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Submitting Organization			SHERWIN WILLIAMS CO		
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Document Title			EVALUATION OF THE ACUTE INHALATION TOXICITY OF TOLYLTRIAZOLE (FINAL REPORT) WITH ATTACHMENTS AND COVER LETTER DATED 061289		
Chemical Category			TOLYLTRIAZOLE (29385-43-1)		



CONTAINS NO CBI

86-890000610

The Sherwin-Williams Company
101 Prospect Avenue, N.W.
Cleveland, Ohio 44115-1075

June 12, 1989

~~86-890000595~~⁵⁹¹
THRU

~~86-890000626~~

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Office of Toxic Substances (TS-790)
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

RECEIVED
JUN 15 1989

ATTN: 8(d) Health and Safety Reporting Rule
(Notification/Reporting)

Dear Sir or Madam:

Re: 1,2,3-Benzotriazole - 95-14-7 &
Tolyltriazole - 29365-43-1

During the ten-year period prior to April 13, 1989, the Sherwin-Williams Company manufactured the subject chemicals. These chemicals were added to 40 CFR 716.120 by publication in the Federal Register of February 28, 1989. The Sherwin-Williams's Chemicals Division manufactured these chemicals at its Cincinnati site. This product line and facility was sold to the PMC Specialties Group, Inc., effective July 1, 1985. Therefore, Sherwin-Williams is not subject to reporting under the Preliminary Assessment Information Rule, 40 CFR 712.30.

In compliance with 40 CFR 716.30, Judith A. Tins, Administrator, Product Safety, Sherwin-Williams Company, 101 Prospect Avenue, N.W., Cleveland, OH 44115, (216) 566-2919 has performed a search of the Sherwin-Williams files for health and safety studies on these two chemicals. She is the person who has responsibility for compliance with the Toxic Substances Control Act (TSCA) and maintains this type of information.

We are enclosing copies of the applicable studies on the above referenced chemicals. The specific chemical tested is indicated on the face of each study.

For reference:

- BT is benzotriazole
- BT-D is an unknown grade of benzotriazole
- Cobratec 99 is benzotriazole
- TT is tolyltriazole
- Cobratec TT-100 is tolyltriazole
- Cobratec TT-50-S is a 50% solution in water of the sodium salt of tolyltriazole
- Cobratec TT-35-I is a 35% solution of tolyltriazole in isopropanol.



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-2-

June 12, 1989

All unpublished studies that are known to Sherwin-Williams are in our possession, so we are not submitting any lists of studies as per 716.35, but are submitting copies of the actual studies. We have included a copy of a technical bulletin indicating physical and chemical properties of these two chemicals. We do not have copies of the tests to determine these properties.

I understand that this submission constitutes proper compliance with the 8(d) notice. If you have any questions about the enclosed materials, please contact the technical contact, Ms. Tins, at (216) 566-2919.

Submitted by:

John J. Gerulis, Director
Environmental, Health
and Regulatory Services
The Sherwin-Williams Company
101 Prospect Ave. N.W.
Cleveland, OH 44115-1075
(216) 566-2239

JJG/ct

Attach.

cc: J. A. Tins

FINAL REPORT



PROJECT NUMBER G3226-3

0006579105

86-890000610

EVALUATION OF THE ACUTE INHALATION TOXICITY OF

TOLYLTRIAZOLE

29385-43-1

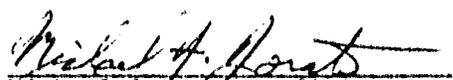
SUBMITTED TO:

Dr. C.J. Korpics
Sherwin Williams Chemicals
1310 Expressway Drive
Toledo, Ohio 43608

SUBMITTED BY:

Huntingdon Research Center
216 Congers Road
New City, New York 10956

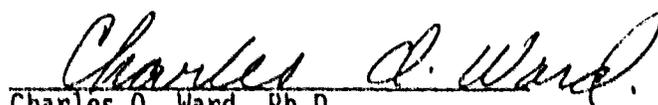
PRINCIPLE INVESTIGATOR:


Michael A. DeVito, Ph.D.
Staff Inhalation Toxicologist

APPROVED BY:


Charles E. Ulrich
Manager
Inhalation Toxicology Department

APPROVED BY:


Charles O. Ward, Ph.D.
Director, Toxicology

July 30, 1976

I. PURPOSE

The purpose of this study was to evaluate the acute inhalation toxicity of an experimental compound according to Huntingdon Research Center's Standard Design No. INH-SW1.

II. EXPERIMENTAL DESIGN

One (1) group, consisting of ten (10) male and ten (10) female Sprague-Dawley rats (Charles River) was exposed for one (1) hour to a concentration of 2 mg/L of an aerosol of tolyltriazole. Vapor phase compound was also monitored. Following the exposure, all animals were maintained for an additional fourteen (14) days; with food and water *ad libitum*. Body weights were taken prior to exposure and at seven (7) and fourteen (14) days post-exposure. All animals were observed for signs of toxicity during the exposure and daily during the post-exposure observation period. All animals that died or were sacrificed after fourteen days were necropsied. At this time, all organs were observed for macroscopic abnormalities. The following tissues were stored in 10% neutral buffered formalin in the event that histopathology might be required:

lungs & trachea
heart
liver
kidneys
spleen

stomach
intestines
gonads
whole head
any abnormal tissue

III. MATERIALS AND METHODS

A. Experimental Compound

The experimental compound was supplied by the sponsor in two 600 g containers identified as Tolyltriazole (Cobratec RTT 100), Sample No. 3000,

March 15, 1976. The compound was a fine powder, off-white in color. The melting point was reported to be 76°C, with rapid decomposition occurring at temperatures \geq 300°C.

B. Animals

Twenty (20) Sprague-Dawley derived rats, ten (10) male and ten (10) female, weighing between 250 and 400 grams, were obtained from Charles River Breeding Laboratories. The animals were housed in groups of ten (10) and given Purina cubed diet and tap water *ad libitum*. The animals were allowed at least seven (7) days to accommodate to the laboratory conditions before being assigned to the study.

C. Aerosol Generation System

Figure 1 shows a schematic diagram of the aerosol generation system. The system operates as follows. Approximately one hundred (100) grams of tolyltriazole is placed in the round bottom three necked flask and melted. The temperature of the flask and delivery tube is maintained at 200°C by the heating mantle, air heater and heating tape. A controlled air flow of ten (10) L/min is provided to the vapor generating flask. The tolyltriazole vapor-laden air is taken from the top of the generating flask, diluted and cooled by admixture of a controlled flow of clean dry air. This system provided a very fine white aerosol. Chamber concentration was controlled by varying the air flow rate through the generator.

D. Determination of Aerosol Concentration

Exposure concentrations were determined by sampling the chamber atmosphere. Actual exposure concentrations were determined by

drawing (at 0.82 L/min) a known volume of chamber air through a pre-weighed glass fiber filter in a closed face filter holder. The sample time was three (3) minutes. The filter was then re-weighed and the chamber concentration calculated (Table 1).

E. Determination of Vapor Concentration

Vapor phase compound was determined by sampling the chamber atmosphere. The sampling rate was 0.82 L/min for six (6) minutes (Table 2). The sample was drawn through two 25 ml fritted gas bubblers in series, each containing ten (10) ml of 0.5N sodium hydroxide. After sample collection the contents of each gas bubbler was transferred to a 25 ml volumetric flask, brought to volume with additional 0.5N sodium hydroxide and mixed well. The absorbance was determined at 274 nm using a UV spectrophotometer and matched 1 cm. silica cells. The tolyltriazole content was obtained by reference to a standard curve.

F. Particle Size Analysis

Particle size analysis was also conducted during the exposure. An Anderson cascade impactor was used for this determination. Pre-weighed glass fiber filters, specially cut to fit the impactor, were used for collecting the aerosol on each stage. The filter discs were re-weighed immediately after sampling. A particle size distribution graph (Figure 2) was then constructed from the weight of material collected on each stage. The aerosol was found to have an Equivalent Aerodynamic Diameter (EAD) of 0.35μ with a geometric standard deviation (σ_g) of 2.62. The sample flow rate was 1 CFM for ten (10) minutes (Table 3).

IV. RESULTS

A. Observations for Pharmacologic and Toxicologic Signs

During the exposure, the only pharmacologic or toxicologic sign observed was a decrease in general activity. By 24 hours post-exposure, all animals were apparently normal and remained so during the entire 14 day observation period.

B. Body Weights

All surviving animals appeared to gain weight normally throughout the 14 day observation period. Table 4 presents the individual and mean body weight data.

C. Necropsy

Since there were no deaths during the exposure or 14 day post-exposure observation period, all animals were necropsied following the 14 day observation period. All organs were observed for gross abnormalities. Respiratory tract involvement, characterized by slight to moderate incidence of hemorrhage and hepatization, was found in all animals. Some incidence of pale liver and kidneys was also noted in males and females.

V. SUMMARY

Ten (10) male and ten (10) female Sprague-Dawley rats were exposed for one (1) hour to an aerosol of tolyltriazole at an actual concentration of 1.73 ± 0.67 mg/L, an EAD of 0.35 μ , a geometric standard deviation of 2.62 μ g/L. No significant pharmacologic or toxicologic signs were noted. All animals appeared in good health post-exposure and gained weight normally. The primary effect observed on necropsy was pulmonary irritation characterized by pulmonary hemorrhage.

FIGURE 1 : SCHEMATIC DIAGRAM OF AEROSOL GENERATION SYSTEM

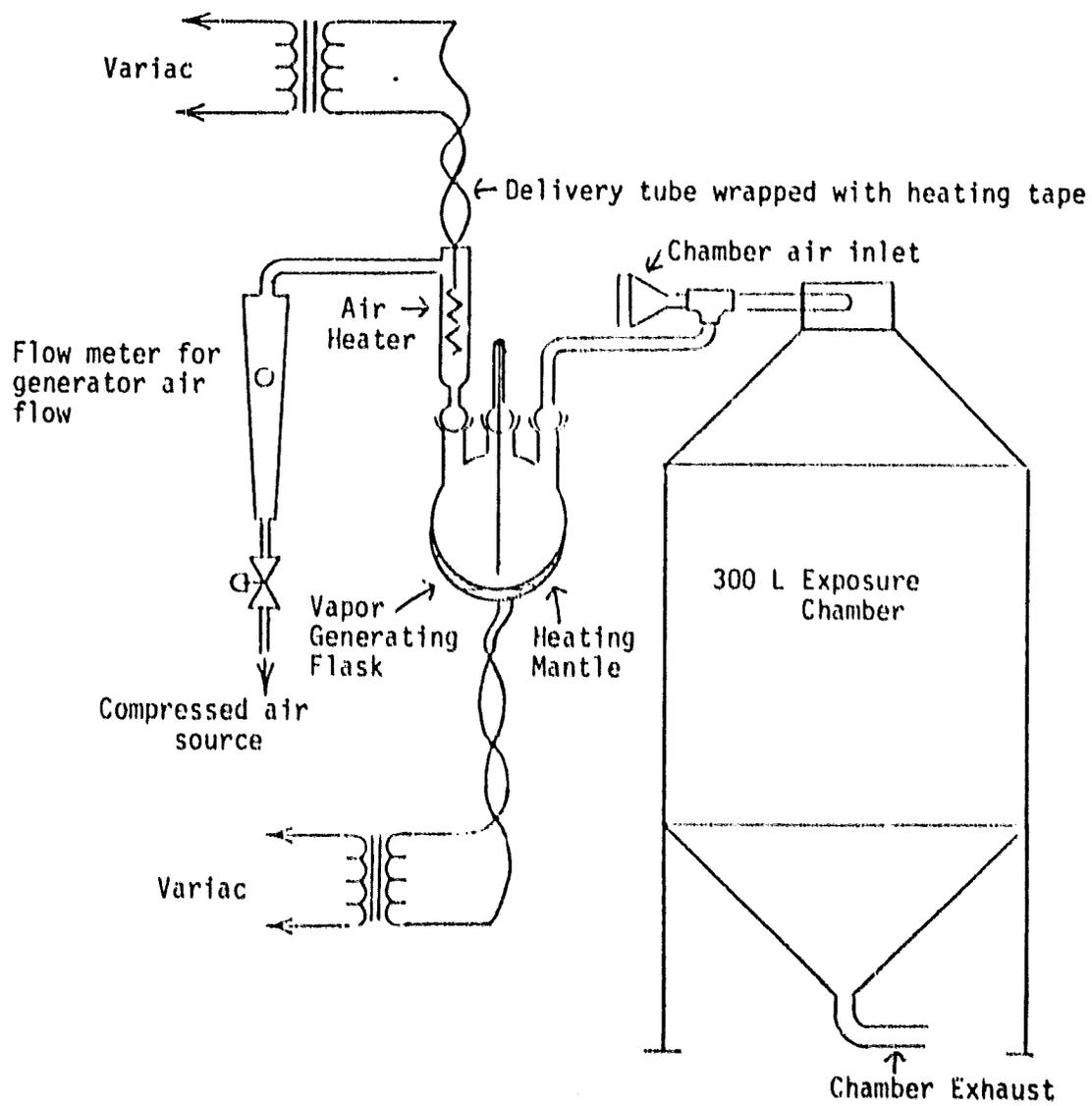


FIGURE 2 - PARTICLE SIZE DISTRIBUTION OF

TOLYLTRIAZOLE AEROSOL

EAD = 0.35 μ
 σ_g = 2.62

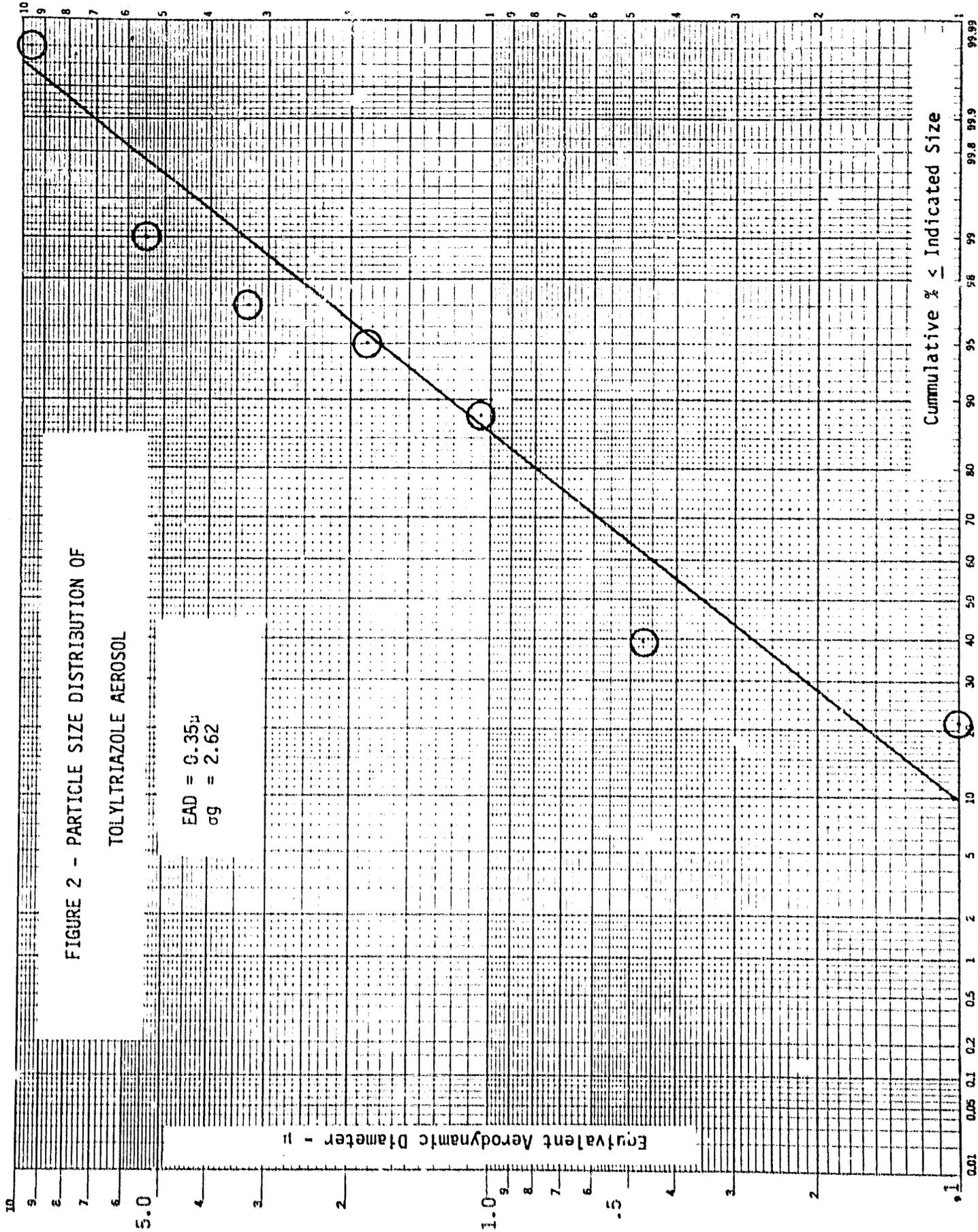


TABLE 1
ACTUAL AEROSOL CONCENTRATION

<u>SAMPLE NO.</u>	<u>SAMPLE FLOWRATE (L/min)</u>	<u>SAMPLE TIME (Min)</u>	<u>FILTER PRE-WEIGHT (MG)</u>	<u>FILTER POST-WEIGHT (MG)</u>	<u>ACTUAL CONCENTRATION (MG/L)</u>
1	.82	3	33.9	36.2	.93
2	.82	3	38.6	42.1	1.42
3	.82	3	36.5	42.1	2.28
4	.82	3	37.1	42.8	<u>2.30</u>
Mean ± SD					1.73 ± .67

TABLE 2

VAPOR PHASE CONCENTRATION

<u>SAMPLE NO.</u>	<u>SAMPLE FLOWRATE (L/min)</u>	<u>SAMPLE TIME (Min)</u>	<u>VAPOR CONCENTRATION (µg/L)</u>
1	.82	6	17.6
2	.82	6	8.6

Total vapor concentration 26.2 µg/L

TABLE 3

PARTICLE SIZE ANALYSIS OF TOLYLTRIAZOLE
AEROSOL WITH THE ANDERSEN IMPACTOR

<u>PARTICLE SIZE (μ)</u>	<u>MASS COLLECTED (mg)</u>	<u>CUMMULATIVE PERCENT <</u>
>20	-	-
9.3	3	99.98
5.5	5	98.9
3.3	7	97.21
1.85	19	94.79
1.05	142	88.22
0.47	51	39.09
0.10	46	21.45
<0.10	16	-

EAD = .35 μ σ_g = 2.62

TABLE 4
 INDIVIDUAL AND MEAN BODY WEIGHT DATA FOR RATS
 EXPOSED FOR ONE HOUR TO AN AEROSOL OF TOLYLTRIAZOLE

ANIMAL NO.	BODY WEIGHTS - GRAMS		
	PRE-EXPOSURE	7 DAYS POST-EXPOSURE	14 DAYS POST-EXPOSURE
GROUP I MALES			
0	394	407	433
1	420	422	482
2	373	390	421
3	367	382	399
4	368	380	416
5	376	397	437
6	399	423	466
7	343	359	386
8	346	356	390
9	360	375	406
MEANS	<u>375</u>	<u>389</u>	<u>424</u>
GROUP I FEMALES			
0	249	257	253
1	230	229	239
2	220	230	237
3	218	238	248
4	223	241	254
5	204	211	224
6	251	251	258
7	237	239	244
8	254	252	257
9	224	224	232
MEANS	<u>231</u>	<u>237</u>	<u>245</u>

CERTIFICATE OF AUTHENTICITY

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