Date: April 11, 1969
Project No. 201-238

Discussion, Recommendations and Summary: The objective of these exposures was to evaluate and compa
and hazards involved in spraying the paint systems. The clinical and pathological results indicate
seven systems tested, there is nothing to suggest that any one is more or less acutely toxic than an
toxicity can only be determined by a more extensive inhalation study which would provide more defini
this preliminary examination.

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* System No. 4 allowed to stand one hour at 70°F per instructions.

† Tissues examined grossly were lung, liver, brain, spleen, kidney, testes, stomach, thymus, thyroid
bone marrow. Microscopic examination of skin, eye, and respiratory system only.

Report by: Rhoda M.
Rhoda M.
Inhalation Toxi

Approved by: Gordon J.
Gordon J
Assistant

RMB/jch
Date: May 8, 1969