

ORIGINAL

TSCA NON-CONFIDENTIAL BUSINESS INFORMATION

DOCUMENT DESCRIPTION	DOCUMENT CONTROL NUMBER	DATE RECEIVED
8EHQ-92-12319	89110000068	1/10/11

COMMENTS:

DOES NOT CONTAIN CBI

332262



PPG Industries

PPG Industries, Inc.
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Paul Malichky
Manager Regulatory and Emerging Issues

Contains No CBI

January 7, 2011

U.S. EPA
Office of Pollution Prevention and Toxics
Confidential Business Information Center (CBIC)
EPA East Building, Room 6428
1201 Constitution Avenue
Washington, DC 20004-3302
Attention: TSCA Declassification Coordinator

11 JAN 10 11:32

Subject: Declassification Activity-Health and Safety Filing
DCN#: 8EHQ-92-12319
Bar Code#: 88920010528

Dear Sir:

PPG Industries, Inc. (PPG) is re-submitting information on the results of a study titled "Eye Irritation to Rabbits from Exposure to 1PLY5345 Epoxy Primer" pursuant to the TSCA Section 8(e) Declassification Activity-Health and Safety Filing and in accordance with the terms outlined on the TSCA CBI Declassification Challenge website.

PPG had developed a chemical identified as 1PLY5345 Epoxy Primer. The composition of this material is listed in Attachment 1. The generic description of this material is "a complex mixture of epichlorohydrin-bisphenol A resin, strontium chromate, titanium dioxide, aluminum silicate, amorphous-gel silica, ethylene glycol monobutyl ether, heavy aromatic solvent naphtha, diethylene glycol monobutyl ether, propylene glycol monomethyl ether acetate, toluene, n-butoxy propanol, and polyester and urethane resins". The polyester resin used in this mixture was the subject of a polymer exemption Y-86-106 qualified by PPG. The study submitted describes the results of an Eye Irritation Study in Rabbits. The results of the study indicate that the tested material was a severe eye irritant based on a Draize score of 53.7.

PPG feels that the results of the Eye Irritation Study from Exposure to 1PLY5345 Epoxy Primer meet the criteria for submission under TSCA Section 8(e) described in the April 2, 1992 letter from Victor J. Kimm to Robert M. Sussman. This document provided clarification of EPA's

DCN#: 8EHQ-92-12319
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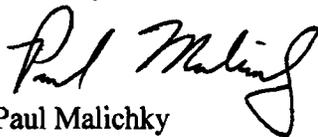


8 9 1 1 0 0 0 0 6 8

existing TSCA Section 8(e) reporting guidance pertaining to a wide variety of toxicological endpoints, among them Dermal and Eye Irritation studies. Exposure to the test material is minimized due to the fact that it is used only in an industrial setting by personnel utilizing appropriate personal protective equipment.

Should you have any technical questions concerning this submission, please contact Ms. Collette Pustay at 412-492-5411. I can be contacted at 412-492-5706 with any other questions concerning PPG's participation in the Declassification Activity-Health and Safety Filing.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Malichky". The signature is fluid and cursive, with the first name "Paul" and last name "Malichky" clearly distinguishable.

Paul Malichky
Manager Regulatory and Emerging Issues

DCN#: 8EHQ-92-12319
Bar Code#: 88920010528

ATTACHMENT 1

Composition of 1PLY5345

Polymer of 1,6-hexanediol with
2-ethyl-2-(hydroxymethyl)-1,3propanediol, hexanedioic acid,
1,3-benzenedicarboxylic acid and 1,4-benzenedicarboxylic acid (Y-86-106)
Strontium chromate Pigment (CAS# 7789-06-2)
Hydrous kaolin
Hydroxylated silicon dioxide (CAS# 7631-86-9)
Bentone 38 (CAS# 71011-27-3)
Phenol Formaldehyde Liquid Resin (CAS# 28470-78-2)
Poly butyl acrylate (CAS# 9003-49-0)
Dibutyl tin dilaurate (CAS# 77-58-7)
Imidodicarbonimidic diamide, N,N', 2-tris(6-isocyanatohexyl)-, homopolymer, Me,Et
ketoneoxime-blocked (CAS# 68583-90-4)
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)
oxirane (CAS# 25068-38-6)
Phosphoric acid, polymer with (chloromethyl) oxirane and 4,4'-(1-methylethylidene)
bis[phenol] (CAS# 67846-40-6)
n-butoxy propanol (CAS# 5131-66-8)
Xylene (CAS# 1330-20-7)
Methyl n-amyl ketone (CAS# 110-43-0)
Toluene (CAS# 108-88-3)
Propylene glycol monomethyl ether acetate (CAS# 108-65-6)
Diethylene glycol monobutyl ether (CAS# 112-34-5)
Heavy aromatic solvent naphtha (CAS# 64742-94-5)
Ethylene glycol monobutyl ether (CAS# 111-76-2)
Titanium dioxide (CAS# 13463-67-7)



ESC 89-10

PPG Industries, Inc. 260 Kappa Drive Pittsburgh, Pennsylvania 15238 (412) 963-5800

Environmental Sciences Center
Coatings and Resins

STUDY TITLE:

**EYE IRRITATION TO RABBITS FROM EXPOSURE TO
1PLY5345 EPOXY PRIMER**

DATA REQUIREMENT:

EPA 40 CFR Part 798

AUTHOR:

**Suzanne Hignet, B.S.
Study Director**

TECHNICAL WORK COMPLETED ON:

July 18, 1989

PERFORMING LABORATORY:

**PPG Industries, Inc.
Department of Toxicology
Environmental Sciences Center
260 Kappa Drive
Pittsburgh, Pennsylvania 15238**

LABORATORY PROJECT ID:

Project No. 89 - 10

ESC 89-10

STATEMENT OF COMPLIANCE
WITH GOOD LABORATORY PRACTICE

This study was conducted in accordance with the principles of Good Laboratory Practice Requirements set forth in 40 CFR Part 792. Minor deviations from these requirements are identified in the report but in no way affect the scientific integrity of the study.

Study Director: Suzanne Hignit Date 9/5/89

A statement attesting to compliance with Good Laboratory Practice requirements, signed by the Study Director, is found above.

Sponsor: Craig S. Zolnow Date 9/5/89

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ESC 89-10

1. QUALITY ASSURANCE STATEMENT

ESC Project No. 89-10

ESC Code No. S89-9

Study Title Eye Irritation Test in Rabbits From Exposure To

1PLY5345 EPOXY PRIMER

In compliance with EPA Good Laboratory Practice Regulations (40 CFR Part 792) this study was inspected by the ESC Quality Assurance Unit. Study phases inspected, dates of inspection and reporting dates are listed below. All reported results accurately reflect data collected during the study.

<u>Phase Inspected</u>	<u>Date(s) of Inspection</u>	<u>Date(s) of Report to Study Director and Management</u>
Protocol Review	6/21/89	6/21/89, 6/22/89
Pretreatment Scoring	6/27/89	6/27/89, 6/30/89
Raw Data/Final Report Review	8/23/89	8/23/89

Susan M. O'Connor 9/5/89 *
Susan M. O'Connor, B.S. Date
Supervisor of Quality Assurance

*Represents date final inspection findings reported to Management.

ii. STUDY PERSONNEL

Section Head - Acute Toxicology: H. Edwin Kennah, II, Ph.D.

Study Director: Suzanne Hignet, B.S.

Quality Assurance Supervisor: Susan O'Connor, B.S.

Section Head - Animal Husbandry: Daniel T. Kirkpatrick, Ph.D.

Animal Husbandry Supervisor: Charles White, AA, RLATg

Acute Toxicology: Jeffrey D. Dorko, B.S.

Technical Assistant: Daric McWilson

Necropsy Technician: Mark Lewis, B.S.

I. SUMMARY

Eye irritation testing was performed on IPLY5345 EPOXY PRIMER using EPA guidelines (40 CFR Part 798). A dose of 0.1 ml of the test substance was instilled into the conjunctival sac of one eye from each of six rabbits. The opposite eye served as a control. The eyes were examined at approximately 1, 24, 48 and 72 hours post-treatment as well as 8, 10, 14 and 21 days post-treatment (if irritation persisted). Corneal thicknesses using a Nikon slit-lamp pachometer were taken pretreatment and at each observation period except 1 hour post-treatment to determine corneal swelling.

The test substance was further ranked for ocular irritancy according to the Texaco single-digit toxicity classification system which is based upon the highest mean total Draize score and according to the highest percent corneal swelling calculated for an observation period during the initial 72-hour period. The highest mean total Draize score was 53.7 at 48 hours post-instillation and 279.2% corneal swelling was observed at 72 hours post-instillation. Therefore, the test substance is considered a severe eye irritant by the Draize system and a corrosive eye irritant by the corneal swelling system.

II. INTRODUCTION

A. OBJECTIVE

The purpose of this study was to investigate the ocular irritating properties of the test substance on rabbits. The ocular route of administration was chosen because it is a possible route of human exposure and is specified under EPA guidelines. Historically, the rabbit has been the preferred species for this test and is recommended by various regulatory agencies. In addition, a large body of data is available with this species which facilitates comparisons between substances and relative potency calculations.

B. TEST SUBSTANCE

Name: 1PLY5345 EPOXY PRIMER

ESC Code Number: S89-9

Chemical Composition: (Allison Park Chemical Analysis)

Solids	57.0%		
Solvents			
Solvesso 100	8.9%	Butyl Carbitol	9.9%
n-Butyl Acetate	1.5%	Propasol B	7.2%
Toluene	1.2%	Butyl CELLOSOLVE	8.9%
Isobutyl Isobutyrate	1.9%	Methyl Isobutyl	
Xylene	1.9%	Ketone	0.01%
Remainder of sample not identified in analysis			

Molecular Weight Profile

$M_N = 444$

$M_w = 4439$

$M_z = 16195$

Stability: Stable at room temperature.

Other Known Characteristics:

pH (paper) - not performed due to sample opacity.

pH (meter) - 6.5

Density = 1.20 g/ml

Reactivity with polyethylene sheeting - negative

Test Substance Storage: Stored at room temperature in Room R-152. At the time of receipt a reserve sample and a sample for chemical analysis were removed. The reserve sample is stored at room temperature in Room R-152.

III. METHODS

A. TEST SYSTEM DESCRIPTION

Species: Rabbit
(Oryctolagus cuniculus)

Strain: New Zealand White

Sex and Number: 6 males

Age at Treatment Initiation: 11 weeks

Source of Supply: Hazelton Research Products, Inc., Denver, PA

Animal Identification: Unique number, identified by eartag and cage card

Quarantine Period: A one week period after receipt during which time the animals are weighed twice. They are checked at the last weighing for clinical signs of disease. General health assessment checks are made daily. Prior to release, the general health of the animals was determined by the Supervisor of Animal Husbandry, and any animal exhibiting disease symptoms or other conditions rendering them unsuitable for testing was euthanized.

B. ANIMAL HUSBANDRY

Feed: Purina Certified Rabbit Chow #5325, provided ad libitum. Each batch of feed is analyzed for contaminants by the manufacturer. Copies of the analysis results are on file at the Environmental Sciences Center.

Bedding: Deo-Sorb® paperboard cage pan liners containing Neomycin to control odor and generation of ammonia.

Caging: Stainless steel rabbit racks containing cages with wire mesh bottoms.

Number Of Animals Per Cage: One rabbit per cage.

Light/Dark Cycle: 12 hour light/dark cycle utilizing a 7 a.m. to 7 p.m. light cycle by automatic timer.

Cage/Rack/Hopper Change Schedule: Animals were provided with clean, sanitized cages, racks and hoppers at least every 12 - 16 days. The animals may be provided with clean housing or feeding equipment more often if necessary.

Watering System: Animals were provided water ad libitum (Fox Chapel Water Authority) through an automatic watering system. Potable water is charcoal filtered and rechlorinated prior to distribution to the animals. Water is analyzed semi-annually for contaminants, and results of these analyses are on file at the Environmental Sciences Center.

Temperature Range: 16° to 21°C, continuously monitored.

Humidity Range: 40% to 60%, continuously monitored.

Housing: Only a single species was housed per animal room. Animal rooms were cleaned and sanitized prior to and periodically during the housing of animals.

C. STUDY SCHEDULE

Sample Receipt Date - June 5, 1989
Animal Receipt Date - June 20, 1989
Treatment Initiation Date - June 27, 1989
Study Termination Date - July 18, 1989

D. TEST PROCEDURE

The animals were weighed on the day of dosing before checking the eyes for irritation. Both eyes of each animal were examined visually for defects or irritation and were flushed with ophthalmic fluorescein solution at least one hour but not more than 24 hours before testing. The animals were assigned sequentially for testing, and only rabbits with eyes free of defects were assigned to the study. Corneal thickness measurements were determined on the eyes to be treated using a Nikon slit-lamp pachometer.

Six animals were dosed per test group. The left eye of each animal was dosed with 0.1 ml of the sample undiluted. The right eye was untreated and served as a control.

The eyes were examined and scored for irritation at 1, 24, 48 and 72 hours and 8, 10, 14 and 21 days post-treatment (if irritation persisted). The eyes were examined visually for excessive discharge, conjunctival swelling and redness, iritis and degree of corneal opacity. Additionally, the eyes were examined with ophthalmic fluorescein solution (except at 1 hour post-treatment) to determine the area of corneal opacity. Corneal thickness measurements were also determined at each of these observation periods except at 1 hour post-treatment.

IV. RESULTS

TABLE 1

PPG INDUSTRIES, INC. - ENVIRONMENTAL SCIENCES CENTER
 EYE IRRITATION - DRAIZE SCORING
 (3 DAY MINIMUM OBSERVATION)

TEST SUBSTANCE: 1PLY5345 EPOXY PRIMER
 DOSE: 0.1 ML
 DATE DOSE ADMINISTERED: JUNE 27, 1989
 NZW RABBITS

ESC PROJECT NUMBER: 89-10

TIME DOSED: 1:29 - 1:31 PM

Animal Number	Sex	Total Score	CONJUNCTIVAE (1)												IRIS (2)				CORNEA (3)										
			Discharge				Chemosis				Redness				Iritis				Opacity			Area Involved							
			(A)	(B)	(C)	(D)	(E)	(F)	(A)	(B)	(C)	(D)	(E)	(F)	(A)	(B)	(C)	(D)	(E)	(F)									
89L-0226	M	22	39	32	30	2	2	1	0	2	3	2	2	2	2	3	3	1	1	1	1	1	2	3	3	1	2	1	1
89L-0227	M	39	49	35	18	2	2	1	0	3	3	2	2	2	2	2	2	1	1	1	0	2	2	2	2	2	3	2	1
89L-0228	M	59	49	35	16	2	2	1	0	3	3	2	1	2	2	2	2	1	1	1	0	2	3	2	2	4	2	2	1
89L-0229	M	57	64	82	35	2	2	1	1	2	3	2	2	2	2	3	2	1	1	2	1	2	3	3	2	4	3	4	2
89L-0230	M	29	29	54	47	2	2	2	1	3	3	2	2	2	2	3	3	1	1	2	1	2	2	3	3	1	1	2	2
89L-0231	M	59	86	84	79	2	2	2	2	3	3	2	3	2	3	3	2	1	2	2	1	2	3	3	3	4	4	4	4
AVERAGE		44.2	52.7	53.7	37.5																								

DATE & TIMED SCORED: 1 HR: 6/27/89 2:26 PM 24 HRS: 6/28/89 1:48 PM 48 HRS: 6/29/89 1:15 PM 72 HRS: 6/30/89 1:32 PM

Animal Number	Sex	Total Score	CONJUNCTIVAE (1)												IRIS (2)				CORNEA (3)										
			Discharge				Chemosis				Redness				Iritis				Opacity			Area Involved							
			(A)	(B)	(C)	(D)	(E)	(F)	(A)	(B)	(C)	(D)	(E)	(F)	(A)	(B)	(C)	(D)	(E)	(F)									
89L-0226	M	2	2	0	-	0	0	0	-	0	0	0	-	1	1	0	-	0	0	0	-	0	0	0	-	0	0	0	-
89L-0227	M	2	2	0	-	0	0	0	-	0	0	0	-	1	1	0	-	0	0	0	-	0	0	0	-	0	0	0	-
89L-0228	M	2	0	-	-	0	0	-	-	0	0	-	-	1	0	-	-	0	0	-	-	0	0	-	-	0	0	-	-
89L-0229	M	2	2	0	-	0	0	0	-	0	0	0	-	1	1	0	-	0	0	0	-	0	0	0	-	0	0	0	-
89L-0230	M	2	2	2	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
89L-0231	M	12	4	7	2	0	0	0	0	0	1	0	0	1	1	1	1	0	0	0	0	2	0	1	0	1	0	1	0

DATE & TIMED SCORED: 8 DAYS: 7/5/89 1:24 PM 10 DAYS: 7/7/89 12:55 PM 14 DAYS: 7/11/89 12:55 PM 21 DAYS: 7/18/89 1:26 PM

COMMENTS:

TOTAL SCORE:
 1 CONJUNCTIVAE (A+B+C)*2 (20 MAXIMUM)
 2 IRIS C*5 (10 MAXIMUM)
 3 CORNEA (D*E)*5 (80 MAXIMUM)

CODE LEGEND:
 P = PANNUS
 K = KERATOCONUS
 S = SANGUINOUS DISCHARGE

(-) = Draize score indicates eye completely healed at a previous observation period. Therefore, Draize observations were not performed.

NOTE: All control eyes are used as a reference control and are assumed to have a score of zero unless otherwise noted under the comments. The left eye is dosed, the right eye serves as a control.

TABLE 2

PPG INDUSTRIES, INC. - ENVIRONMENTAL SCIENCES CENTER
EYE IRRITATION - CORNEAL SWELLING CALCULATIONS

N2W RABBITS

Animal Number	Mean Corneal Thickness Measurements (mm)								(Days)	XSwelling						
	0	1	2	3	8	10	14	21		1	2	3	8	10	14	21
89L-0226	0.22	0.36	0.87	0.99	0.38	0.34	0.30	-		163.6	395.5	450.0	172.7	154.5	136.4	
89L-0227	0.29	0.49	0.39	0.62	0.36	0.33	0.34	-		169.0	134.5	213.8	124.1	113.8	117.2	
89L-0228	0.23	0.49	0.32	0.45	0.26	0.29	-	-		213.0	139.1	195.7	113.0	126.1		
89L-0229	0.24	0.58	0.67	0.54	0.32	0.28	0.29	-		241.7	279.2	225.0	133.3	116.7	120.8	
89L-0230	0.24	0.37	0.39	0.50	0.32	0.33	0.30	0.31		154.2	162.5	208.3	133.3	137.5	125.0	129.2
89L-0231	0.28	0.54	0.86	1.07	0.41	0.37	0.38	0.30		192.9	307.1	382.1	146.4	132.1	135.7	107.1
AVERAGE:										189.1	236.3	279.2	137.2	130.1		
(3 DAYS)										234.8						

SCORING CALCULATIONS:

Mean corneal thickness is the average of three individual measurements.

$$\% \text{ Swelling} = \frac{\text{Post-treatment Thickness}}{\text{Pre-treatment Thickness}} \times 100\%$$

(-) = indicate eye completely healed at a previous observation period. Therefore, corneal swelling observations were not performed.

TABLE 3

Animal Body Weights in gms
Study Number: 89-10E1

RABBIT/NEW ZEALAND WHITE		Study Start Date: 27-Jun-89	ACUTE EYE IRRITATION/EYE IRRITATION TSCA	
Group/ Animal Subgroup		Day of Study		
		1		
		Male	Animals	
89L-0226	1/1		2238.0	
89L-0227	1/1		2228.0	
89L-0228	1/1		2342.0	
89L-0229	1/1		2190.0	
89L-0230	1/1		2296.0	
89L-0231	1/1		2342.0	
	(N)		6	
	Means		2272.7	
	Sdevs		63.5	

CODE LEGEND:
GROUP 1 = 0.1 ML DOSE

V. CONCLUSIONS

The test substance is ranked for ocular irritancy according to the Texaco classification system* which is based upon the highest mean total Draize score and according to the highest percent corneal swelling calculated for an observation period:

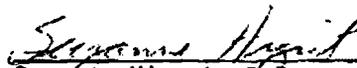
<u>Draize Score</u>	<u>% Corneal Swelling</u>	<u>Eye Irritancy Rank</u>
0	0	Nonirritating
>0 - 15	>0 - 119	Very Mild
16 - 25	120 - 136	Mild
26 - 50	137 - 180	Moderate
51 - 80	181 - 232	Severe
>80	>232	Corrosive

The highest mean total Draize score was 53.7 at 48 hours post-instillation and 279.2% corneal swelling was observed at 72 hours post-instillation. Therefore the test substance is considered a severe eye irritant by the Draize system and a corrosive eye irritant by the corneal swelling system.

*DeSousa, D. J., Rouse, A. A. and Smolon, W. J., Statistical Consequences of Reducing the Number of Rabbits Utilized in Eye Irritation Testing: Data on 67 Petrochemicals, Toxicol. Appl. Pharmacol. 76, 234-242 (1984).

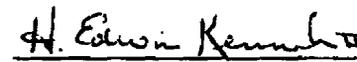
ESC 89-10

All records, specimens and samples required to assure compliance with Good Laboratory Practice Regulations will be maintained for at least the time period specified in the regulations (40 CFR Part 792). These will include, but not be limited to, all raw data, documentation, protocols, reports, summaries of personnel training and records and reports of equipment maintenance, calibration and inspection. Records will be maintained in the Environmental Sciences Center Toxicology Archives.



Suzanne Hignet, B.S.
Study Director

9/5/89
Date



H. Edwin Kennah, II, Ph.D.
Section Head

9/5/89
Date



Craig Se Barrow, Ph.D., DABT
Manager of Toxicology

9/5/89
Date

ESC 89-10

Appendix A
Study Protocol/Amendments/Deviations

PPG INDUSTRIES, INC. (PPG1 AREA)
ESC
260 KAPPA DRIVE
PITTSBURGH, P.A. 15238

Protocol PPG-8918
Study number: 89-10E1

Printed: 23-Jun-89
Page: 1

1 - STUDY TITLE

EYE IRRITATION TEST IN RABBITS
(EPA 40 CFR PART 798.4500)

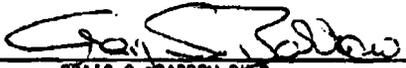
GLP COMPLIANCE: THE STUDY WILL BE PERFORMED IN ACCORDANCE WITH
GLP REQUIREMENTS (40 CFR PART 792).

1.1 PURPOSE OF STUDY:

TO EVALUATE THE POTENTIAL OF THE TEST SUBSTANCE TO PRODUCE EYE
IRRITATION IN RABBITS.

1.2 SPONSOR:

PPG INDUSTRIES, INC.
ENVIRONMENTAL SCIENCES CENTER
260 KAPPA DRIVE
PITTSBURGH, PA. 15238

SPONSOR: 
CRAIG S. BARROW, PH.D.
MANAGER OF TOXICOLOGY

DATE: 6/23/89

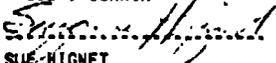
1.3 TEST FACILITY:

TEST FACILITY: PPG INDUSTRIES, INC.
ENVIRONMENTAL SCIENCES CENTER
260 KAPPA DRIVE
PITTSBURGH, P.A. 15238

2 - STUDY PERSONNEL

2.1 Q.A. REPRESENTATIVE:  DATE: Thu. 22-Jun-89

SUE O'CONNOR

2.2 STUDY DIRECTOR:  DATE: Fri. 23-Jun-89

SUE HIGNET

2.3 SECTION HEAD-ACUTE TOXICOLOGY ED KENNAH
SECTION HEAD-ANIMAL HUSBANDRY DANIEL KIRKPATRICK
ANIMAL HUSBANDRY SUPERVISOR CHARLIE WHITE
ACUTE TOXICOLOGY JEFF DORKO
TECHNICAL ASSISTANT DARIC MCWILSON

PPG INDUSTRIES, INC. (PPG1 AREA)
ESC
260 KAPPA DRIVE
PITTSBURGH, P.A. 15238

Protocol PPG-8918
Study number: 89-10E1

Printed: 23-Jun-89
Page: 2

NECROPSY TECHNICIAN

MARK LEWIS

3 - PROPOSED DATES:

STUDY START DATE: - - - - - Tue. 27-Jun-89
STUDY COMPLETION DATE: - - - - - Tue. 18-Jul-89

3.1 SACRIFICE DATES:

FINAL SACRIFICE: Tue. 18-Jul-89 NO. DAYS: 1

3.2 ADDITIONAL SCHEDULE INFORMATION:

4 - STUDY TYPE AND SPECIES

4.1 STUDY TYPE: ACUTE EYE IRRITATION EYE IRRITATION TSCA

4.2 SPECIES: - - - - - RABBIT
STRAIN: - - - - - NEW ZEALAND WHITE
WEIGHT: - - - - - 2.0 TO 3.0 KG.
AGE: - - - - - 9 TO 16 WEEKS
METHOD OF IDENTIFICATION: - - - - - EAR TAG & CAGE CARD
ANIMAL RECEIPT DATE: - - - - - Tue. 20-Jun-89

4.3 SUPPLIER: HAZELTON RESEARCH PRODUCTS, INC ; DENVER, PA

4.4 THE RABBIT IS THE MODEL SPECIFIED AND PREFERRED BY THE EPA TO EVALUATE EYE IRRITATION. IT HAS BEEN USED EXTENSIVELY FOR SUCH STUDIES AND, CONSEQUENTLY, A LARGE BODY OF DATA IS AVAILABLE FOR REFERENCE PURPOSES.

5 - NUMBER OF ANIMALS ON STUDY:

PRETEST: 40 # MALES: 40 # FEMALES:
STUDY: 6 # MALES: 6 # FEMALES:

5.1 Number of Animals Per Group

Group 1
Males 6

5.2 Study animal prefix / accession number: 89L- / 219

6 - TEST ARTICLE DESCRIPTIONS

6.1 TEST ARTICLE DATA

1PLY5345
SPONSOR'S CODE: - - - - - 1PLY5345
TEST ARTICLE IDENTIFICATION: - - - - - S89-9
EXPANDER NAME: - - - - - EPOXY PRIMER
DESCRIPTION (PHYSICAL STATE): - - - - - LIQUID
RESERVE SAMPLE REQUIRED: - - - - - Yes
RESPONSIBLE DEPARTMENT: - - - - - ACUTE TOXICOLOGY DEPARTMENT

6.1.1 IDENTIFICATION AND PREPARATION INFORMATION:

- THE TEST SUBSTANCE IS STORED AT ROOM TEMPERATURE IN CHEMICAL STORAGE CABINETS IN ROOM 152-B.
- BEFORE EYE TESTING, THE pH OF THE TEST SUBSTANCE IS DETERMINED. STRONGLY ACIDIC (pH \leq 2.0) OR ALKALINE SUBSTANCES (pH \geq 11.5) ARE NOT TESTED IN THE EYE, OWING TO THEIR PREDICTABLE CORROSIVE PROPERTIES.
- THE LIQUID TEST SUBSTANCE IS DOSED UNDILUTED.

6.1.2 STABILITY INFORMATION:

THE TEST SUBSTANCE IS STABLE AT ROOM TEMPERATURE.

6.1.3 DOSING/EXPOSURE PROCEDURES:

THE UNDILUTED SAMPLE IS DOSED INTO THE LEFT RABBIT EYE AND THE RIGHT EYE SERVES AS A CONTROL (SEE SOP 03-003).

SODIUM FLUORESCEIN STAIN IS UTILIZED AT ALL SCORING EXAMINATION PERIODS, EXCEPT THE ONE HOUR POST-TREATMENT PERIOD, TO DETERMINE THE AREA OF CORNEAL OPACITY (SEE SOP 03-001).

THE DAY 1 OBSERVATION IS ACTUALLY PERFORMED AT ONE HOUR POST-TREATMENT.

6.1.4 EXPOSURE DOSE/CONCENTRATION INFORMATION:

THE DOSE CONSISTS OF 0.1 ML OF THE UNDILUTED TEST SUBSTANCE.

6.1.5 SAFETY PRECAUTIONS AND PROCEDURES:

- PERSONAL SAFETY EQUIPMENT (I.E. GLOVES, RESPIRATORS, SAFETY GLASSES, ETC.) IS USED TO PREVENT ACCIDENTAL CONTACT WITH THE TEST SUBSTANCE. DISPOSABLE CONTAMINATED EQUIPMENT IS INCINERATED OR DISPOSED OF IN APPROPRIATE SOLID WASTE CONTAINERS.
- ALL WORK WITH THE TEST SUBSTANCE IS PERFORMED IN AREAS OF ADEQUATE VENTILATION OR IN VENTILATED HOODS TO ENSURE PERSONNEL SAFETY.
- ANY ADDITIONAL TEST SUBSTANCE THAT REMAINS AFTER TESTING IS DISPOSED OF IN A MANNER THAT COMPLIES WITH PERTINENT TOXIC WASTE REGULATIONS AND THE ESC HEALTH AND SAFETY SOP'S (SEE SOP 01-056).

6.1.6 ADDITIONAL INFORMATION:

CONDITIONS TO MAINTAIN STABILITY: THE TEST SUBSTANCE IS STABLE AT ROOM TEMPERATURE AND WILL BE STORED UNDER THIS CONDITION IN ROOM R-152B.

6.1.7 ADMINISTRATION

METHOD: - - - - - OCULAR INSTILLATION
SITE: - - - - - LEFT EYE
FREQUENCY OF DOSING (TIMES PER DAY): - - - - 1

7 - CONTROL ARTICLE DESCRIPTIONS

Not Applicable

8 - TREATMENT GROUPS and DOSAGES

8.1 Doses

Group No.	No.	Group	Sex	Dosage in ML.	
				* Articles	A
1	6	M		0.100	

* Article codes: A=1PLY5345

9 - DIET INFORMATION:

BRAND OF DIET: - - - - - PURINA RABBIT CHOW
PHYSICAL FORM OF DIET: - - - - - CERTIFIED PELLETS
AVAILABILITY OF DIET: - - - - - AD-LIB
SOURCE OF DRINKING WATER: - - - - - FOX CHAPEL WATER AU.
AVAILABILITY OF WATER: - - - - - AD-LIB

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WATER DISTRIBUTION SYSTEM: - - - - - AUTO WATERING SYSTEM

9.1 ADDITIONAL DIET INFORMATION

10 - ENVIRONMENTAL CONDITIONS:

CONDITIONING PERIOD IN DAYS (MINIMUM): - - - 7
 NUMBER ANIMALS/CAGE (PRETEST): - - - - - 1
 NUMBER ANIMALS/CAGE (TEST): - - - - - 1
 CAGE TYPE AND SIZE: - - - - - 46X61X41(MIN)/SOP D2-D10
 ANIMAL ROOM NUMBERS: - - - - - R-127 R-138
 ROOM TEMPERATURE: - - - - - 16 TO 21 DEGREES C.
 RELATIVE HUMIDITY: - - - - - 40.0 TO 60.0 PERCENT
 ROOM LIGHTS ON: - - - - - 7:00 TO 19:00 HOURS

10.1 ADDITIONAL ENVIRONMENTAL INFORMATION

11 - LABORATORY DETERMINATIONS and SCHEDULES

11.1 ANIMAL ROOM FUNCTIONS

11.1.1 WEIGHING FUNCTIONS

SOP Number: SOP 01-019

Abv	Parameter	Units	Parameter range Limits				#
			Male Low	Male High	Female Low	Female High	
BW	BODY WEIGHTS	GRAMS	1.0000	*****	1.0000	*****	-

Scheduled Pretest Days: none

Scheduled Study Days
 1

11.1.2 CLINICAL OBSERVATIONS

SOP Number: SOP 01-043

Abv Parameter

 CO CLINICAL OBSERVATIONS

Scheduled Pretest Days: none

Scheduled Study Days
 1

11.2 GENERALIZED NUMERICAL DATA FUNCT.S

11.2.1 CORNEAL + DRAIZE STUDIES

SOP Number: SOP 03-002

Abv	Parameter	Units	Parameter range limits				# Dec Pts
			Male Low	Male High	Female Low	Female High	
DSCH	DISCHARGE		0.0000	0.0000	0.0000	0.0000	0
CHEM	CHEMOSIS		0.0000	0.0000	0.0000	0.0000	0
RED	REDNESS		0.0000	0.0000	0.0000	0.0000	0
IRIS	IRITIS		0.0000	0.0000	0.0000	0.0000	0
OPAC	OPACITY		0.0000	0.0000	0.0000	0.0000	0
AREA	AREA INVOLVED		0.0000	0.0000	0.0000	0.0000	0
CS1	CORNEAL SWELLING 1		0.0000	0.0000	0.0000	0.0000	1
CS2	CORNEAL SWELLING 2		0.0000	0.0000	0.0000	0.0000	1
CS3	CORNEAL SWELLING 3		0.0000	0.0000	0.0000	0.0000	1
P	PANNUS		0.0000	1.0000	0.0000	1.0000	0
K	KERATOCONUS		0.0000	1.0000	0.0000	1.0000	0
S	SANGUINOUS DISCHARGE		0.0000	1.0000	0.0000	1.0000	0

Scheduled Pretest Days: none

Scheduled Study Days

1 2 3 4 9 11 15 22

11.3 ACUTE TOXICITY FUNCTIONS

11.3.1 OCULAR IRRITATION SCORING

SOP Number: 03-002

Abv	Observation category	Scoring component	Grd	Wgt	CSC
CONJ	CONJUNCTIVAL INJURY	(A)-DISCHARGE	3	2	0
		(B)-CHEMOSIS	"	"	"
		(C)-REDNESS	"	"	"
IRIS	IRIDIAL INJURY	(A)-IRITIS	1	5	1
CORN	CORNEAL INJURY	(A)-OPACITY	2	5	1
		(B)-AREA INVOLVED	"	"	"
		(C)-	"	"	"

Note: Grd = Maximum grade level; Wgt = Category weight
 CSC = Component scoring calculation
 CSC = 0 -> (A+B+C+D)*Wgt; CSC = 1 -> (A*B*C*D)*Wgt
 = 2 -> (A+B+C+D)/Wgt; = 3 -> (A*B*C*D)/Wgt

Study schedule in days:

1 2 3 4 9 11 15 22

11.3.2 Site Descriptions

Site#	#Observ.	Init.	test period	Site description	Abradec
1	8		1	LEFT EYE	N

11.4 Necropsy Procedures

Grace days: - - - - - [0, +0]
METHOD OF SACRIFICE: - - - - - NECROPSY SOP: 06-001
ANESTHETIC: - - - - - EUTHANASIA-D SPECIAL
RANDOMIZATION ALGORITHM FOR SACRIFICES: - - No
SKIP UNSCHEDULED DEAD DURING SELECTION: - - No
SELECT ANIMALS FROM TOP OF GROUPS: - - - - Yes
AT FINAL, SACRIFICE ALL REMAINING ANIMALS: - Yes

11.4.1 FINAL SACRIFICE STARTING ON Tue. 18-Jul-89

11.4.2 Organs to Weigh None

11.4.3 Tissues to Collect

AT ABNORMAL TISSUES

12 - STATISTICAL TESTS FOR STUDY:

-THE G-MODULE SELECTION #4, DRAIZE-EYE, WILL BE UTILIZED TO CALCULATE THE DRAIZE EYE AND % CORNEAL SWELLING SCORING, AS WELL AS GENERATE THE FINAL REPORT FORM (SEE SOP 03-004).

13 - ADDITIONAL RECORDS TO BE MAINTAINED:

-ALL RECORDS, SAMPLES, AND SPECIMENS WILL BE MAINTAINED IN COMPLIANCE WITH GLP REGULATIONS FOR THE SPECIFIED TIME PERIODS. THIS INCLUDES AT LEAST: RAW DATA, DOCUMENTATION, PROTOCOLS, REPORTS, SUMMARIES OF PERSONNEL TRAINING, EQUIPMENT RECORDS AND CALIBRATIONS (SEE SOP 01-009).

-RECORDS WILL BE MAINTAINED IN THE ESC TOXICOLOGY ARCHIVES.

PATHTOX DATA COLLECTION: EYE SCORING, BODY WEIGHTS, CLINICAL OBSERVATIONS, AND NECROPSY DATA WILL BE COLLECTED ONTO PATHTOX. ALL OTHER DATA, INCLUDING QUARANTINE BODY WEIGHTS (AT LEAST 2), DAILY HEALTH ASSESSMENTS, AND CLINICAL OBSERVATIONS (AT LEAST ONE, SEE SOP 01-043) WILL BE MANUALLY COLLECTED.

14 - SPECIAL INSTRUCTIONS/ADDITIONAL INFORMATION

14.1 SPECIAL INSTRUCTIONS

- RAW DATA AND AUDIT TRAILS WILL BE PRINTED DAILY AND KEPT IN ROOM R-138.
- SEE THE FOLLOWING SOP'S FOR ADDITIONAL INFORMATION: 03-001, 03-002, 03-003, 03-004, 03-025, 01-009, 01-056.
- ONLY THOSE EYES WITH PERSISTING IRRITATION AFTER DAY 4 OBSERVATIONS ARE EXAMINED AT THE SUBSEQUENT INTERVALS.

14.2 ADDITIONAL DOSING INFORMATION

- IF AN IRRITATED EYE HEALS COMPLETELY WITHIN 14 DAYS POST-TREATMENT, THEN THE ANIMAL CAN BE USED ON A DERMAL TEST (I.E. EITHER SKIN IRRITATION OR SKIN PENETRATION, BUT NOT BOTH). IF IRRITATION PERSISTS TO 21 DAYS POST-TREATMENT, THEN THE ANIMAL IS EUTHANIZED AFTER THE OBSERVATIONS ARE RECORDED AT 21 DAYS. THE DISPOSITION OF THE ANIMALS WILL BE DOCUMENTED IN THE RAW DATA.

14.3 ADDITIONAL A-MODULE SCHEDULING INFORMATION

- BODY WEIGHT DATA FOR DAY 1 WILL BE MANUALLY COLLECTED AND KEY ENTERED INTO PATHTOX FOLLOWING THE PRE-DOSING SCREENS FOR EYE IRRITATION.

14.4 ADDITIONAL INFORMATION

- THE TEST SUBSTANCE IS RANKED FOR OCULAR IRRITANCY BY THE FOLLOWING CLASSIFICATION SYSTEM USING THE HIGHEST MEAN DRAIZE SCORE AND THE HIGHEST % CORNEAL SWELLING SCORE FOR ANY OBSERVATION PERIOD.

EYE IRRITATION RANK	MEAN DRAIZE SCORE	% CORNEAL SWELLING
NON IRRITATING	0	0
VERY MILD	>0-15	>0-119
MILD	16-25	120-136
MODERATE	26-50	137-180
SEVERE	51-80	181-232
CORROSIVE	>80	>232

SOP Number: 01-005

Attachment 1
PPG Industries, Inc. - Environmental Sciences Center
PROTOCOL CHANGE FORM

Change Form Number: 1

ESC Project Number: 89-10 EI ESC Code Number: 589-9

Study Title: Eye Irritation Test in Rabbits

Change to be Documented: (check one)

Amendment () Clarification () Deviation () Path/Tox Protocol Amendment ()
(Please Attach)

Date or Period of Change: See amendments

Protocol Section(s) Changed 6.1.3, 13, 14.2, 14.3

CHANGE MADE: (N/A for Path/Tox Protocol Amendment)

REASON FOR CHANGE: (N/A for Path/Tox Protocol Amendment)

No. of Pages attached (if applicable) 3

Sponsor Notified: Phone () Letter () N/A ()

Notification Date: _____

Approvals:	<u>Signature</u>	<u>Date</u>
Study Director:	<u>Suzanne Hyatt</u>	<u>6/30/89</u>
QA Specialist:	<u>Susan M. O'Connell</u>	<u>6/30/89</u>

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ESC
260 KAPPA DRIVE
PITTSBURGH, P.A. 15238

Protocol PPG-8918
Study number: 89-10E1

Printed: 30-Jun-89
Page: 1

15 - Protocol amendments:

15.1 Date: 30-Jun-89 Approved by: SUE HIGNET

Reason: PROTOCOL CLARIFICATION OF DAY 1 EYE SCORING DATA.

15 - TEST ARTICLE DESCRIPTIONS

TEST ARTICLE DATA

1PLY5345
SPONSOR'S CODE: - - - - - 1PLY5345
TEST ARTICLE IDENTIFICATION: - - - - - S89-9
EXPANDER NAME: - - - - - EPOXY PRIMER
DESCRIPTION (PHYSICAL STATE): - - - - - LIQUID
RESERVE SAMPLE REQUIRED: - - - - - Yes
RESPONSIBLE DEPARTMENT: - - - - - ACUTE TOXICOLOGY DEPARTMENT

IDENTIFICATION AND PREPARATION INFORMATION:

- THE TEST SUBSTANCE IS STORED AT ROOM TEMPERATURE IN CHEMICAL STORAGE CABINETS IN ROOM 152-B.
- BEFORE EYE TESTING, THE pH OF THE TEST SUBSTANCE IS DETERMINED. STRONGLY ACIDIC (pH \leq 2.0) OR ALKALINE SUBSTANCES (pH \geq 11.5) ARE NOT TESTED IN THE EYE, OWING TO THEIR PREDICTABLE CORROSIVE PROPERTIES.
- THE LIQUID TEST SUBSTANCE IS DOSED UNDILUTED.

STABILITY INFORMATION:

THE TEST SUBSTANCE IS STABLE AT ROOM TEMPERATURE.

DOSING/EXPOSURE PROCEDURES:

THE UNDILUTED SAMPLE IS DOSED INTO THE LEFT RABBIT EYE AND THE RIGHT EYE SERVES AS A CONTROL (SEE SOP 03-003).

SCOTILM FLUORESCIN STAIN IS UTILIZED AT ALL SCORING EXAMINATION PERIODS, EXCEPT THE ONE HOUR POST-TREATMENT PERIOD, TO DETERMINE THE AREA OF CORNEAL OPACITY (SEE SOP 03-001).

THE SCORING OBSERVATION LISTED AS BEING PERFORMED ON DAY 1 IS THE PRETREATMENT CORNEAL SWELLING DATA AND THE 1 HOUR POST-TREATMENT DRAIZE SCORING DATA.

EXPOSURE DOSE/CONCENTRATION INFORMATION:

THE DOSE CONSISTS OF 0.1 ML OF THE UNDILUTED TEST SUBSTANCE.

SAFETY PRECAUTIONS AND PROCEDURES:

- PERSONAL SAFETY EQUIPMENT (I.E. GLOVES, RESPIRATORS, SAFETY GLASSES, ETC.) IS USED TO PREVENT ACCIDENTAL CONTACT WITH THE TEST SUBSTANCE. DISPOSABLE CONTAMINATED EQUIPMENT IS INCINERATED OR DISPOSED OF IN APPROPRIATE SOLID WASTE CONTAINERS.
- ALL WORK WITH THE TEST SUBSTANCE IS PERFORMED IN AREAS OF ADEQUATE VENTILATION OR IN VENTILATED HOODS TO ENSURE PERSONNEL SAFETY.
- ANY ADDITIONAL TEST SUBSTANCE THAT REMAINS AFTER TESTING IS DISPOSED OF IN A MANNER THAT COMPLIES WITH PERTINENT TOXIC WASTE REGULATIONS AND THE ESC HEALTH AND SAFETY SOP'S (SEE SOP 01-056).

ADDITIONAL INFORMATION:

CONDITIONS TO MAINTAIN STABILITY: THE TEST SUBSTANCE IS STABLE AT ROOM TEMPERATURE AND WILL BE STORED UNDER THIS CONDITION IN ROOM R-152B.

ADMINISTRATION

METHOD: - - - - - OCLULAR INSTILLATION
SITE: - - - - - LEFT EYE
FREQUENCY OF DOSING (TIMES PER DAY): - - - - 1

15.2 Date: 30-Jun-89 Approved by: SUE HIGNET

Reason: PROTOCOL CLARIFICATION OF PATHTOX DATA COLLECTION.

ADDITIONAL RECORDS TO BE MAINTAINED:

- ALL RECORDS, SAMPLES, AND SPECIMENS WILL BE MAINTAINED IN COMPLIANCE WITH GLP REGULATIONS FOR THE SPECIFIED TIME PERIODS. THIS INCLUDES AT LEAST: RAW DATA, DOCUMENTATION, PROTOCOLS, REPORTS, SUMMARIES OF PERSONNEL TRAINING, EQUIPMENT RECORDS AND CALIBRATIONS (SEE SOP 01-009).
- RECORDS WILL BE MAINTAINED IN THE ESC TOXICOLOGY ARCHIVES.
- PATHTOX DATA COLLECTION: EYE SCORING (EXCEPT PRETREATMENT) AND NECROPSY DATA. DAY 1 BW/CO DATA WILL BE MANUALLY COLLECTED AND KEY-ENTERED INTO PATHTOX. ALL OTHER DATA, INCLUDING PRETREAT EYE SCORES, QUARANTINE BW (AT LEAST 2), DAILY HEALTH ASSESSMENTS AND CLIN OBS (AT LEAST 1/SOP 01-043) WILL BE MANUALLY COLLECTED.

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Protocol PPG-8918
Study number: 89-10E1

Printed: 30-Jun-89
Page: 3

15.3 Date: 30-Jun-89 Approved by: SUE HIGNET

Reason: PROTOCOL CLARIFICATION OF PATHTOX DATA COLLECTION.

SPECIAL INSTRUCTIONS/ADDITIONAL INFORMATION

SPECIAL INSTRUCTIONS

- RAW DATA AND AUDIT TRAILS WILL BE PRINTED DAILY AND KEPT IN ROOM R-138.
- SEE THE FOLLOWING SOP'S FOR ADDITIONAL INFORMATION: 03-001, 03-002, 03-003, 03-004, 03-025, 01-009, 01-056.
- ONLY THOSE EYES WITH PERSISTING IRRITATION AFTER DAY 4 OBSERVATIONS ARE EXAMINED AT THE SUBSEQUENT INTERVALS.

ADDITIONAL DOSING INFORMATION

- PRETREATMENT EYE IRRITATION SCORES WILL BE MANUALLY COLLECTED AND ARCHIVED IN NOTEBOOK 03-05.
- IF AN IRRITATED EYE HEALS COMPLETELY WITHIN 14 DAYS POST-TREATMENT, THEN THE ANIMAL CAN BE USED ON A DERMAL TEST (I.E. EITHER SKIN IRRITATION OR SKIN PENETRATION, BUT NOT BOTH). IF IRRITATION PERSISTS TO 21 DAYS POST-TREATMENT, THEN THE ANIMAL IS EUTHANIZED AFTER THE OBSERVATIONS ARE RECORDED AT 21 DAYS. THE DISPOSITION OF THE ANIMALS WILL BE DOCUMENTED IN THE RAW DATA.

ADDITIONAL A-MODULE SCHEDULING INFORMATION

BW/CO DATA FOR DAY 1 WILL BE MANUALLY COLLECTED AND KEY ENTERED INTO PATHTOX FOLLOWING THE PRE-DOSING SCREENS FOR EYE IRRITATION.

ADDITIONAL INFORMATION

THE TEST SUBSTANCE IS RANKED FOR OCULAR IRRITANCY BY THE FOLLOWING CLASSIFICATION SYSTEM USING THE HIGHEST MEAN DRAIZE SCORE AND THE HIGHEST % CORNEAL SWELLING SCORE FOR ANY OBSERVATION PERIOD.

EYE IRRITATION RANK	MEAN DRAIZE SCORE	% CORNEAL SWELLING
NON IRRITATING	0	0
VERY MILD	>0-15	>0-119
MILD	16-25	120-136
MODERATE	26-50	137-180
SEVERE	51-80	181-232
CORROSIVE	>80	>232

Sue A

SOP Number: 01-005

Attachment 1
PPG Industries, Inc. - Environmental Sciences Center
PROTOCOL CHANGE FORM

Change Form Number: 2

ESC Project Number: 89-10 ESC Code Number: 589-9

Study Title: Eye Irritation Test in Rabbits

Change to be Documented: (check one)

Amendment () Clarification () Deviation () Path/Tox Protocol Amendment ()
(Please Attach)

Date or Period of Change: See attached sheet

Protocol Section(s) Changed 10

CHANGE MADE: (N/A for Path/Tox Protocol Amendment)

See attached sheet

REASON FOR CHANGE: (N/A for Path/Tox Protocol Amendment)

Maintenance dep't unable to control room environment.

No. of Pages attached (if applicable) 1

Sponsor Notified: Phone () Letter () N/A ()

Notification Date: N/A

Approvals: Signature Date

Study Director: Suzanne Hignett 8/15/89

QA Specialist: Simon M. O'Connell 8/15/89

REPORT ON OUT OF RANGE ENVIRONMENTAL CONDITIONS

ROOM 127 HIGH HUMIDITY FROM 06/19/89*16:05 TO 06/21/89*07:33
 ROOM 127 HIGH TEMPERATURE FROM 06/21/89*13:42 TO 06/21/89*14:37
 ROOM 127 HIGH TEMPERATURE FROM 06/27/89*18:23 TO 06/27/89*19:08
 ROOM 127 HIGH TEMPERATURE FROM 06/28/89*06:30 TO 06/28/89*07:09
 ROOM 127 HIGH HUMIDITY FROM 06/21/89*07:33 TO 06/28/89*08:49
 ROOM 127 HIGH HUMIDITY FROM 06/28/89*09:02 TO 06/28/89*09:33
 ROOM 127 HIGH HUMIDITY FROM 06/28/89*10:17 TO 06/28/89*10:36
 ROOM 127 HIGH HUMIDITY FROM 06/28/89*11:08 TO 06/28/89*11:55
 ROOM 127 HIGH HUMIDITY FROM 06/28/89*18:17 TO 06/28/89*20:04
 ROOM 127 HIGH HUMIDITY FROM 06/28/89*20:05 TO 06/29/89*04:57
 ROOM 127 HIGH HUMIDITY FROM 06/29/89*05:41 TO 06/29/89*07:11
 ROOM 127 HIGH HUMIDITY FROM 06/29/89*07:48 TO 06/29/89*08:30
 ROOM 127 HIGH HUMIDITY FROM 06/29/89*20:04 TO 06/30/89*09:09
 ROOM 127 HIGH HUMIDITY FROM 06/30/89*09:32 TO 06/30/89*09:51
 ROOM 127 HIGH HUMIDITY FROM 06/30/89*10:44 TO 06/30/89*11:00
 ROOM 127 HIGH HUMIDITY FROM 06/30/89*20:44 TO 07/01/89*10:20
 ROOM 127 HIGH HUMIDITY FROM 07/01/89*18:25 TO 07/02/89*09:45
 ROOM 127 HIGH HUMIDITY FROM 07/02/89*10:11 TO 07/02/89*11:25
 ROOM 127 HIGH HUMIDITY FROM 07/02/89*11:48 TO 07/02/89*12:05
 ROOM 127 HIGH HUMIDITY FROM 07/02/89*13:12 TO 07/02/89*13:40
 ROOM 127 HIGH HUMIDITY FROM 07/02/89*13:46 TO 07/02/89*14:07
 ROOM 127 HIGH HUMIDITY FROM 07/02/89*16:52 TO 07/03/89*16:34
 ROOM 127 HIGH HUMIDITY FROM 07/03/89*16:45 TO 07/08/89*08:02
 ROOM 127 HIGH HUMIDITY FROM 07/08/89*16:11 TO 07/08/89*16:35
 ROOM 127 HIGH HUMIDITY FROM 07/08/89*17:57 TO 07/08/89*18:12
 ROOM 127 HIGH HUMIDITY FROM 07/08/89*18:18 TO 07/09/89*10:06
 ROOM 127 HIGH TEMPERATURE FROM 07/11/89*10:43 TO 07/11/89*11:03
 ROOM 127 HIGH HUMIDITY FROM 07/09/89*11:24 TO 07/11/89*17:22
 ROOM 127 HIGH HUMIDITY FROM 07/11/89*17:34 TO 07/11/89*17:57
 ROOM 127 HIGH HUMIDITY FROM 07/11/89*18:22 TO 07/11/89*21:22
 ROOM 127 HIGH HUMIDITY FROM 07/11/89*21:50 TO 07/13/89*16:34
 ROOM 127 HIGH HUMIDITY FROM 07/13/89*17:04 TO 07/13/89*18:57
 ROOM 127 HIGH HUMIDITY FROM 07/13/89*19:30 TO 07/13/89*20:49
 ROOM 127 HIGH HUMIDITY FROM 07/13/89*20:56 TO 07/13/89*21:59
 ROOM 127 HIGH HUMIDITY FROM 07/14/89*00:31 TO 07/14/89*11:11
 ROOM 127 HIGH HUMIDITY FROM 07/14/89*11:20 TO 07/14/89*12:19
 ROOM 127 HIGH HUMIDITY FROM 07/14/89*12:24 TO 07/14/89*12:48
 ROOM 127 HIGH HUMIDITY FROM 07/14/89*23:07 TO 07/14/89*23:44
 ROOM 127 HIGH HUMIDITY FROM 07/15/89*00:00 TO 07/15/89*08:24
 ROOM 127 HIGH HUMIDITY FROM 07/15/89*21:09 TO 07/17/89*11:42
 ROOM 127 HIGH HUMIDITY FROM 07/17/89*11:50 TO 07/17/89*13:36
 ROOM 127 HIGH HUMIDITY FROM 07/17/89*14:08 TO 07/17/89*14:25
 ROOM 127 HIGH HUMIDITY FROM 07/17/89*14:37 TO 07/17/89*15:03
 ROOM 127 HIGH HUMIDITY FROM 07/17/89*15:08 TO 07/17/89*15:25
 ROOM 127 HIGH HUMIDITY FROM 07/17/89*15:38 TO 07/17/89*15:55
 ROOM 127 HIGH HUMIDITY FROM 07/17/89*16:10 TO 07/17/89*16:27
 ROOM 127 HIGH TEMPERATURE FROM 07/18/89*11:08 TO 07/18/89*11:26
 ROOM 127 HIGH HUMIDITY FROM 07/17/89*18:58 TO 07/18/89*11:28
 ROOM 127 HIGH HUMIDITY FROM 07/18/89*11:37 TO 07/18/89*12:25
 ROOM 127 HIGH HUMIDITY FROM 07/18/89*21:12 TO 07/19/89*06:56

50 RECORDS FOUND

