

8EHQ-0694-13091

See

**ORIGINAL**

**Contains No CBI**

**HIGH POINT CHEMICAL CORPORATION**

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(A)

June 28, 1994

Document Processing Center (TS-790)  
(attn: Section 8(e) Coordinator)  
Office of Pollution Prevention and Toxics  
U.S. Environmental Protection Agency  
401 "M" Street, S.W.  
Washington, D.C. 20460



8EHQ-94-13091  
INIT 06/30/94

57 JUN 30 11 17:50  
RECEIVED

Dear Section 8(e) coordinator:

This submission is being made under TSCA Section 8(e) to report a possible neurotoxicological effect which might result from exposure to a chemical product we import for the U.S. market.

I am reporting this on behalf of Kao Corporation of America and High Point Chemical Corporation.

I am as follows:

Name: Hester A. Kobayashi, Dr. P.H.  
Title: Director of Product Safety for  
Kao Corporation of America (KCOA)  
Address: c/o High Point Chemical Corporation  
Subsidiary of KCOA  
P.O. Box 2316  
255 Beddington St.  
High Point, N.C. 27261



88940000333

Telephone:(910) 884-2214

The organization involved:

Name: Kao Corporation of America/High Point Chemical Corporation  
Address: Provided above

Chemical Involved:

PMN No.: P-92-527

CASRN: 2109-22-0

Chemical Name: 2-Cyclohexyl propanal

Chemical Use: This substance is an aroma which is used in minute amounts together with many others to create fragrances which are then added to cosmetics as well as other domestic use products.

RECEIVED  
6/21/95

Human or animal exposure to a high concentration does not normally occur.

**Date information was obtained:** June 20, 1994

I became aware of the possible hazard upon obtaining the report, which was supplied from the headquarters in Japan. The finished report attached is dated January 1994, however this was a report used for notification in Europe, hence was not available until the information was transferred to the U.S. Toxicological studies for this product available at the time of the PMN submission for this product were submitted with the PMN. The studies submitted at that time were draft reports. No changes to conclusions have occurred in the final reports.

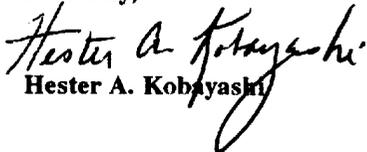
**Summary of the adverse effects being reported:**

In the attached Inhalation limit test for notification to E.C., there is reference to a staggering gait seen in animals immediately after exposure to 5 mg/l of the substance for four hours. Observations for this behavior could not be made during the exposure because the test animals were restrained. This effect was not seen in the control animals. All animals recovered from this effect by the first day after exposure, and appeared to be normal, according to the report. Associated with the staggering gait was exaggerated respiratory movement. This symptom disappeared within three days.

There was no mortality reported, therefore, under the E.C. guidelines, no further inhalation testing was required.

This report is being provided only because it is my understanding that the staggering gait may be considered to be a possible neurotoxicological effect.

Sincerely,

  
Hester A. Kobayashi

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KSP 265A/932230

94 JUN 30 01 7:57

REGISTRATION



**POLLENAL II**

**RAT ACUTE (4-HOUR EXPOSURE) INHALATION TOXICITY STUDY**

**Date requirement:** EPA TSCA 798.1150

**HRC project identity:** KSP 265A

**Study completed on:** 26 January 1994

**Sponsor**

Biological Science Laboratories,  
Kao Corporation,  
2606 Akabane,  
Ichikaimachi,  
Haga,  
Tochigi 321-34,  
JAPAN.

**Sponsor's representative**

Mr. T. Sunakawa.

**Testing facility**

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ENGLAND.

**Study Director**

Graham C. Jackson.

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KSP 265A/932230

## CONFIDENTIALITY STATEMENT

This report contains the unpublished results of research sponsored by Kao Corporation. These results may not be published, either wholly or in part, or reviewed or quoted in any other publication without the prior authorisation of the Sponsor.

*this document contains  
no CBI as per submitter*

*30 June 1994 /  
MK  
TDAS*

## COMPLIANCE WITH GOOD LABORATORY PRACTICE STANDARDS

The study described in this report was conducted in compliance with the following Good Laboratory Practice standards and I consider the data generated to be valid.

Good Laboratory Practice, The United Kingdom Compliance Programme, Department of Health & Social Security 1986 and subsequent revision, Department of Health 1989.

EC Council Directive, 87/18 EEC of 18 December 1986, (No. L 15/29).

Good Laboratory Practice in the testing of Chemicals OECD, ISBN 92-64-12367-9, Paris 1982, subsequently republished OECD Environment Monograph No. 45, 1992.

United States Environmental Protection Agency, (TSCA), Title 40 Code of Federal Regulations Part 792, Federal Register, 29 November 1983 and subsequent amendment Federal Register 17 August 1989.

Japan Ministry of International Trade and Industry, Directive 31 March 1984 (Kanpogyo No. 39 Environmental Agency, Kikyoku No. 85 MITI).

*G. C. Jackson*

Graham C. Jackson, B.A. (Hons.), L.R.S.C.,  
Study Director,  
Huntingdon Research Centre Ltd.

*26 January 1994*

Date

**RESPONSIBLE PERSONNEL**

We the undersigned, hereby declare that the work was performed under our supervision according to the procedures herein described, and that this report provides a correct and faithful record of the results obtained.

*G. C. Jackson*

Graham C. Jackson, B.A. (Hons.), L.R.S.C.,  
Study Director,  
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*Mario Bannerman*

Mario Bannerman, H.N.D.,  
Head,  
Department of Inhalation Toxicology.

## QUALITY ASSURANCE STATEMENT

Certain studies such as that described in this report, are conducted at HRC in a setting which involves frequent repetition of similar or identical procedures. At or about the time the study described in this report was in progress, 'process-based' inspections were made by the Quality Assurance Department of critical procedures relevant to this study type. The findings of these inspections were reported promptly to the Study Director and to HRC Management.

This report has been audited by the Huntingdon Research Centre Quality Assurance Department. The methods, practices and procedures reported herein are an accurate description of those employed at HRC during the course of the study. Observations and results presented in this final report form a true and accurate representation of the raw data generated during the conduct of the study at HRC.

Dates of inspection 10 August 93

Date of reporting inspection findings  
to the Study Director and HRC Management 13 August 93

Date of reporting audit findings to the  
Study Director and HRC Management 23 December 93

G. R. Keeble

G.R. Keeble,  
Systems Compliance Auditor,  
Department of Quality Assurance,  
Huntingdon Research Centre Ltd.

24 January 1994

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## INTRODUCTION

The acute inhalation toxicity of Pollenal II was assessed by snout-only exposure to rats at a concentration of aerosol slightly in excess of the maximum concentration required by the test guidelines (5 mg/l). Snout-only exposure, rather than whole-body exposure, was chosen in order to minimise exposure via oral and dermal routes.

The study was conducted at the Huntingdon Research Centre during the period 8 to 30 September 1993.

The study design was in compliance with the following test guidelines for acute inhalation studies:

EPA TSCA:	798.1150
OECD:	Method 403
EEC:	Method B2

The protocol for the study was approved by the Study Director and HRC Management on 14 September 1993, and approved by the Sponsor on 16 September 1993.

On completion of the study all data relating to the study, including a copy of the final report but excluding any tissues not processed for microscopic examination, were lodged in the Huntingdon Research Centre Archives, Huntingdon, Cambridgeshire, England.

## MATERIALS AND METHODS

### TEST SUBSTANCE

The test substance was a clear liquid identified as:

Pollenal II      Lot number 19  
Purity 99.9%

The test substance was received on 27 August 1993 and was stored in the dark at approximately 4°C under nitrogen.

Information supplied by the Sponsor indicated that the test substance was stable until at least January 1994.

### ANIMALS AND MAINTENANCE

Ten male and 10 female Sprague-Dawley albino (CD) rats, about 6 weeks and 8 weeks old respectively, were obtained from Charles River (UK) Ltd, Manston Road, Margate, Kent, England on 8 September 1993. These ages of rats were selected so that males and females would be of similar bodyweight (*ca* 200 g) on the day of exposure.

On arrival the rats were allocated to 2 groups, each of 5 males and 5 females and were identified individually by a number tattooed on the ears. The rats were housed by sex in groups of 5 and acclimatised to laboratory conditions for at least 5 days before the day of exposure.

The holding cages (size 35 cm x 53 cm x 25 cm height) were made of stainless steel sheet and wire mesh and were suspended on a moveable rack. While in their cages all rats had free access to a measured excess amount of food (SDS RM1) and tap water. Food and water supplies were analysed routinely to confirm the absence of chemical or microbiological contaminants, in excess of specified amounts, which might have an undesirable effect on the test system. The analytical data are stored in the Archive Department of HRC.

The rats remained in a holding room except for the 4-hour exposure and an overnight post exposure period when the rats in the test group were kept in a ventilated cabinet to allow dispersal of any residual test substance. Lighting was by artificial light between 8 am and 8 pm daily.

The temperature and relative humidity of the holding room air were recorded continuously using a Kent Clearspan thermohygrograph. The temperature of the holding area during the study remained within the range of 18°C to 24°C and the relative humidity was between 31% and 65%.

## **INHALATION EXPOSURE SYSTEM**

### **Aerosol generator**

The aerosol generator, shown in Figure 1, was designed to produce and maintain an atmosphere containing a high proportion of respirable droplets. All parts of the generator in contact with the test substance were made of stainless steel or glass.

The test substance was supplied to the generator, from a syringe driven at a constant rate by a syringe pump. The compressed air supply to the generator was dried, filtered and oil-free.

Aerosolisation of the test formulation using a stainless steel atomiser was the preferred method. The operating conditions to produce the maximum concentration required ( $> 5$  mg/l) were established at an air flow rate of 15 l/minute and a feed rate of test substance of 0.38 to 0.40 ml/minute.

The nominal concentration was calculated from the amount of test substance dispersed and the total volume of air supplied to the exposure chamber.

### **Exposure chambers**

The snout-only exposure chambers were of cylindrical form (35.5 cm id, 38.5 cm height) and made of perspex. The chambers were fitted with a hemispherical perspex top giving an enclosed volume of approximately 50 litres. Rats were held for exposure, individually, in a perspex restraining tube which was attached at one of the ports in the cylindrical section of the chamber. The tube was designed to allow only the snout to project into the chamber. Each rat was restrained in a forward position by an adjustable plastic stopper which also provided a seal for the tube.

The test atmosphere entered the chamber through a tube located at the base centre of the chamber and passed out through small holes in the lower edge of the cylindrical section. The chambers were installed in a large fume cupboard exhausting to atmosphere through an absolute filter.

The exposure system is shown in Figure 2.

## **INHALATION EXPOSURE PROCEDURE**

One group of rats was exposed continuously for 4 hours to a test atmosphere containing respirable droplets generated from Pollenal II. The group was exposed to a concentration of aerosol in excess of 5 mg/l, in a snout-only exposure system.

A second group acting as a control received clean air only for 4 hours.

The group identification and date of exposure for the groups were:

Group 1 (Control):	16 September 1993
Group 2 (Test):	16 September 1993

## SUMMARY

### Introduction

The objective of this study was to establish the acute inhalation toxicity ( $LC_{50}$ ) of Pollenal II to rats according to OECD and EEC testing guidelines.

### Methods

One group of 5 male and 5 female Sprague-Dawley CD rats was exposed to an atmosphere containing a chemically analysed concentration of Pollenal II of 5.32 mg/l, which was the highest concentration required by the test guidelines. The corresponding nominal concentration was 25.3 mg/l. Exposure was continuous for 4 hours using a snout-only exposure system. An additional group of 5 male and 5 female rats acted as controls and was exposed to clean air only for 4 hours.

The rats were observed during the exposure period and for 14 days post exposure. Group food and water consumption were measured daily throughout. Each rat was subjected to post mortem examination.

### Results

There were no deaths following exposure at 5.32 mg/l of air.

During exposure there were no clinical signs attributable to exposure to Pollenal II. Soiling of the fur by excreta, as a consequence of the method of restraint, was seen in the control and test groups.

During the observation period, the main clinical signs observed were exaggerated respiratory movements, a staggering gait and brown staining around the snout and jaws. With the exception of brown staining, all rats exposed to Pollenal II were normal in appearance and behaviour by Day 3.

The rate of bodyweight gain and food consumption for male and female test rats were reduced for 1 day following exposure to Pollenal II. Water consumption for male test rats was reduced for 1 day following exposure.

The lung weight to bodyweight ratios for rats exposed to Pollenal II were similar to the ratios found for the control rats. All values were within normal limits. There were no macroscopic abnormalities in any of the rats exposed to Pollenal II.

### Conclusions

The acute inhalation  $LC_{50}$  (4-hour) of Pollenal II to rats, was in excess of 5.32 mg/l of air. The exposure concentration was the highest required by the test guidelines.

EEC classification: Not indicated.

Risk phrase: Not indicated.

A supply of clean dried air was connected to the aerosol generator and the supply pressure was adjusted to give a flow rate of 15 litres per minute measured at the generator outlet tube. A flow meter, in the compressed air line, was used to monitor air flow throughout the exposure.

A syringe filled with the test substance was fitted to the syringe pump and connected to the generator with PTFE tubing. An initial flow rate of 0.4 ml/minute was selected for the exposure. This flow rate was expected, from the results of preliminary trials, to give an aerosol concentration in air in excess of 5 mg/l.

The rats to be exposed were placed into restraining tubes and these were attached to the exposure chamber.

The syringe pump was switched on and the exposure timed for 4 hours, following an 8-minute<sup>(1)</sup> equilibration period, from the appearance of an aerosol from the generator outlet.

The rats were held overnight in a ventilated cabinet and then returned to the holding room for the remainder of the observation period.

The control group was treated similarly but received clean air only for 4 hours.

## CHAMBER ATMOSPHERE ANALYSES

Five air samples were taken from the chamber during the exposure.

Each air sample was withdrawn, at 2 l/minute, through a gas absorption trap (bubbler type) cooled in a solid CO<sub>2</sub>/acetone bath to -70°C. The volume of the air sample was measured with a wet-type gas meter.

Two additional air samples were taken using a May multistage impinger<sup>(2)</sup> with acetone as the trapping agent in each stage. The samples were taken at approximately 1.5 and 3.5 hours from the start of exposure. The collection characteristics for the sampler used at a sampling rate of 10 l/minute are shown in Table 2.

The material collected in each stage of the impinger was analysed to determine the percentage of Pollen<sup>a</sup> II present in the test atmosphere as droplets of respirable size.

The results of these analyses are summarised in Table 1. The method of analysis for Pollen<sup>a</sup> II is described in Appendix 1.

<sup>(1)</sup> 8 minutes is the theoretical time required for the concentration of aerosol to reach 90% of its final value under the conditions of exposure employed

<sup>(2)</sup> May, K.R., Bacteriological Reviews 30, 3, 1966, pp 559 - 570

### **CHAMBER AIR TEMPERATURE**

The air temperature in the exposure chamber was measured with a mercury-in-glass thermometer and recorded at the start of the exposure and then at 30-minute intervals during the 4-hour exposure.

### **RELATIVE HUMIDITY**

Relative humidity was not measured during exposure because volatile components of the test substance were considered likely to interfere with the humidity readings.

### **OBSERVATIONS**

#### **Clinical signs**

The rats were observed continuously for signs of reaction to the test substance during exposure and at least twice daily throughout the observation period. Because of the method of restraint only gross clinical signs could be observed during the exposure period.

#### **Bodyweight**

All rats were weighed daily from the day of delivery to the Huntingdon Research Centre until the end of the observation period.

#### **Food and water consumption**

The amount of food and water consumed by each cage of rats was measured daily from the day following arrival. The daily mean intakes of food and water for each rat were calculated from the recorded data.

### **TERMINAL STUDIES**

At the end of the 14-day observation period, the rats were anaesthetised by intraperitoneal injection of pentobarbitone sodium and killed by exsanguination.

All rats were subjected to a detailed macroscopic examination. The lungs were removed, dissected clear of surrounding tissue and weighed in order to calculate the lung weight to bodyweight ratio.

The lungs were infused with, and preserved in, buffered 10% formalin together with samples of the liver and kidneys pending a decision to conduct microscopic examination. Tissues not processed for microscopic examination were stored and scheduled for disposal 12 months from the completion date of the study.

## RESULTS

### CHAMBER ATMOSPHERE CONDITIONS

#### Concentrations of Pollenal II

The analysis results for air samples taken during the exposures are shown in Table 1.

The mean concentration of Pollenal II determined by chemical analysis and the nominal concentration were:

By analysis (mg/l of air)	Nominal concentration (mg/l)
5.32	25.3

The concentration of aerosol was the highest required by the test guidelines ( > 5 mg/l).

#### Particle size distribution

The analysis results for the air samples taken for the determination of particle size distribution are given in Table 2. The results show that approximately 87% of the particles were of respirable size.

#### Chamber air temperature

The chamber mean air temperature and the standard deviations (SD) of the mean were:

Group	Temperature °C (SD)
1 (Control)	22 (0.7)
2 (5.32 mg/l)	22 (0.8)

### CLINICAL OBSERVATIONS

#### Mortality

There were no deaths following a single 4-hour exposure to Pollenal II at 5.32 mg/l of air.

**Clinical signs****(a) During exposure**

The incidence of clinical signs observed during exposure to Pollenal II is shown in Table 3. Due to the method of restraint only gross clinical signs could be observed.

Soiling of the fur was observed in the control and test groups. There were no other clinical signs in the rats exposed to Pollenal II.

**(b) During the observation period**

The incidence of clinical signs seen during the observation period is shown in Table 4. Column 0 of this table shows the clinical signs recorded when the rats were removed from the exposure chamber. A soiled appearance of the fur was noted for all rats on Day 0. Signs attributable to exposure to Pollenal II were exaggerated respiratory movements, a staggering gait and poor grooming for up to 3 days following exposure. Signs of recovery were evident from Day 3, after which the only clinical sign observed was brown staining around the snout and jaws and around the eyes.

**Bodyweight**

The individual and group mean bodyweights are given in Table 5, the group mean bodyweights are also shown in Figure 3.

Bodyweight or the rate of bodyweight gain was reduced for 1 day following exposure to Pollenal II. The effects on bodyweight were partially attributable to the exposure procedures since smaller reductions were observed in the control rats.

**Food and water consumption**

The food and water consumption data are presented in Tables 6 and 7 respectively. A slight reduction in food consumption was observed for 1 day in male and female rats following exposure to Pollenal II. Subsequently, food consumption was similar to that of the control rats.

Water consumption was reduced for 1 day in male test rats following exposure to Pollenal II.

**TERMINAL STUDIES****Lung weight to bodyweight ratio**

The lung weight to bodyweight ratios for individual rats are shown in Table 8. The ratios for the rats exposed to Pollenal II were similar to the control values and considered to be within normal limits.

**Estimation of the LC<sub>50</sub> (4-hour) for Pollenal II**

The LC<sub>50</sub> (4-hour) for Pollenal II is in excess of 5.32 mg/l of air.

**Macroscopic pathology**

The macroscopic findings for individual rats are given in Table 9.

There were no abnormalities in the test or control rats.

**CONCLUSION**

The acute inhalation LC<sub>50</sub> (4-hour) of Pollenal II in rats was in excess of 5.32 mg/l of air.

Labelling of the test substance, under current EEC regulations, is not indicated.

FIGURE 1

Aerosol generator

- a. Glass elutriating column.
- b. Compressed air supply.
- c. Feed tube with adjustment screw.
- d. Venturi atomising jet.
- e. Drain tubes.

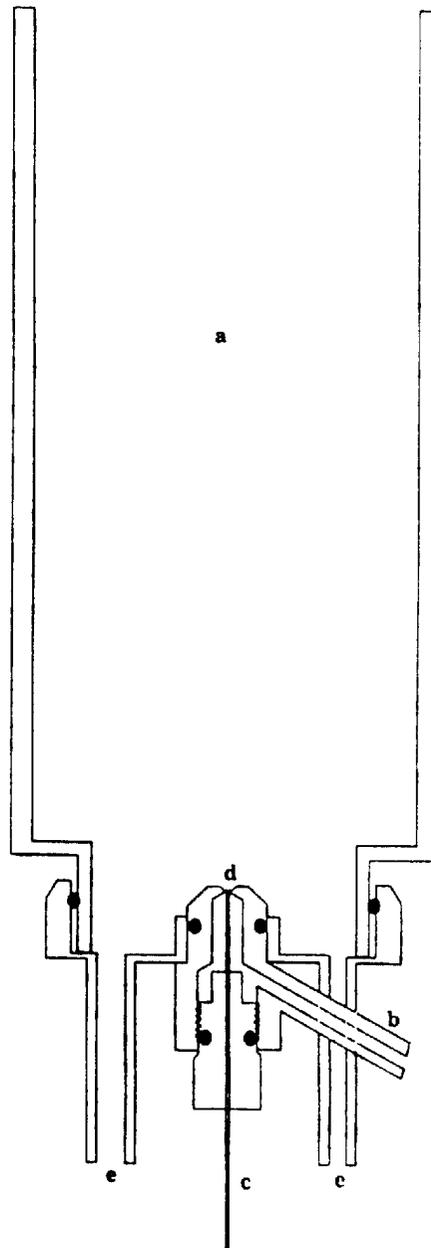


FIGURE 2

Exposure system

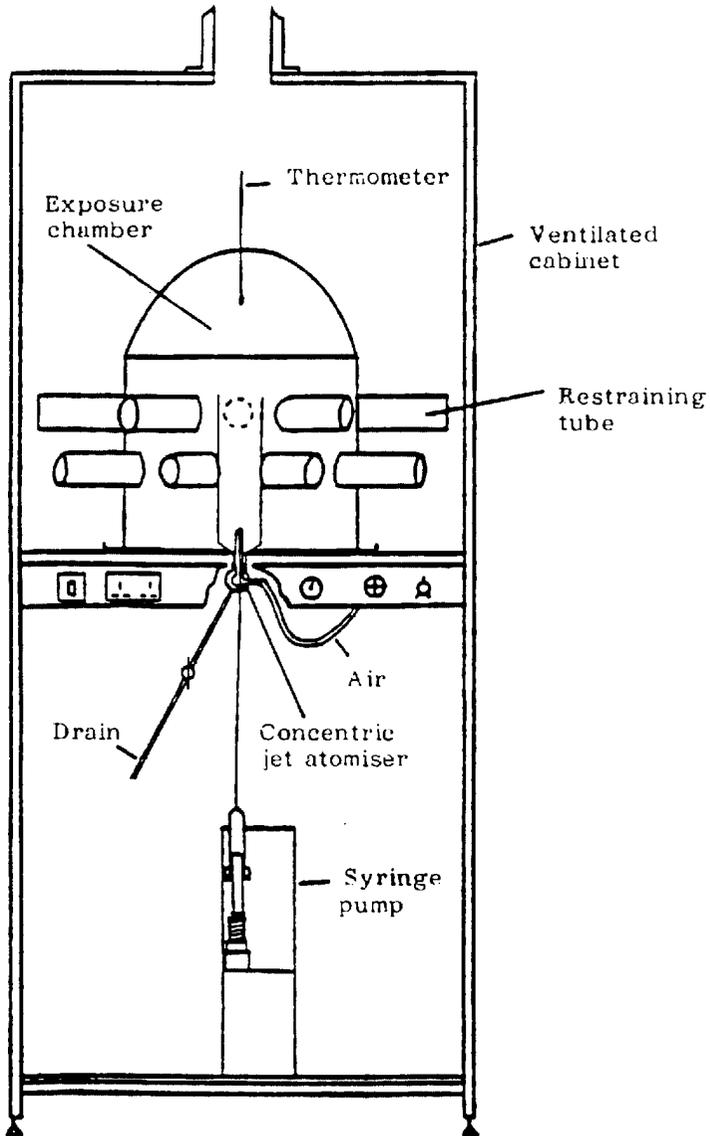
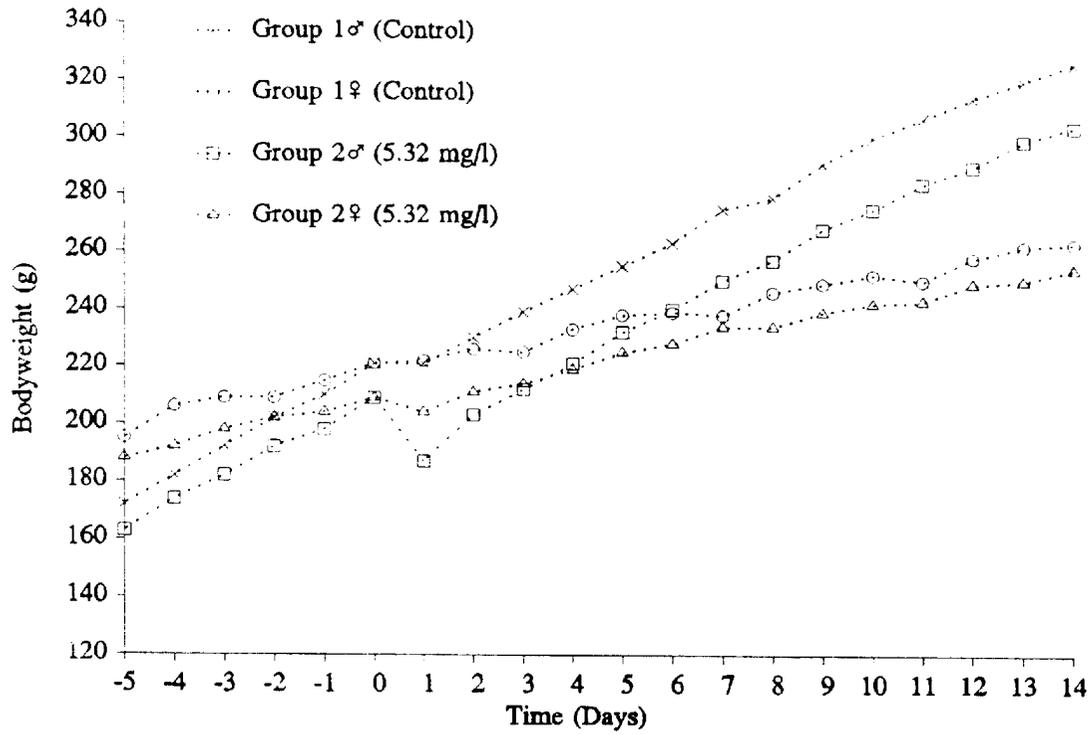


FIGURE 3

Group mean bodyweights



**TABLE 1****Concentrations of Pollenal II**

Analytical results

Group	Sample	Time	Amount in air (mg/l)
2	2.1	0h : 35m	5.85
	2.2	1h : 05m	4.75
	2.3	2h : 10m	5.17
	2.4	3h : 00m	5.17
	2.5	3h : 50m	5.66
		Mean	
	SD		0.437

SD Standard deviation

TABLE 2

## Particle size distribution of Pollenal II

Group	Sample	Time taken	Stage	Cut-off size ( $\mu\text{m}$ )	Amount collected (mg)	% of total	Respirable fraction <sup>1</sup> (%)
2	PSD 1	1h : 30m	1	3.6 - 9	2.80	14.3	
			2	1.6 - 5.5	5.44	27.7	
			3	0.5 - 1.5	11.40	58.0	
			Totals	19.64	100.0	85.7	
	PSD 2	3h : 30m	1	3.6 - 9	1.97	10.8	
			2	1.6 - 5.5	5.10	28.0	
			3	0.5 - 1.5	11.16	61.2	
Totals			18.23	100.0	89.2		

<sup>1</sup> Respirable fraction is the amount of Pollenal II on stages 2 and 3, expressed as a percentage of the total collected

**TABLE 5**  
**(Individual and group mean bodyweights - continued)**

Group	Rat	Day of observation																			
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2♂ (Test)	61	164	176	183	191	200	211	180	202	210	219	230	239	253	260	274	280	286	294	304	313
	62	166	176	184	194	200	209	187	200	210	220	230	240	251	256	269	273	282	289	299	302
	63	164	175	183	191	203	217	196	212	223	236	247	256	264	271	285	294	305	313	324	327
	64	157	167	174	186	187	197	183	197	203	211	221	227	232	237	243	249	255	255	261	265
	65	166	177	184	197	202	211	190	202	214	221	234	239	252	261	271	279	291	297	305	312
	Mean	163	174	182	192	198	209	187	203	212	221	232	240	250	257	268	275	284	290	299	304
2♀ (Test)	66	186	192	199	203	208	212	208	212	217	220	223	229	236	235	236	241	243	248	244	254
	67	194	194	204	211	214	212	211	218	223	229	233	234	240	241	246	248	248	252	254	260
	68	187	191	193	202	204	208	198	206	212	219	220	226	231	232	236	243	248	252	251	256
	69	190	195	202	198	207	210	203	210	216	223	230	234	238	243	246	247	245	260	262	261
	70	183	186	193	195	189	202	199	207	204	206	217	219	224	221	229	231	230	231	238	241
	Mean	188	192	198	202	204	209	204	211	214	219	225	228	234	234	239	242	243	249	250	254

0 Bodyweight before exposure on the Day of exposure

TABLE 3

## Clinical signs during exposure

Group	Signs	Number showing signs						
		Time in hours						
		0*	0.25	0.5	1.0	2.0	3.0	4.0
1♂ (Control)	Fur soiled with excreta	5	5	5	5	5	5	5
1♀ (Control)	Fur soiled with excreta	5	5	5	5	5	5	5
2♂ (Test)	Fur soiled with excreta	5	5	5	5	5	5	5
2♀ (Test)	Fur soiled with excreta	5	5	5	5	5	5	5

\* Clinical signs recorded during the 8-minute equilibration period

TABLE 4

## Clinical signs during observation period

Group	Signs	Number showing signs														
		Day of observation period														
		0*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂ (Control)	Normal appearance and behaviour		5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Fur soiled with excreta	5														
1♀ (Control)	Normal appearance and behaviour		5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Fur soiled with excreta	5														
2♂ (Test)	Normal appearance and behaviour				4	4	5	4	3	4	4	4	4	5	4	5
	Fur soiled with excreta	5														
	Exaggerated respiratory movement	5	5													
	Staggering gait	5	5													
	Poorly groomed		5	5												
	Brown staining around snout and/or jaws		3	3	1	1	1	1	2	1	1	1	1	1		
	Brown staining around eyes		1													1
2♀ (Test)	Normal appearance and behaviour				1	1	2	3	2	2	2	2	4	5	4	5
	Fur soiled with excreta	5														
	Exaggerated respiratory movement	5	5	2												
	Staggering gait	5	2	2												
	Poorly groomed		4	3	4	4	3	2	3	3	3	3	1			
Brown staining around snout and/or jaws		3	2	1	1										1	
Brown staining around eyes																

\* Clinical signs recorded after exposure on the day of exposure

TABLE 5  
Individual and group mean bodyweights (g)

Group	Rat	Day of observation																			
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂ (Control)	11	175	185	195	205	213	225	223	233	240	246	250	258	272	274	283	291	296	304	309	313
	12	175	184	196	204	215	226	228	236	248	256	267	274	284	289	300	311	320	327	333	342
	13	174	185	196	204	214	225	225	234	242	252	262	271	282	284	300	308	316	323	328	337
	14	173	184	193	202	211	218	221	231	238	246	255	262	273	279	289	301	309	317	324	328
	15	164	173	182	193	199	209	210	218	226	233	242	251	266	267	281	288	295	301	307	312
	Mean	172	182	192	202	210	221	221	230	239	247	255	263	275	279	291	300	307	314	320	326
1♀ (Control)	16	199	210	209	205	220	224	227	227	222	230	234	236	231	239	243	246	238	252	253	254
	17	196	210	218	221	221	229	233	238	239	246	254	253	257	264	267	270	266	274	282	279
	18	190	197	200	191	201	207	209	208	203	217	218	218	216	223	225	223	226	228	237	239
	19	193	205	212	211	209	217	219	224	221	234	241	238	235	247	254	255	253	266	271	271
	646R	NV	207	207	215	222	229	224	232	238	238	241	248	252	256	257	264	268	271	266	274
	Mean	195	206	209	209	215	221	222	226	225	233	238	239	238	246	249	252	250	258	262	263

0 Bodyweight before exposure on the Day of exposure

NV No valid weight recorded

R Replacement rat. Original rat (20♀) replaced because of low weight gain

TABLE 6

Group mean daily food consumption (g/rat)

Group	Days																		
	Pre-exposure					Post exposure													
	-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂ (Control)	27	29	27	29	28	23	29	27	28	28	28	30	29	31	31	32	31	30	32
2♂ (Test)	25	27	27	28	29	8	23	24	26	28	27	29	29	30	30	31	31	30	30
1♀ (Control)	25	25	20	23	25	23	24	21	26	25	23	22	26	24	25	22	26	26	26
2♀ (Test)	23	23	22	22	22	14	20	22	23	23	24	24	23	22	24	24	25	23	25

TABLE 7

Group mean daily water consumption (g/rat)

Group	Days																		
	Pre-exposure					Post exposure													
	-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1♂ (Control)	32	33	32	33	33	33	34	32	32	32	31	34	31	35	36	35	34	33	36
2♂ (Test)	30	31	30	31	31	14	36	35	33	32	32	33	30	35	34	34	33	33	32
1♀ (Control)	33	33	27	29	32	32	30	26	31	29	29	26	31	31	36	28	38	38	36
2♀ (Test)	30	29	27	27	24	25	28	30	31	30	28	27	27	26	29	28	30	27	29

TABLE 8

## Lung weight to bodyweight ratios

Group	Rat	Lung weight (g)	Body weight (g)	Lung to bodyweight ratio (LW x 100/BW)
				Survivors
1♂ (Control)	11	1.47	313	0.47
	12	1.51	342	0.44
	13	1.38	337	0.41
	14	1.55	328	0.47
	15	1.56	312	0.50
			Mean	0.46
			SD	0.034
1♀ (Control)	16	1.36	254	0.54
	17	1.57	279	0.56
	18	1.18	239	0.49
	19	1.26	271	0.46
	646R	1.25	274	0.46
			Mean	0.50
			SD	0.046
2♂ (Test)	61	1.52	313	0.49
	62	1.43	302	0.47
	63	1.66	327	0.51
	64	1.23	265	0.46
	65	1.45	312	0.46
			Mean	0.48
			SD	0.022
2♀ (Test)	66	1.21	254	0.48
	67	1.25	260	0.48
	68	1.33	256	0.52
	69	1.39	261	0.53
	70	1.33	241	0.55
			Mean	0.51
			SD	0.031

SD Standard deviation

R Replacement rat

**TABLE 9**  
**Macroscopic pathology**

Group	Rat	Region/organ affected	Observation
1♂ (Control)	11		No abnormalities detected
	12		No abnormalities detected
	13		No abnormalities detected
	14		No abnormalities detected
	15		No abnormalities detected
1♀ (Control)	16		No abnormalities detected
	17		No abnormalities detected
	18		No abnormalities detected
	19		No abnormalities detected
	646R		No abnormalities detected
2♂ (Test)	61		No abnormalities detected
	62		No abnormalities detected
	63		No abnormalities detected
	64		No abnormalities detected
	65		No abnormalities detected
2♀ (Test)	66		No abnormalities detected
	67		No abnormalities detected
	68		No abnormalities detected
	69		No abnormalities detected
	70		No abnormalities detected

R Replacement rat

**APPENDIX 1****Method of analysis for Pollenal II****1. INSTRUMENTATION AND APPARATUS****GLC:**

Chromatograph: Pye Unicam PU4550 with FID.

Autosampler: Pye Unicam PU4700.

Integrator: Spectra-Physics SP4270.

**Apparatus:**

Balance: Sartorius R200D, fitted with data printer YDP-01.

General laboratory glassware.

**2. REAGENTS**

Pollenal II: Client supplied (lot no. 19).

Acetone: Pesticide residue grade, BDH.

**3. PREPARATION OF SAMPLE SOLUTIONS FOR ANALYSIS**

Each air sample was drawn from the chamber through a sintered glass bubbler containing acetone. The volume of the air sample was recorded and the acetone sample solution transferred to a volumetric flask (25 ml). The bubbler was rinsed with further acetone (added to volumetric flask) and diluted to volume with acetone. The sample solution was transferred to an appropriately labelled vial for subsequent analysis.

The air samples for the determination of the proportion of respirable droplets were drawn through a May multistage liquid impinger containing acetone as the trapping agent in each stage. A known volume of air was drawn through the sampler and then the contents of each stage were transferred quantitatively into separate volumetric flasks (5 ml stages 1 and 2, 10 ml stage 3). The solutions were diluted to volume with acetone and transferred to appropriately labelled vials prior to analysis.

**APPENDIX 1****(Method of analysis - continued)****4. GLC****4.1 Operating conditions**

Column:	OV-101, 10%, 1 m × 3.0 mm id.
Temperatures:	Column = 130°C. Injector = 100°C. Detector = 150°C.
Detector:	FID.
Retention time:	Pollenal II approximately 2.6 minutes.
Gas flow rates:	He (carrier) = 30 ml/min. H <sub>2</sub> = 30 ml/min. Air = 300 ml/min.
Injection volume:	3.0 µl.

**4.2 Analysis of samples**

A 3.0 µl aliquot of each sample solution was injected onto the GLC column using the autosampler. The concentration of Pollenal II was evaluated from the standard curve calculated below:

$$C = \frac{(A - I)}{S}$$

where C = concentration of Pollenal II (µg/ml)  
A = peak area due to Pollenal II  
S = gradient of standard curve  
I = area intercept of standard curve

**4.3 Standardisation**

Approximately 50 mg of Pollenal II was accurately weighed into a 50 ml volumetric flask, dissolved in acetone and diluted to volume with acetone. The solution was diluted with acetone to obtain standard solutions containing Pollenal II at nominal concentrations within the range 1000 µg/ml and 50 µg/ml. Aliquots of the standard solutions were injected and the mean peak area for Pollenal II was calculated for each standard solution. A standard curve was derived for Pollenal II from the mean peak areas by regression analysis.

### Triage of 8(e) Submissions

Date sent to triage: \_\_\_\_\_

NON-CAP

CAP

Submission number: 13091A

TSCA Inventory:

Y

N

D

Study type (circle appropriate):

Group 1 - Dick Clements (1 copy total)

ECO

AQUATO

Group 2 - Ernie Falke (1 copy total)

ATOX

SBTOX

SEN

w/NEUR

Group 3 - Elizabeth Margosches (1 copy each)

STOX

CTOX

EPI

RTOX

GTOX

STOX/ONCO

CTOX/ONCO

IMMUNO

CYTO

NEUR

Other (FATE, EXPO, MET, etc.): \_\_\_\_\_

Notes:

**THIS IS THE ORIGINAL 8(e) SUBMISSION; PLEASE REFILE AFTER TRIAGE DATABASE ENTRY**

**For Contractor Use Only**

entire document: 0 1 2 pages 1

pages \_\_\_\_\_

Notes:

Contractor reviewer : JW

Date: 1/24/96

CECATSTRILAGE TRACKING DBASE ENTRY FORM

CLICATS DATA  
 Submission # SEHO 0694-13091 SEQ. A  
 TYPE: (INT) SUPP FLWP

SUBMITTER NAME: High Point Chemical Corporation

SUB. DATE: 06/28/94 OTS DATE: 06/30/94 CSRAD DATE: 06/21/95  
 CHEMICAL NAME: Propoxy 2-cyclohexyl Pollenol II  
 CASE: 2109-22-0  
2109-22-0

- OPTIONAL ACTIONS:**  
 0401 NO ACTION REQUIRED  
 0402 STUDIES PLANNED (HUMAN) WAY  
 0403 NOTIFICATION OF WORK (HUMAN) WAY  
 0404 LABELING (HUMAN) WAY  
 0405 PROCESSING (HUMAN) WAY  
 0406 APPROUSE DISCONTINUED  
 0407 PRODUCTION DISCONTINUED  
 0408 CONFIDENTIAL

- INFORMATION REQUESTED: FLWP DATE:**  
 0501 NO INFO REQUESTED  
 0502 INFO REQUESTED (TECH)  
 0503 INFO REQUESTED (VOL ACTIONS)  
 0504 INFO REQUESTED (REPORTING RATIONALE)  
**DISPOSITION:**  
 0601 REFER TO CHEMICAL SCREENING  
 0678 CAP NOTICE

INFORMATION TYPE:	P.F.C.	INFORMATION TYPE:	P.F.C.	INFORMATION TYPE:	P.F.C.
0201 ONCO (HUMAN)	01 02 04	0216 EPICLIN	01 02 04	0241 IMMUNO (ANIMAL)	01 02 04
0202 ONCO (ANIMAL)	01 02 04	0217 HUMAN EXPOS (PROD CONTAM)	01 02 04	0242 IMMUNO (HUMAN)	01 02 04
0203 CELL TRANS (IN VITRO)	01 02 04	0218 HUMAN EXPOS (ACCIDENTAL)	01 02 04	0243 CHEM/PHYS PROP	01 02 04
0204 MUTA (IN VITRO)	01 02 04	0219 HUMAN EXPOS (MONITORING)	01 02 04	0244 CLASTO (IN VITRO)	01 02 04
0205 MUTA (IN VIVO)	01 02 04	0220 BIOAQUA TOX	01 02 04	0245 CLASTO (ANIMAL)	01 02 04
0206 REPRO/TERATO (HUMAN)	01 02 04	0221 ENV. OCCURENCE/FATE	01 02 04	0246 CLASTO (HUMAN)	01 02 04
0207 REPRO/TERATO (ANIMAL)	01 02 04	0222 EMER INCI OF ENV CONTAM	01 02 04	0247 DNA DAMAGE/REPAIR	01 02 04
0208 NEURO (HUMAN)	01 02 04	0223 RESPONSE REQUEST DELAY	01 02 04	0248 PROD/USE/PROC	01 02 04
0209 NEURO (ANIMAL)	01 02 04	0224 PROD/COMP/CHEM ID	01 02 04	0251 MSDS	01 02 04
0210 ACUTE TOX. (HUMAN)	01 02 04	0225 REPORTING RATIONALE	01 02 04	0259 OTHER	01 02 04
0211 CHR. TOX. (HUMAN)	01 02 04	0226 CONFIDENTIAL	01 02 04		
0212 ACUTE TOX. (ANIMAL)	01 02 04	0227 ALLERG (HUMAN)	01 02 04		
0213 SUB ACUTE TOX (ANIMAL)	01 02 04	0228 ALLERG (ANIMAL)	01 02 04		
0214 SUB CHRONIC TOX (ANIMAL)	01 02 04	0229 METAB/PHARMACO (ANIMAL)	01 02 04		
0215 CHRONIC TOX (ANIMAL)	01 02 04	0230 METAB/PHARMACO (HUMAN)	01 02 04		

**IMAGE DATA:** **NON-CBI INVENTORY** YES NO **DETERMINE**  
**ONGOING REVIEW** YES (DROP/REFER) NO (CONTINUS) REFER:  
**SPECIES** RAT **TOXICOLOGICAL CONCERN** LOW Acute Inhalation Toxicity **PRODUCTION:**  
Cosmetics  
**COMMENTS:** Non-Cap, P-92-527

13091A

L

Acute inhalation toxicity in the rat is of low concern based on 0% mortality (0/10) following a 4-hour exposure to 5320 mg/m<sup>3</sup> (5.32 mg/L). Clinical signs of toxicity noted following exposure included exaggerated respiratory movements and staggering gait.