

Contains NO

CIBA-GEIGY

Textile Products Division
CIBA-GEIGY Corporation
P.O. Box 18300
Greensboro, North Carolina 27419-8300
Telephone 919 632 6000

A

SEP 11 1992

8EHQ-92-12132
INIT
88920010370

September 4, 1992

Document Processing Center (TS-790)
Office of Toxic Substances
Environmental Protection Agency
401 M. Street, SW
Washington, DC 20460

Attention: Section 8(e) Coordinator (CAP Agreement)

RE: 8E CAP - 0024

Dear Section 8(e) Coordinator:

Enclosed are triplicate copies of a study CIBA-GEIGY Corporation is submitting pursuant to the TSCA Section 8(e) Compliance Audit Program and CAP Agreement number 8E CAP-0024. We are submitting the following information, as required by the CAP Agreement:

Company Name: CIBA-GEIGY Corporation
444 Saw Mill River Road
Ardsley, New York 10502-2699

Attention: Mr. Anthony Di Battista
Manager, Regulatory Affairs & Toxic Substances Compliance
Telephone (914) 479-2776

Tested Chemical: C.I. Basic Blue 3; also identified as Maxilon Blue 5G

CAS No.: 55840-82-9

Report Title: Acute Inhalation Toxicity Study of Maxilon Blue 5G; Code No. M53504, Batch No. 11/12-77, TR#77-1044; (Laboratory Number: 7E-9490, dated 2/20/78)

Summary:

Five rats/sex were exposed to the test material for one hour at an estimated mean concentration of 3.02 ± 0.69 mg/L. There were no deaths during the exposure, but mortality was recorded on day 1 (3/10), day 5 (5/7), and day 6 (2/2) of the recovery period. Post mortem examinations showed hemorrhagic areas in the lungs. Although the information reported is insufficient to estimate an LC₅₀, this report is submitted based on the inhalation toxicity potential suggested by this limited data.



"THE POWER OF PARTNERSHIP"
Textile Products Division

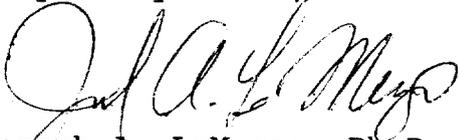
10/1/94

Category: Unit II.B.2.b

Prior Reporting: Not Applicable

Please call the undersigned at telephone number (919) 632-2889 if you have any questions about this submittal.

Very Truly Yours,

A handwritten signature in cursive script, appearing to read "Joseph A. LoMenzo".

Joseph A. LoMenzo, Ph.D.
Product Stewardship Director
Textile Products Division

Enclosures

2 copies of this letter

3 copies of the study

cc: A. Di Battista



Cannon Laboratories, Inc.

P. O. Box 3627, Reading, Pa. 19605 (215) 375-4536

ACUTE INHALATION TOXICITY STUDY OF

MAXILON BLUE 5G

CODE NO. M53504

BATCH NO. 11/12-77, TR#77-1044

ISSUED BY: CANNON LABORATORIES, INC.

SUBMITTED TO:

TOMS RIVER CHEMICAL CORPORATION
BOX 71
TOMS RIVER, NEW JERSEY 08753

DATE: FEBRUARY 20, 1978

LABORATORY NUMBER: 7E-9490

KAT



Cannon Laboratories, Inc.

AUTHORIZATION:

This investigation was authorized by the Toms River Chemical Corporation, Box 71, Toms River, New Jersey 08753 in a letter dated December 16, 1977 from Walter R. Payne, Director of Safety.

For this test procedure "Maxilon Blue 5G, Code No. M53504, Batch No. 11/12-77, TR#77-1044", a dark olive powder, was used.



Cannon Laboratories, Inc.

SUBJECT: Acute Inhalation Toxicity in Rats in Accordance With the Regulations as Defined by the Environmental Protection Agency*

TEST SUBSTANCE: Maxilon Blue 5G, Code No. M53504, Batch No. 11/12-77, TR#77-1044 (a dark olive powder)

REFERENCE: Notebook TR-006 Page 48

DATES:

RECEIVED: December 16, 1977

EXPERIMENTAL: January 18, 1978 - January 24, 1978

REPORTED: January 30, 1978

SUMMARY:

Ten laboratory rats (5 males & 5 females) initially weighing between 275 and 351 grams, when exposed to "Maxilon Blue 5G, Code No. M53504, Batch No. 11/12-77, TR#77-1044" via the inhalation route at an analytical concentration of 3.02 ± 0.69 mg/l, exhibited no observable adverse effects during the one-hour exposure. Deaths were recorded on days 1 (3/10), 5 (5/7) and 6 (2/2) of the recovery period. The concentration stated above was the maximum attainable aerosol concentration of the test material under the experimental conditions. The average mass median particle diameter was $2.69 \pm 0.48\mu$. Gross pathological examination showed hemorrhaged lungs (3/10), blue stomach and intestinal contents (3/10), gelatinous material in

* Part II, Environmental Protection Agency (EPA), Guidelines for Registering Pesticides

Cannon Laboratories, Inc.

the intestinal tract (2/10), stomachs distended with gas and mucinous material (5/10) and one animal with an empty stomach which was distended with gas and fluid.

Performed By: *Diane Davidson*
Diane Davidson
Inhalation Technician

Supervised By: *Benjamin Taylor, Jr.*
Benjamin Taylor, Jr., Ph.D.
Group Leader/Toxicology

Approved By: *Geoffrey St. E. Parke*
Geoffrey St. E. Parke
Director of Biological Services

Reviewed By: *Samuel J. Charles III*
Samuel J. Charles III
Compliance Officer



Cannon Laboratories, Inc.

PURPOSE:

To determine the acute inhalation toxicity effects of "Maxilon Blue 5G, Code No. M53504, Batch No. 11/12-77, TR#77-1044" on 10 laboratory rats for an exposure period of one hour.

PROCEDURE:

This experiment was conducted in accordance with the guidelines as defined by the Environmental Protection Agency for acute inhalation toxicity.

METHOD:

Ten laboratory rats (5 males & 5 females), weighing between 275 and 351 grams each, were used. The animals were housed, individually, in suspended, wire bottom cages in a room maintained at $74 \pm 1^{\circ}\text{F}$ and 45-55% relative humidity with an artificial light cycle of 12 hours. Food and water were available ad libitum with the exception of the one hour of the exposure period.

This test was conducted in a 40-liter (36 x 36 x 31 cms) glass exposure chamber. The sides and the bottom of the chamber had centered holes (3-4 cm in diameter) to allow access to the chamber for testing and exhaust of the atmosphere. The port in the bottom of the chamber was centered over a 10 cm hole in a wooden platform. A funnel (8.5 cm in diameter) was brought from the underside of the platform through the hole and centered on the port in the bottom of the chamber. Dynamic air flow within the chamber was maintained by connecting the funnel to a vacuum pump for continuous changing of the chamber atmosphere.



Cannon Laboratories, Inc.

A raised, tightly-fitting, wire mesh screen was placed over the bottom of the chamber and served as flooring for the test animals. This screen also served to raise the animals to a level such that the side ports in the chamber were at the breathing level of the animals. All measurements of particle size and concentration of the test substance were made from these side ports. Also, the delivery of the test substance into the chamber was done through one of the ports on the side of the chamber. The lid of the chamber also had a port which was used (if desired) for measuring the chamber atmosphere to insure even distribution of the test substance.

The test substance was generated as a dust using a 3-neck, round-bottom, 250 ml Pyrex flask. A stirring mechanism was placed through the center neck of the flask and an air line through one of the side necks. The third neck was connected by a glass elbow (which had an air vent to allow flushing) to the chamber. The dust was introduced into the chamber through a side port. A piece of rubber was taped over the outer area around the hole and a vertical slit made in the rubber to allow the entrance of the glass elbow from the dust generator. Constant flow of material was maintained by a calibrated flowmeter connected between the air line and the generating apparatus. In all instances, the air flow was maintained at or above 0.5 liter of air per minute per rat.



Cannon Laboratories, Inc.

Measurement of the atmospheric concentration of test substance in the chamber was achieved using a Gelman^(R) Model 1235 stainless steel filter holder containing a pre-weighed glass fiber filter (Gelman^(R) type AE-47 mm). The filter holder was attached to a vacuum pump which was regulated to exhaust 1.0 liter of air per minute from the chamber through the filter. Subsequent weighing of the filter after a designated period permitted the calculation of the atmospheric concentration of the test substance in the chamber during the exposure. Particle size determinations were made using a Cascade Impactor.*

During the exposure, the animals were observed 4 times for clinical signs. Following the exposure, all animals were removed from the chamber and survivors were kept for a post-exposure observation period of 14 days. Animals surviving the post-exposure period were killed and observed for gross pathological organ changes.

*Model 'B', Monsanto Enviro-Chem Systems, Inc.



Cannon Laboratories, Inc.

7

RESULTS:

Table 1 shows the method of calculating the average analytical concentration of "Maxilon Blue 5G, Code No. M53504, Batch No. 11/12-77, TR#77-1044" during the exposure. The average analytical concentration obtained was 3.02 ± 0.69 mg/l.

Particle size determinations are presented in Table 2. The average mass median particle diameter for the one hour exposure was 2.69 ± 0.48 μ .

In Table 3 are listed all clinical observations during and post-exposure. No observable adverse effects were noted during the one hour exposure. All animals, however, died during the post-exposure period.

The initial body weight of each animal, as well as the weight during the post-exposure period, are presented in Table 4. Animals surviving on day one displayed a decrease in body weights. All animals died prior to day 7 weighing.

Gross pathological findings are shown in Table 5. The results of the gross pathological examination showed hemorrhaged lungs (3/10), blue contents in the stomach (5/10) and intestines (3/10), a gelatinous material in the intestinal tract (2/10), stomachs distended with gas (7/10) and one animal with an empty stomach.

TABLE 1
 METHOD OF CALCULATING ANALYTICAL CONCENTRATION
 TEST SUBSTANCE: MAXILON BLUE 5G, CODE NO. M53504, BATCH NO. 11/12-77, TR#77-1044
 ONE-HOUR INHALATION STUDY - EPA

	<u>SAMPLE 1</u>	<u>SAMPLE 2</u>	<u>SAMPLE 3</u>	<u>SAMPLE 4</u>
Post Weight (mg)	<u>1508.2</u>	<u>1510.9</u>	<u>1532.4</u>	<u>1531.7</u>
Pre-Weight (mg)	<u>1471.0</u>	<u>1476.7</u>	<u>1505.9</u>	<u>1508.7</u>
Weight Difference (mg)	<u>37.2</u>	<u>34.2</u>	<u>26.5</u>	<u>23.0</u>
Flow Rate (l/min)	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Sample Time (min)	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
Air Volume (l)	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
Analytical Concentration (mg/l)	<u>3.72</u>	<u>3.42</u>	<u>2.65</u>	<u>2.30</u>

Average Analytical Concentration/Exposure = 3.02 ± 0.69 mg/l

TABLE 2

PARTICLE SIZE DETERMINATION

TEST SUBSTANCE: MAXILON BLUE 5G, CODE NO. M53504, BATCH NO. 11/12-77, TR#77-1044
ONE-HOUR INHALATION STUDY - EPA

SAMPLE NUMBER 1 SAMPLE TIME 5 (MINUTES) SAMPLE VOLUME 5 (LITERS)

STAGE	POST-WEIGHT (mg)	PRE-WEIGHT (mg)	WEIGHT GAIN (mg)	%	CUM. %	PARTICLE SIZE RANGE (μ)
1	5083.4	5078.7	4.7	37.0	63.0	> 3.14
2	5042.8	5039.1	3.7	29.1	33.9	1.63 - 3.13
3	5204.6	5202.3	2.3	18.1	15.8	1.10 - 1.62
4	5082.6	5081.7	0.9	7.1	8.7	0.57 - 1.09
5	5049.2	5048.4	0.8	6.3	2.4	0.33 - 0.56
FILTER	1462.9	1462.6	0.3	2.4	-	

TOTALS = 12.7 100.0

$$\text{AEROSOL LOAD} = \frac{\text{TOTAL WT. GAIN (MG)}}{\text{TOTAL VOL. (L)}} = \underline{2.54} \text{ MG/L}$$

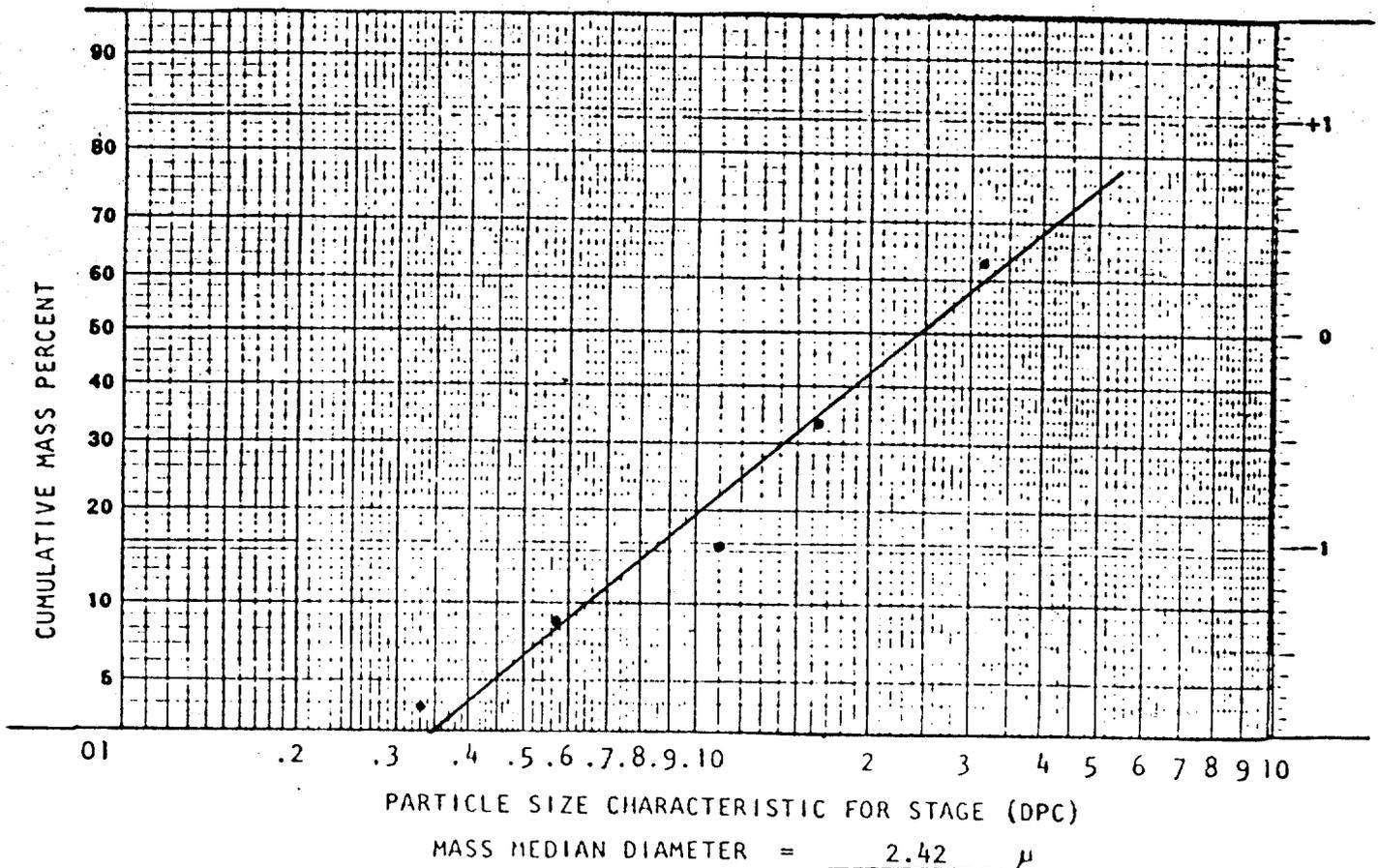


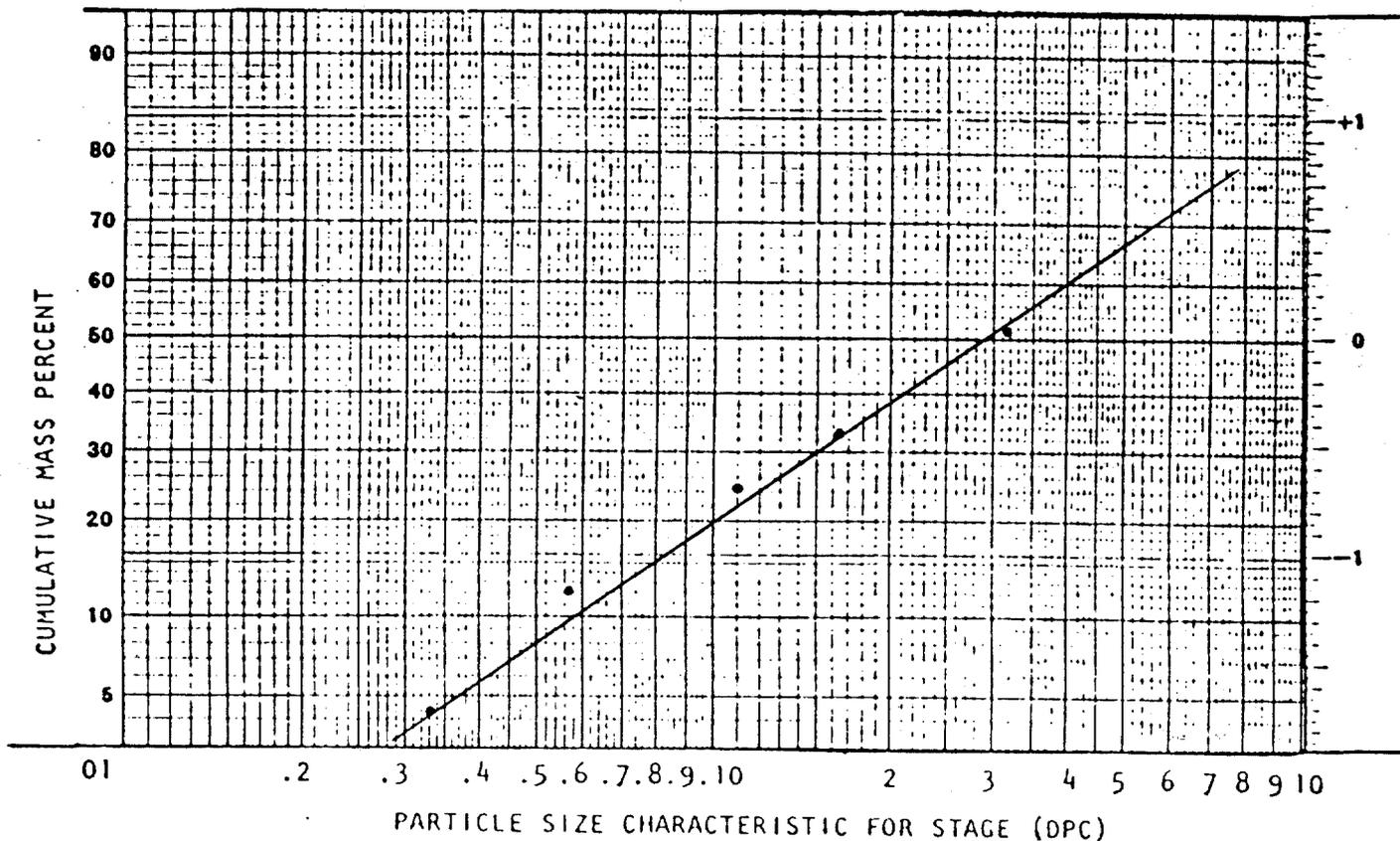
TABLE 2
 PARTICLE SIZE DETERMINATION
 TEST SUBSTANCE: MAXILON BLUE 5G, CODE NO. M53504, BATCH NO. 11/12-77, TR#77-1044
 ONE-HOUR INHALATION STUDY - EPA

SAMPLE NUMBER 2 SAMPLE TIME 5 (MINUTES) SAMPLE VOLUME 5 (LITERS)

STAGE	POST-WEIGHT (mg)	PRE-WEIGHT (mg)	WEIGHT GAIN (mg)	%	CUM. %	PARTICLE SIZE RANGE (μ)
1	5082.1	5078.9	3.2	48.5	51.5	> 3.14
2	5041.1	5039.9	1.2	18.2	33.3	1.63 - 3.13
3	5203.5	5202.9	0.6	9.1	24.2	1.10 - 1.62
4	5082.7	5081.9	0.8	12.1	12.1	0.57 - 1.09
5	5049.1	5048.5	0.6	9.1	3.0	0.33 - 0.56
FILTER	1455.0	1454.8	0.2	3.0	-	

TOTALS = 6.6 100.0

AEROSOL LOAD = $\frac{\text{TOTAL WT. GAIN (MG)}}{\text{TOTAL VOL. (L)}} = \underline{1.32} \text{ MG/L}$



MASS MEDIAN DIAMETER = 2.96 μ

TABLE 3
 CLINICAL OBSERVATIONS DURING AND POST-EXPOSURE
 TEST SUBSTANCE: MAXILON BLUE 5G, CODE NO. M53504, BATCH NO. 11/12-77, TR#77-1044
 ONE-HOUR INHALATION STUDY - EPA

ANIMAL NUMBER	SEX	DURING EXPOSURE				HOUR	POST-EXPOSURE													
		MINUTES					DAYS													
		15	30	45	60	6	1	2	3	4	5	6	7	8	9	10	11	12	13	14
3252	M	N	N	N	N	N	N	N	N	N	DEATH									
3254	M	N	N	N	N	N	DEATH													
3255	M	N	N	N	N	N	N	N	N	N	DEATH									
3258	M	N	N	N	N	N	DEATH													
3264	M	N	N	N	N	N	N	N	N	N	DEATH									
2858	F	N	N	N	N	N	N	N	N	N	DEATH									
2861	F	N	N	N	N	N	DEATH													
2863	F	N	N	N	N	N	N	N	N	N	DEATH									
2866	F	N	N	N	N	N	N	N	N	N	DEATH									
2868	F	N	N	N	N	N	N	N	N	N	DEATH									

N = NORMAL

TABLE 4
 ANIMAL WEIGHTS (GMS)
 TEST SUBSTANCE: MAXILON BLUE 5G, CODE NO. M53504, BATCH NO. 11/12-77, TR#77-1044
 ONE-HOUR INHALATION STUDY - EPA

ANIMAL NUMBER	SEX	INITIAL WEIGHT	DAY 1	DAY 7	DAY 14
3252	M	323	275	FOUND DEAD DAY 5	
3254	M	351	DEATH		
3255	M	350	305	FOUND DEAD DAY 5	
3258	M	349	DEATH		
3264	M	300	256	FOUND DEAD DAY 6	
	Mean	335	279		
	+ S.D.	22	25		
2858	F	279	240	FOUND DEAD DAY 5	
2861	F	304	DEATH		
2863	F	290	252	FOUND DEAD DAY 5	
2866	F	275	235	FOUND DEAD DAY 5	
2868	F	279	246	FOUND DEAD DAY 6	
	Mean	285	243		
	+ S.D.	13	8		

TABLE 5
 GROSS PATHOLOGICAL FINDINGS
 TEST SUBSTANCE: MAXILON BLUE 5G, CODE NO. M53504, BATCH NO. 11/12-77, TR#77-1044
 ONE-HOUR INHALATION STUDY - EPA

ANIMAL NUMBER	SEX	NOSE	TRACHEA	LUNGS	HEART	LIVER	SPLEEN	KIDNEYS	URINARY BLADDER	SMALL INTESTINE	LARGE INTESTINE	STOMACH
3252	M	-	-	-	-	-	-	-	-	-	-	M, D-gas
3254	M	-	-	H	-	-	-	-	-	-	Contents dyed blue	
3255	M	-	-	-	-	-	-	-	-	-	-	M, D-gas
3258	M	-	-	H	-	-	-	-	-	-	Contents dyed blue	
3264	M	-	-	-	-	-	-	-	-	GM	GM	D-gas, fluid
2858	F	-	-	H	-	-	-	-	-	-	Contents dyed blue	
2861	F	-	-	-	-	-	-	-	-	-	-	M, D-gas
2863	F	-	-	-	-	-	-	-	-	-	-	M, D-gas
2866	F	-	-	-	-	-	-	-	-	-	-	M, D-gas
2868	F	-	-	-	-	-	-	-	-	GM	GM	E, D-gas

H - hemorrhaged
 E - empty
 GM - gelatinous material
 M - mucinous material-blue
 D - distended
 - = within normal limits



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

e Anthony Di Battista
Manager, Regulatory Affairs & Toxic Substances Compliance
Toxicology, Regulatory Auditing & Compliance
CIBA-GEIGY Corporation
444 Saw Mill River Road
Ardsley, New York 10502-2699

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

FEB 13 1995

EPA acknowledges the receipt of information submitted by your organization under Section 8(e) of the Toxic Substances Control Act (TSCA). For your reference, copies of the first page(s) of your submission(s) are enclosed and display the TSCA §8(e) Document Control Number (e.g., 8EHQ-00-0000) assigned by EPA to your submission(s). Please cite the assigned 8(e) number when submitting follow-up or supplemental information and refer to the reverse side of this page for "EPA Information Requests".

All TSCA 8(e) submissions are placed in the public files unless confidentiality is claimed according to the procedures outlined in Part X of EPA's TSCA §8(e) policy statement (43 FR 11110, March 16, 1978). Confidential submissions received pursuant to the TSCA §8(e) Compliance Audit Program (CAP) should already contain information supporting confidentiality claims. This information is required and should be submitted if not done so previously. To substantiate claims, submit responses to the questions in the enclosure "Support Information for Confidentiality Claims". This same enclosure is used to support confidentiality claims for non-CAP submissions.

Please address any further correspondence with the Agency related to this TSCA 8(e) submission to:

Document Processing Center (7407)
Attn: TSCA Section 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
Washington, D.C. 20460-0001

EPA looks forward to continued cooperation with your organization in its ongoing efforts to evaluate and manage potential risks posed by chemicals to health and the environment.

Sincerely,

Terry R. O'Bryan
Terry R. O'Bryan
Risk Analysis Branch

Enclosure

12132A



Recycled/Recyclable
Printed with Soy/Canola Ink on paper that
contains at least 50% recycled fiber

Triage of 8(e) Submissions

Date sent to triage: MAR 08 1995

NON-CAP

CAP

Submission number: 12132A

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: <u>0</u> 1 2 pages <u>1,2</u>	pages <u>1,2, tabs</u>
Notes:	
Contractor reviewer: <u>UPS</u>	Date: <u>1/25/95</u>

CECATS/TRIAGE TRACKING DBASE ENTRY FORM

CECATS DATA: Submission # BEHO-0992-12132 SEQ. A

TYPE (INT/SUPP FLWP) INT

SUBMITTER NAME: Ciba-Geigy Corporation

INFORMATION REQUESTED - FLWT DATE:
 0501 NO INFO REQUESTED
 0502 INFO REQUESTED (TECH)
 0503 INFO REQUESTED (VOL. ACTIONS)
 0504 INFO REQUESTED (REPORTING RATIONALE/F)

DISPOSITION:
 0505 REFER TO CHEMICAL SCREENING
 0506 CAP NOTICE

SUB. DATE: 09/04/92 09/10/92 12/01/94 12/01/94

CHEMICAL NAME: ~~Maxilon~~ Maxilon Blue 56 CASE 55840-82-9

- VOLUNTARY ACTIONS:**
 0401 NO ACTION REQUIRED
 0402 STUDIES PLANNED/IN PROGRESS
 0403 NOTIFICATION WORKING/PLANNED
 0404 LABELS/MSDS CHANGED
 0405 PROCESS/AND/ING. CHANGED
 0406 APPAUSE DISCONTINUED
 0407 PRODUCTION DISCONTINUED
 0408 CONFIDENTIAL

P.F.C.
 01 02 04
 01 02 04
 01 02 04
 01 02 04
 01 02 04
 01 02 04
 01 02 04
 01 02 04
 01 02 04
 01 02 04

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 ECO/AQUA TOX	01 02 04	0245 CLASTO (ANIMAL)	01 02 04
0206 REPRO/TERATO (HUMAN)	01 02 04	0221 ENV. OCCUR/REL/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 DAM/REPAIR	01 02 04
0208 NEURO (HUMAN)	01 02 04	0223 RESPONSE REQUEST DELAY	01 02 04	0248 PRODUCE/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	0240 METAB/PHARMACO (HUMAN)	01 02 04		

IRIAGE DATA: NON-CHI INVENTORY YES NO IN PROGRESS

CAS SR YES NO

TOXICOLOGICAL CONCERN: LOW MED HIGH

SPECIES: RAT

ONGOING REVIEW: YES (DROP/REFER) NO (CONTINUE)

USE: PRODUCTION:

-CPSS- 0301960919

0 0 0 0 0 0 0 0 0 0 0

> <ID NUMBER>

8(E)-12132A

> <TOX CONCERN>

M

> <COMMENT>

ACUTE INHALATION TOXICITY IN MALE AND FEMALE RATS IS ASSIGNED A MEDIUM LEVEL OF CONCERN DUE TO THE DEATH OF ALL ANIMALS AT THE SINGLE HIGH EXPOSURE LEVEL STUDIED. A SINGLE WHOLE-BODY ONE-HOUR EXPOSURE TO AN ATMOSPHERIC CONCENTRATION OF 3.02 +/- 0.69 MG/L IN 5 MALE AND 5 FEMALE RATS WAS ASSOCIATED WITH DEATH OF 10/10 ANIMALS ON POST- EXPOSURE DAYS 1, 6 AND 7. POSTMORTEM NECROPSY REVEALED HEMORRHAGED LUNGS (3/10), BLUE STOMACH AND INTESTINAL CONTENTS (3/10), GELATINOUS MATERIAL IN THE INTESTINAL TRACT (2/10), STOMACHS DISTENDED WITH GAS AND MUCINOUS MATERIAL (5/10) AND AN EMPTY STOMACH DISTENDED WITH GAS AND FLUID (1/10).

\$\$\$\$