DOW CORNING

CONTAINS NO CBI

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8EHQ-0691-1047
FLWP

May 30, 1991

26 pages

TSCA Document Processing Center (TS-790)
Room L-100
Office of Pesticides and Toxic Substances
United States Environmental Protection Agency
Attn: TSCA Section 8(e) Coordinator
401 M Street, S.W.
Washington, D.C. 20460

88 900000217 : PDCN
89 910000286 : DCN

EPA-OTS

00103496BV

Re: TSCA Section 8(e) Notification of Substantial Risk - 8EHQ-0890-1047
Hexamethoxydisilylethane - Follow-up Submission

Dear Sir:

In accordance with the provisions of Section 8(e) of the Toxic Substances Control Act (TSCA), as interpreted in the Statement of Interpretation and Enforcement Policy (40 FR 11110, March 16, 1978), Dow Corning Corporation submitted the following Notification of Substantial Risk for an ongoing toxicological study on August 10, 1990. On completion, the final report was submitted to the Agency on August 21, 1990 as a follow-up to the original TSCA Section 8(e) notification:

Chemical Substance

Hexamethoxydisilylethane

CASRN 18406-41-2

Manufacturer

Dow Corning Corporation
Midland, MI 48686-0994

Initial TSCA Section 8(e) Submission

AN ACUTE VAPOR PHASE INHALATION TOXICITY STUDY OF
DOW CORNING® X1-6145A ADDITIVE IN RATS

EPA Document Control Number: 8-EHQ-0890-1047 Initial & Supplement

In the status report for 8EHQ-0890-1047 Initial & Supplement, dated September 26, 1990, EPA requested Dow Corning:

(1) to submit a full copy of the final report from the planned LC50 study cited in the submission

(2) to describe the actions that it has taken or plans to take to notify its own workers about the reported data

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(3) to describe the actions that it has taken or plans to take to reduce or eliminate exposure to the subject chemical

(4) to provide copies of Material Safety Data Sheets and labels that have been revised to reflect the reported findings

(5) to describe the nature and results, if available, of all studies (other than those submitted already to EPA) or those cited in the published scientific literature) about which the company is aware or that is has conducted, is conducting, or plans to conduct that are designed to determine the toxicity of the subject chemical.

In response to EPA's request, Dow Corning is submitting the following information at this time as a follow-up to 8EHQ-0890-1047:

(A) Follow-up Chemical Vapor Analysis

Dow Corning recently completed a chemical vapor analysis of DOW CORNING® X1-6145A Additive at the conditions employed in the acute vapor inhalation toxicity study in rats which was submitted previously to the Agency under Section 8(e) of TSCA. The analysis demonstrated that hexamethoxydisilylethane does not undergo decomposition under the study conditions, allowing us to more reliably attribute the previously observed inhalation toxicity effects to hexamethoxydisilylethane, itself, as opposed to potential decomposition products.

A copy of this chemical vapor analysis study is enclosed (Attachment 1).

Follow-up Chemical Vapor Analysis

CHEMICAL VAPOR ANALYSIS OF DOW CORNING® X1-6145A
ADDITIVE AT CONDITIONS USED FOR THE ACUTE VAPOR PHASE
TOXICITY STUDY IN RATS

(B) Occupational Exposure and Related Issues

As a highly reactive bis(trialkoxy)silane, DOW CORNING® X1-6145A Additive was subject to rigorous routine handling precautions, including the use of chemical worker goggles and the use of respiratory protection unless local exhaust ventilation was adequate or air sampling data showed exposures to be within TLV and PEL guidelines. Following development of the inhalation toxicity data cited in 8EHQ-0890-1047, Dow Corning revised the MSDS and label to require use of impervious protective clothing (rubber or plastic gloves, aprons, boots, etc.) as a minimum and immediate washing on any detectable contact. Recommended respiratory protection also was increased to specify use of a self-contained or air-supplied full face respirator.

Copies of the revised MSDS and label for DOW CORNING® X1-6145A Additive are enclosed (Attachments 2 and 3, respectively).

The revised MSDS for DOW CORNING® X1-6145A Additive has been provided both internally and to our customers: a copy of the cover letter which was sent to customers with the revised MSDS is enclosed (Attachment 4).

(C) Summary of Relevant Toxicological Studies

The following toxicological studies on hexamethoxydisilylethane have been conducted by or on behalf of Dow Corning in addition to those previously submitted to EPA:

(1) GENETIC EVALUATION OF DOW CORNING® X3-6101 IN BACTERIAL REVERSE MUTATION ASSAYS

Dow Corning Corporation
October 10, 1985

DOW CORNING® X3-6101 (hexamethoxydisilylethane) was evaluated for genetic activity in the Salmonella typhimurium and Escherichia coli Reverse Mutation Assays. No evidence of genetic activity was observed.

(2) ACUTE TOXICOLOGICAL PROPERTIES AND INDUSTRIAL HANDLING HAZARDS OF DOW CORNING® X3-6101

Dow Corning Corporation
December 2, 1985

DOW CORNING® X3-6101 (hexamethoxydisilylethane) is practically non-toxic when ingested on an acute basis by laboratory rats ($ALD_{50}$ = 8.86 g/kg body weight).

Direct eye contact with this material resulted in marked to severe conjunctival redness, severe corneal opacity, and iridal irritation.

A single contact (several hours) of the test material with the skin of albino rabbits resulted in slight to moderate redness. Longer or repeated skin contact resulted in marked to severe redness, slight swelling, and superficial necrosis which may heal with a scar. There is no evidence that this material is absorbed through the skin in acutely toxic amounts.

(3) ACUTE TOXICOLOGICAL PROPERTIES AND INDUSTRIAL HANDLING HAZARDS OF DOW CORNING® X3-6101 INT

Dow Corning Corporation
June 25, 1986

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DOW CORNING® X3-6101 (hexamethoxydisilylethane) is slightly toxic when ingested on an acute basis by laboratory rats (ALD50 = 1,910 mg/kg body weight).

A single twenty-four hour contact upon the skin caused very severe redness, severe edema, and moderate necrosis of the tissue.

Due to the severe degree of injury observed in the skin irritation study, the eye irritation test was not performed.

(4) GENETIC EVALUATION OF DOW CORNING® X3-6101 INT IN BACTERIAL REVERSE MUTATION ASSAYS

Dow Corning Corporation
July 1, 1986

DOW CORNING® X3-6101 (hexamethoxydisilylethane) was evaluated for genetic activity in the Ames microbial assay with and without the addition of mammalian metabolic activation: no evidence of genetic activity was observed.

(D) Planned Toxicological Studies

(1) AN ACUTE LIMIT VAPOR PHASE INHALATION TOXICITY STUDY WITH DOW CORNING® X1-6145A ADDITIVE IN RATS

Acute four hour exposure of rats to different concentrations of DOW CORNING® X1-6145A Additive was planned in order to determine the LC50 of hexamethoxydisilylethane. As this study would provide little useful data, it has been cancelled in favor of a 14-day vapor phase inhalation toxicity study:

(2) A 14-DAY VAPOR PHASE INHALATION TOXICITY STUDY WITH DOW CORNING® X1-6145A ADDITIVE IN RATS

As part of this study, which we anticipate will begin in late June/early July, 1991, tissues will be collected for a possible histological examination.

If the results of the 14-day vapor phase inhalation toxicity study warrant further testing, the following 28-day or 90-day vapor phase inhalation study may be performed:

(3) A 28-DAY VAPOR PHASE INHALATION TOXICITY STUDY WITH DOW CORNING® X1-6145A ADDITIVE IN RATS

(or)

A 90-DAY VAPOR PHASE INHALATION TOXICITY STUDY WITH DOW CORNING® X1-6145A ADDITIVE IN RATS

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Dow Corning will, of course, provide EPA with copies of any final reports as well as inform the Agency of any significant developments that may occur during the testing.

If you require further information concerning this follow-up to the cited notification of substantial risk, please contact Dr. Rhys G. Daniels, Regulatory Compliance Specialist, Dow Corning Product Safety and Regulatory Compliance Department, at the address given below or by telephone at 517-496-4222.

Sincerely,

Forrest Stark

Dr. Forrest O. Stark
U.S. Area Vice-President
Director of Health and Environmental Sciences

ATTACHMENT 1

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CONTAINS NO CBI

DOW CORNING

# CHEMICAL VAPOR ANALYSIS OF DOW CORNING® X1-6145A ADDITIVE* AT CONDITIONS USED FOR THE ACUTE VAPOR INHALATION TOXICITY STUDY IN RATS

## ABSTRACT

Heating of DOW CORNING® X1-6145A Additive was necessary for vaporizing the test material during the conduct of an acute vapor inhalation study (D.C. Report No. 1990-I0000-35576). The purpose of the present study was to check whether decomposition products were formed during the heating process. Vapor generation conditions were similar to the ones which were mentioned previously in the acute inhalation study. Initially, vapor samples were collected in cold traps at the outlet of the vapor generating equipment and chamber at intervals of 30 minutes, 2 hours and 3 hours. The samples were boxed in dry ice and submitted to the Analytical Department for gas chromatograph/mass spectrometer (GC/MS) analysis. Water and solidified material were observed in the traps during sample preparation at room temperature. The presence of water in the traps precluded sample analysis. In the second experiment, vapor samples were collected in a heated gas-tight syringe at the outlet of the vapor generating equipment at approximately 1, 2, 3, and 4 hours and were immediately injected into the gas chromatograph/mass spectrometer. No decomposition products were detected in any of the samples. The GC/MS data for the vapor phase samples was the same as that obtained by injecting the parent material as a liquid.

*Hexamethoxydisilylethane

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## I. INTRODUCTION

An acute vapor inhalation limit test was conducted with DOW CORNING® X1-6145A Additive in the Sprague-Dawley rat. The test material has a very low vapor pressure (calculated saturated vapor concentration at 25°C is 109 ppm). Heating of the material (~80°C) and high flow rate through the generating equipment were necessary for vaporizing the test material. This study was initiated to check whether decomposition products were formed during the heating process. Gas chromatograph/mass spectrometer (GC/MS) was selected as the analytical technique for its sensitivity and specificity. Any volatile compounds present in addition to the parent material could be readily identified from their mass spectra.

## II. MATERIALS AND METHODS

### Test Material

DOW CORNING® X1-6145A Additive, Lot Number BN099002, was used in this study. This is the same material that was used in the acute vapor inhalation toxicity study.

### Method 1

#### A. Experimental Apparatus

Testing was conducted in 450 liter stainless steel and glass exposure chambers. The chambers were operated under dynamic conditions where the chamber air was ambient air which had been filtered (hepa and charcoal filters). Chamber temperature and relative humidity were monitored continuously with calibrated Cole-Parmer thermohygrometers. Gauge readings were recorded hourly during the testing period. Temperature and humidity in the chamber was kept in the range of 22 ± 3°C and 50 ± 20%, respectively. Airflow through the chamber was kept at approximately 12-15 air changes per hour. Airflow rates were monitored by a calibrated Magnehelic® gauge which was connected across the orifice at the inlet of the chamber. Gauge readings were recorded hourly during the exposure period. The exhaust air was filtered by hepa and charcoal filters and then passed through a water cyclone before exhausted to the roof of the building.

#### B. TEST MATERIAL GENERATION

The test material was introduced into the chamber through a specially designed glass J-tube. The test material was metered into the J-tube with a FMI laboratory pump. Instrument air, which had been filtered with a Matheson 463 and Balston Type A912-DX and AG12-BX filters, was additionally passed through a filter canister packed with anhydrous $CaSO_4$, size eight (8) mesh and then introduced into the J-tube at a controlled rate. Additionally, the

instrument air was heated to approximately 80°C by placing heating tape on the J-tube. Glass beads in the J-tube were used to help vaporize the test material. The test material vapor was passed into the inlet port at the top of the chamber.

Method 2

A. Test Material Generation

The test material was admitted to a J-tube using a FMI laboratory pump. Instrument air was passed through a filter canister packed with anhydrous $CaSO_4$ size eight (8) mesh and then introduced into the J-tube at a controlled rate. Additionally, the instrument air was heated to approximately 80°C by placing heating tape on the J-tube. The J-tube contained glass beads to aid in vaporizing the test material. Test material vapor was passed through a heated sampling line and exhausted into the back of the hood.

## III. SAMPLING PROCEDURES

Method 1

Vapor generating equipment was set-up similar to what has been described by G. Kolesar, et. al, "An Acute Vapor Inhalation Toxicity Study of DOW CORNING® X1-6145A Additive in Rats", Dow Corning Report No. 1990-10000-35576. The only difference was the addition of a sample system at the outlet of the J-tube. In addition to sampling at the outlet of the J-tube, samples were also collected from the chamber. The samples were collected in series of cold traps (see below) at 30 minutes, 2 hours and 3 hours.

Ice and Water (Trap I)
Dry Ice and Acetone (Trap II)
Liquid Nitrogen and Ethyl Alcohol (Trap III)

The traps were not changed between sampling in an effort to maximize sample collection. After the four hour test period the traps were capped, boxed in dry ice and delivered to the Analytical Department for G.C./Mass Spec. analysis.

Method 2

Air samples (1cc or 2cc) were collected at the outlet of the J-tube with a gas tight syringe pre-heated to approximately 60°C. During sample collection the syringe was purged several times, filled to the specified amount and injected into the GC/MS (to avoid sample condensation the vapor was not pressurized in the syringe). Samples were collected at approximately 1, 2, 3 and 4 hours.

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## IV. RESULTS

In the first experiment, sampling was conducted as specified with liquid observed being collected in the traps at the J-tube sampling point. Also, inspection of traps prior to delivery to the Analytical Department indicated various amounts of frozen material. Water and solidified material were observed in the traps during sample preparation at room temperature. The presence of water in the traps preclude sample analysis.

In the second experiment, using a GC temperature program of 50°C for 5 minutes, then 10°/min. rise to 300°C; and a MS scan program of m/z 12-m/z 500 in 1 sec, the mass chromatogram shown in Figure 1 was obtained for the liquid test material. Trace amounts of methanol, toluene, tetramethoxysilane, and vinyl trimethoxysilane are detected early in the chromatogram relative to the major component. A peak just prior to the major, having a similar mass spectrum, is postulated to be the 1,1 bis compound, $(MeO)_3SiCHSi(OMe)_3$. Mass spectra of the 1,2 and 1,1 compounds
$CH_3$
are shown in Figures 2 and 3, respectively. Later eluting peaks could not be positively identified without further work, although the peak at approximately 30 minutes is very likely the disiloxane, $[(MeO)_3SiCH_2CH_2Si(OMe)_2]_2O$.

The 4 hour sample chromatogram is shown in Figure 4. This chromatogram is a typical of the results obtained for the vapor sample. Also, no additional peaks indicative of decomposition are present, as compared to the chromatogram in Figure 1. Peak #6 appears to be somewhat larger relative to the major component in the vapor samples compared to in the liquid. This peak is postulated from its mass spectrum to be the silanol, $(MeO)_3SiCH_2CH_2Si(OMe)_2$. Because this compound is a potential
OH
product of hydrolysis of the test compound, it's presence in the air would not seem unusual.

## V. CONCLUSIONS

Under the conditions of this test, no decomposition products were detected in any of the samples analyzed. Therefore based on this study, it can be concluded that animals in the acute vapor inhalation study were exposed to the test material.

## VI. REFERENCES

Mass spec references MS8475, MS8492, and 6933.43-45.

This report constitutes pages 1-7, and Figures 1-4.

Authors: Gary B. Kolesar Date: 2/11/91
Gary B. Kolesar, M.S., M.P.H.
Investigator

Steven D. Crofoot Date: 2/12/91
Steven D. Crofoot, M.S.
Investigator

John A. Moore Date: 11 Feb 1991
John A. Moore, M.S.
Investigator

W. Siddiqui Date: 2/12/91
Waheed H. Siddiqui, Ph.D.
Study Director

Approved By: Forrest Stark Date: 2/21/91
Forrest O. Stark, Ph.D.
Director of Health and
Environmental Sciences

Typed By:

Eleanor K. Jones
Eleanor K. Jones

## QUALITY ASSURANCE STATEMENT

This report represents data generated by the Toxicology Department, Dow Corning Corporation, Midland, Michigan. This study was conducted according to the EPA Toxic Substances Control Act; Good Laboratory Practice Regulations 40 CFR Part 792 Thursday August 17, 1989. The results reported accurately reflect the data generated. All raw data is located at Dow Corning Corporation.

| | 7123 | 7131 |
|---|---|---|
| Study Initiated: | September 20, 1990 | October 8, 1990 |
| Study Completed: | January 30, 1991 | February 12, 1991 |
| Experimental Start: | September 27, 1990 | October 15, 1990 |
| Experimental Termination: | September 27, 1990 | October 15, 1990 |
| Study Audited: | September 25, 1990, September 26, 1990 and January 24, 1991 | October 17, 1990, October 15, 1990 and January 24, 1991 |
| Audit Reports to Management: | September 25, 1990, September 26, 1990 and January 24, 1991 | October 17, 1990, October 15, 1990 and January 24, 1991 |
| Report Issued: | February 22, 1991 | |

Carolyn Hunter
Quality Assurance
Health & Environmental Sciences
Dow Corning Corporation
Midland, MI 48686-0994

February 18, 1991
Report Audit Date:

Forrest Stark 2/21/91
Forrest O. Stark Date
Study Sponsor

W Siddiqui 2/12/91
Waheed H. Siddiqui Date
Study Director

FIGURE 1. GC/MS OF X1-6145A ADDITIVE

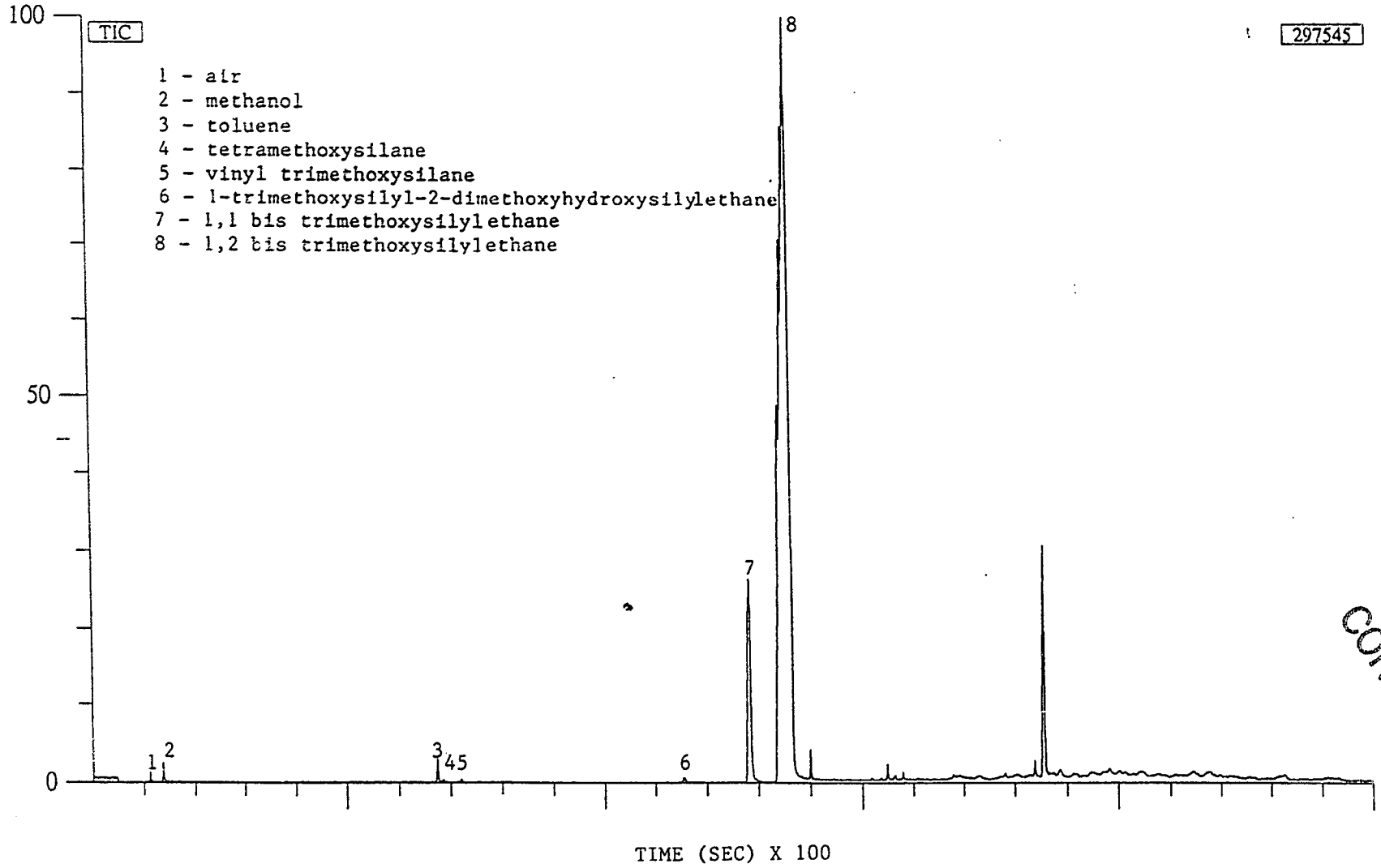


FIGURE 2. MASS SPECTRUM OF 1,1 BIS (TRIMETHOXYSILYL)ETHANE

JM8475 Scan 1284 RT=21:24 100%=9376 mv 25 Sep 90 10:17
Quad scan X1-6145A PE089002

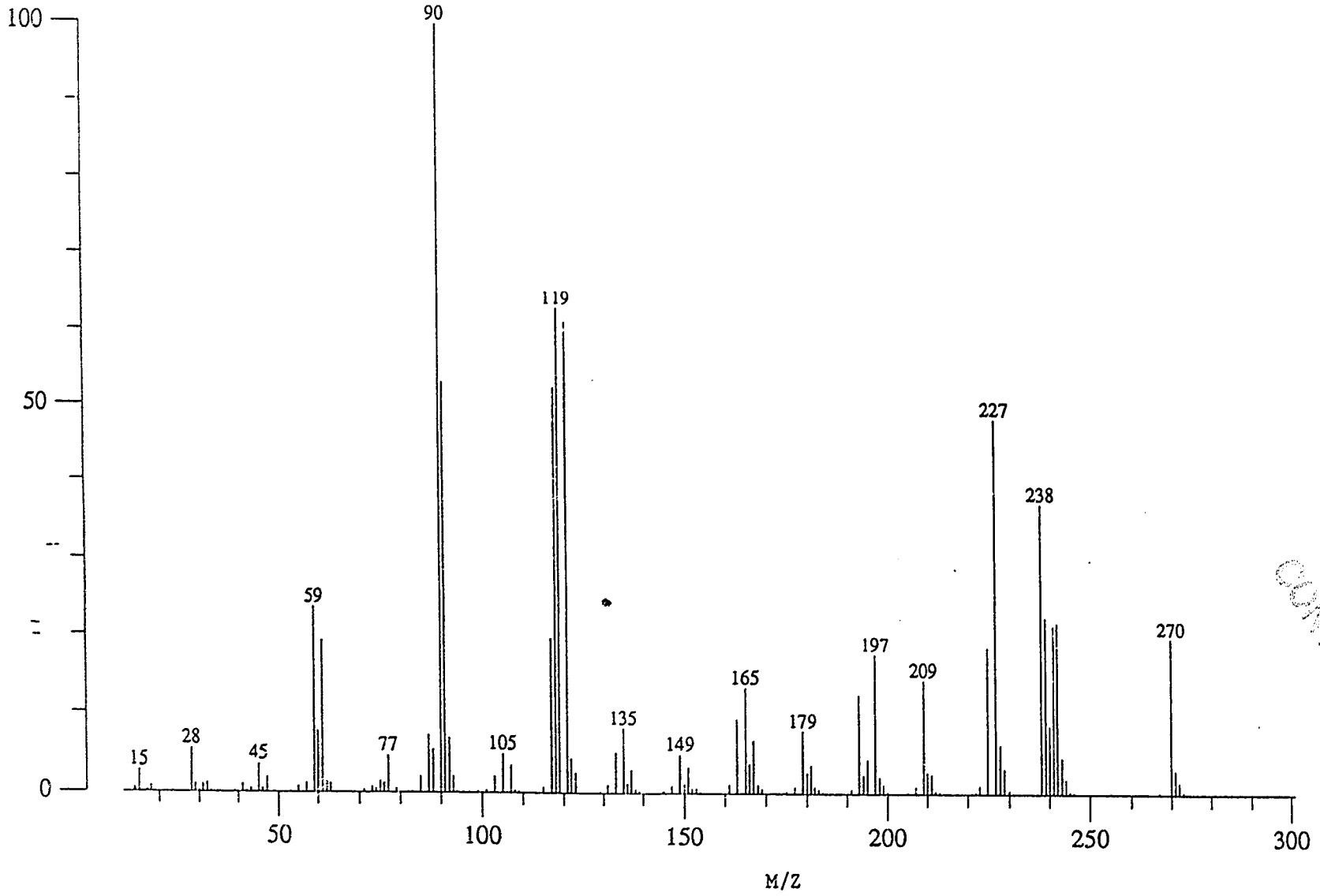


FIGURE 3. MASS SPECTRUM OF 1,2 BIS (TRIMETHOXYSILYL)ETHANE

JM8475 Scan 1350 RT=22:30 100%=26400 mv 25 Sep 90 10:17
Quad scan X1-6145A PE089002

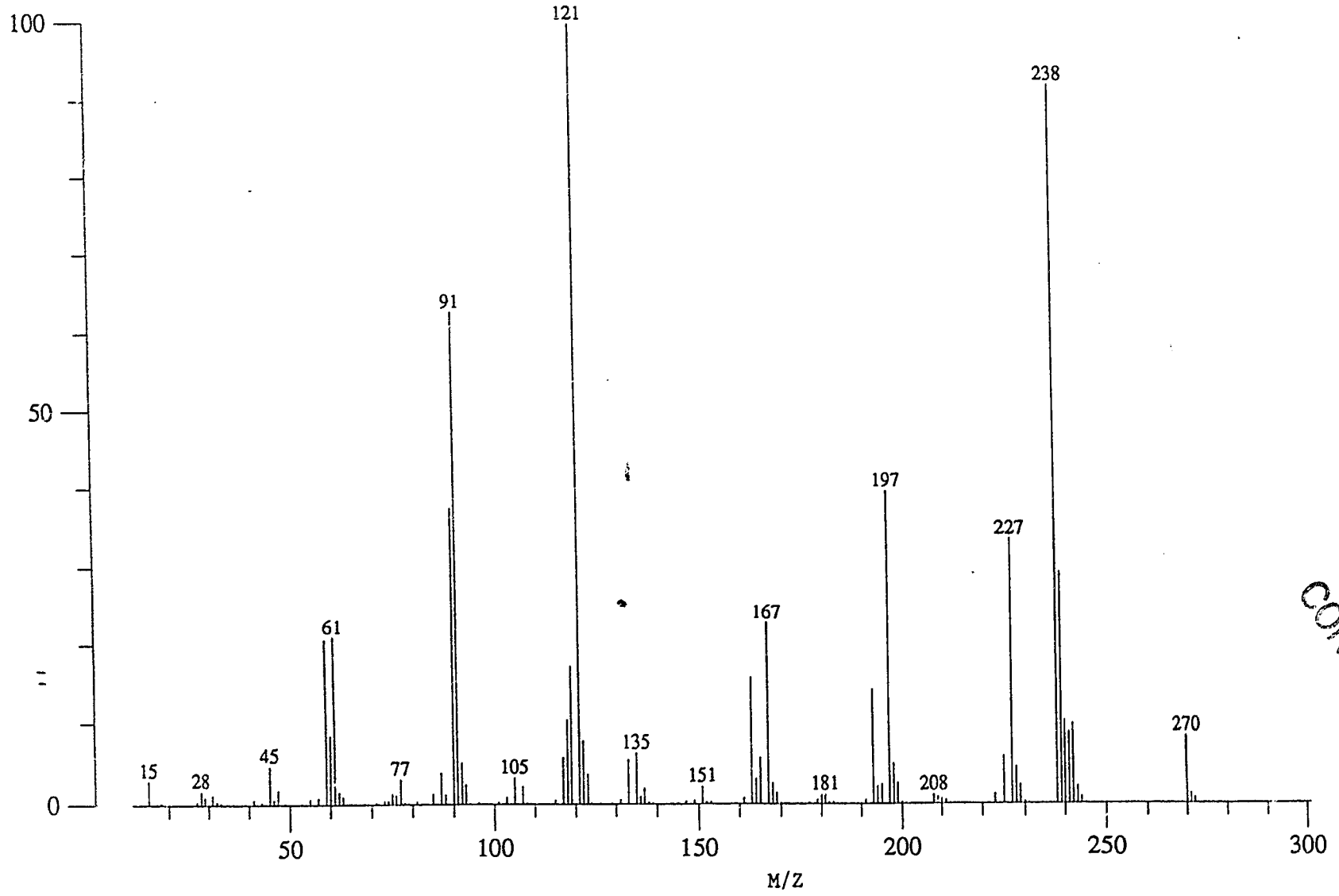
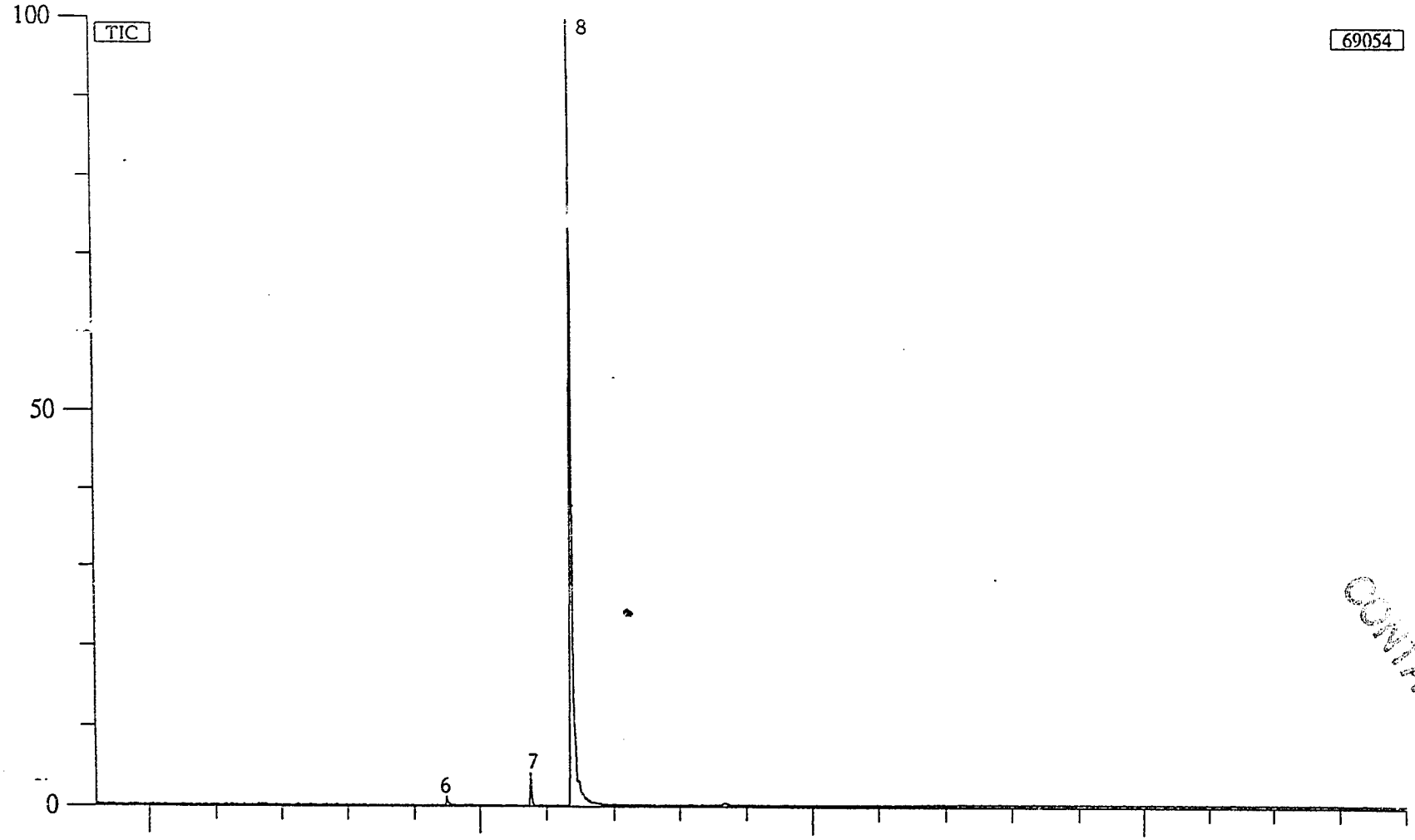


FIGURE 4. GC/MS OF VAPOR FROM J-TUBE (4 HOUR SAMPLE)*

Runname : JM8492C Acquired Nominal data (Zero baseline). 15 Oct 90 16:02
Unsmoothed data only:
STUDY#7131




*Printout is not from time zero.

TIME (SEC) X 100



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18 ATTACHMENT 2

CONTAINS NO CBI

DOW CORNING CORPORATION
MATERIAL SAFETY DATA SHEET

MATL NAME: DOW CORNING(R) X1-6145A ADDITIVE
EMERGENCY TELEPHONE NO. (517) 496-5900

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SECTION I - GENERAL INFORMATION

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MANUFACTURER'S NAME: DOW CORNING CORP. PRODUCT INFORMATION NO. (517) 496-6000
ADDRESS: SOUTH SAGINAW ROAD, MIDLAND MI 48686

PROPER SHIPPING NAME(49CFR 172.101): NONE
D.O.T. HAZARD NAME(49CFR 172.101): NONE
D.O.T. ID NO(49CFR 172.101): NONE
D.O.T. HAZARD CLASS(49CFR 172.101): NONE
RCRA HAZARD CLASS(40CFR 261)(IF DISCARDED): NONE
E.P.A. PRIORITY POLLUTANTS(40CFR 122.53): NONE
NFPA = NATIONAL FIRE PROTECTION ASSOCIATION - 704
HEALTH (NFPA): 2 FLAMMABILITY (NFPA): 1 REACTIVITY (NFPA): 0
CAS NO: MIXTURE DOW CORNING WARNING CODE: 22,36,75
GENERIC DESCRIPTION: SILICONE

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SECTION II - HAZARDOUS INGREDIENTS AS DEFINED IN 29 CFR 1910.1200
(CARCINOGENS IDENTIFIED WITH AN ASTERISK *)

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| CAS | INGREDIENT | WT.% | EXPOSURE LIMITS |
|---|---|---|---|
| 018406412 | 1,2-BIS (TRIMETHOXYSILYL) ETHANE | 98 | NOT ESTABLISHED. PREVENT DETECTABLE VAPOR EXPOSURES. |
| NONE | UNIDENTIFIED IMPURITIES | 2 | NOT ESTABLISHED |

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SECTION III - EFFECTS OF OVEREXPOSURE

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EYE: DIRECT CONTACT MAY BURN EYES, IRRITATE SEVERELY, OR PERMANENTLY INJURE DEPENDING ON EXPOSURE.

SKIN: PROLONGED EXPOSURE (24 TO 48 HRS.) MAY BURN SERIOUSLY. SHORT PERIODS OF CONTACT (LESS THAN 1 HR.) IRRITATE SERIOUSLY.

INHALATION: SHORT VAPOR EXPOSURE MAY CAUSE DROWSINESS AND IRRITATE NOSE AND THROAT. VAPORS MAY INJURE EYES, NERVOUS SYSTEM, AND CAUSE UNCONSCIOUSNESS, SERIOUS INTERNAL INJURY, OR EVEN BE FATAL, DEPENDING ON CONCENTRATION AND DURATION OF EXPOSURE.

ORAL: SWALLOWING SMALL AMOUNTS MAY CAUSE BLINDNESS, EVEN DEATH.

COMMENTS: TOXICOLOGICAL PROPERTIES HAVE NOT BEEN EVALUATED COMPLETELY. THIS PRODUCT, AS WITH ANY CHEMICAL, MAY ENHANCE ALLERGIC CONDITIONS ON CERTAIN PEOPLE. WE DO NOT KNOW OF ANY MEDICAL CONDITIONS THAT MIGHT BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT.

DOW CORNING CORPORATION
MATERIAL SAFETY DATA SHEET

MATL NAME: DOW CORNING(R) X1-6145A ADDITIVE

## SECTION IV - EMERGENCY AND FIRST AID PROCEDURES

EYES: IMMEDIATELY FLUSH WITH WATER FOR 15 MINUTES. GET MEDICAL ATTENTION.

SKIN: IMMEDIATELY FLUSH WITH WATER FOR 15 MINUTES. GET MEDICAL ATTENTION IF ILL EFFECTS DEVELOP.

INHALATION: REMOVE TO FRESH AIR. GET MEDICAL ATTENTION. GIVE ARTIFICIAL RESPIRATION IF NOT BREATHING.

ORAL: GET MEDICAL ATTENTION. IF CONSCIOUS, INDUCE VOMITING. LIE DOWN, KEEP WARM, AND COVER EYES TO EXCLUDE LIGHT.

COMMENTS: TREAT SAME AS METHYL ALCOHOL POISONING.

## SECTION V - FIRE AND EXPLOSION DATA

FLASH POINT (METHOD USED): CLOSED CUP ABOVE 212F/100C
AUTOIGNITION: N.D.
FLAMMABILITY LIMITS IN AIR : LOWER:N.D. UPPER:N.D.

EXTINGUISHING MEDIA: WATER WATER FOG X CO2 X DRY CHEMICAL X FOAM X OTHER

SPECIAL FIRE FIGHTING PROCEDURES: SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING SHOULD BE WORN IN FIGHTING FIRES INVOLVING CHEMICALS

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE KNOWN.

COMMENTS: N.D. - NOT DETERMINED.

## SECTION VI - PHYSICAL DATA

BOILING POINT(AT 760 MM HG): NOT DETERMINED
SPECIFIC GRAVITY (AT 77 DEG F/25 DEG C): 1.09
MELTING POINT: NOT APPLICABLE
VAPOR PRESSURE (AT 77 DEG F/25 DEG C): NOT DETERMINED
VAPOR DENSITY (AIR = 1 AT 77 DEG F/25 DEG C): NOT DETERMINED
PERCENT VOLATILE BY WEIGHT (%): NOT DETERMINED
EVAPORATION RATE (ETHER = 1): NOT APPLICABLE
SOLUBILITY IN WATER(%): REACTS
ODOR, APPEARANCE, COLOR: SOME ODOR, LIQUID, WATER WHITE.

NOTE: THE ABOVE INFORMATION IS NOT INTENDED FOR USE IN PREPARING PRODUCT SPECIFICATIONS. CONTACT DOW CORNING BEFORE WRITING SPECIFICATIONS.

DOW CORNING CORPORATION
MATERIAL SAFETY DATA SHEET

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MATL NAME: DOW CORNING(R) X1-6145A ADDITIVE

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SECTION VII - REACTIVITY DATA

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STABILITY: STABLE

INCOMPATABILITY(MATERIAL TO AVOID): OXIDIZING MATERIAL CAN CAUSE A REACTION. REACTS WITH WATER, ACIDS, ETC., LIBERATING METHYL ALCOHOL.

CONDITIONS TO AVOID: EXPOSURE TO WATER, MOISTURE, ACIDS, ETC.

HAZARDOUS DECOMPOSITION PRODUCTS: SILICON DIOXIDE, CARBON DIOXIDE, AND TRACES OF INCOMPLETELY BURNED CARBON PRODUCTS.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: NOT APPLICABLE

COMMENTS: NONE

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SECTION VIII - SPILL, LEAK, MAINTENANCE/REPAIR AND DISPOSAL PROCEDURES

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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: USE ABSORBENT MATERIAL TO COLLECT AND CONTAIN.

PROTECTIVE EQUIPMENT:
EYES: USE FULL FACE RESPIRATOR.

SKIN: AVOID CONTACT BY USING IMPERVIOUS PROTECTIVE CLOTHING: RUBBER OR PLASTIC GLOVES, APRONS, BOOTS, ETC. USE PROTECTIVE GLOVES AS A MINIMUM AND WASH IMMEDIATELY UPON ANY DETECTABLE CONTACT.

INHALATION: USE SELF-CONTAINED OR AIR-SUPPLIED RESPIRATOR.

WASTE DISPOSAL METHOD: DOW CORNING SUGGESTS THAT ALL LOCAL, STATE, AND FEDERAL REGULATIONS CONCERNING HEALTH AND POLLUTION BE REVIEWED TO DETERMINE APPROVED DISPOSAL PROCEDURES. CONTACT DOW CORNING IF THERE ARE ANY DISPOSAL QUESTIONS.

D.O.T. (49CFR 171.8)/E.P.A. (40CFR 117) SPILL REPORTING INFORMATION
HAZARDOUS SUBSTANCE: NONE REPORTABLE QUANTITY: NOT APPLICABLE
CONCENTRATION OF HAZARDOUS SUBSTANCE: NOT APPLICABLE
REPORTABLE QUANTITY OF PRODUCT: NOT APPLICABLE

COMMENTS: PRODUCT CONTAINS NO INGREDIENT SUBJECT TO D.O.T OR E.P.A. CERCLA/SARA ENVIRONMENTAL RELEASE REPORTING REGULATIONS. SEE SEC. XI FOR ADDITIONAL SARA COMPLIANCE INFORMATION.

PRODUCT IS AN OIL IN THE CONTEXT OF THE U.S. CLEAN WATER ACT. SPILLS TO U.S. SURFACE WATERS, OR TO WATERCOURSE OR SEWER LEADING TO U.S. SURFACE WATERS, THAT CAUSE A VISIBLE SHEEN MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER.

DOW CORNING CORPORATION
MATERIAL SAFETY DATA SHEET

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MATL NAME: DOW CORNING(R) X1-6145A ADDITIVE

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SECTION IX - ROUTINE HANDLING PRECAUTIONS

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PROTECTIVE EQUIPMENT:
EYES: USE CHEMICAL WORKER GOGGLES.

SKIN *: AVOID CONTACT BY USING IMPERVIOUS PROTECTIVE CLOTHING: RUBBER OR PLASTIC GLOVES, APRONS, BOOTS, ETC. USE PROTECTIVE GLOVES AS A MINIMUM AND AND WASH PROMPTLY UPON ANY DETECTABLE CONTACT.

INHALATION: USE RESPIRATORY PROTECTION UNLESS LOCAL EXHAUST VENTILATION IS ADEQUATE. INDUSTRIAL HYGIENE PERSONNEL CAN ASSIST IN JUDGING ADEQUACY.

VENTILATION:
LOCAL EXHAUST: RECOMMENDED
MECHANICAL (GENERAL): RECOMMENDED

SUITABLE RESPIRATOR: AIR-SUPPLIED OR SELF-CONTAINED.

THESE PRECAUTIONS ARE FOR ROOM TEMPERATURE HANDLING; USE AT ELEVATED TEMPERATURES, OR AEROSOL/SPRAY APPLICATIONS, MAY REQUIRE ADDED PRECAUTIONS.
* GOOD PRACTICE REQUIRES THAT GROSS AMOUNT OF ANY CHEMICAL BE REMOVED FROM THE SKIN AS SOON AS PRACTICAL, ESPECIALLY BEFORE EATING OR SMOKING.
COMMENTS: AVOID BREATHING VAPORS AND EYE AND SKIN CONTACT. USE ONLY WITH ADEQUATE VENTILATION. DO NOT TAKE INTERNALLY.

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SECTION X - SPECIAL PRECAUTIONS

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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: KEEP CONTAINER CLOSED AND AWAY FROM WATER AND MOISTURE.

OTHER PRECAUTIONS: SINCE PRODUCT EXPOSURE LIMITS HAVE NOT BEEN ESTABLISHED, USE SHOULD BE CONTROLLED TO PREVENT DETECTABLE VAPOR EPXOSURES.
COMMENTS: TOXICOLOGICAL PROPERTIES HAVE NOT BEEN EVALUATED COMPLETELY. USE AND STORAGE PRACTICES SHOULD BE REVIEWED CAREFULLY, AND POSSIBLY APPROVED, BY USER'S INDUSTRIAL HYGIENE/SAFETY DEPARTMENTS.

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SECTION XI - COMMENT

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ADDITIONAL SARA REGULATORY COMPLIANCE INFORMATION
SEC. 312 HAZARD CLASS: IMMEDIATE AND DELAYED.
SEC. 313 NOTIFICATION: NOT APPLICABLE - EITHER NONE PRESENT OR NONE PRESENT IN REGULATED QUANTITIES.

DOW CORNING CORPORATION
MATERIAL SAFETY DATA SHEET

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MATL NAME: DOW CORNING(R) X1-6145A ADDITIVE

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS HEREBY MADE. THE RECOMMENDED INDUSTRIAL HYGIENE AND SAFE HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE AND DETERMINE WHETHER THEY ARE APPROPRIATE.

PREPARED BY: JACK L. SHENEBERGER
LAST REVISION DATE: MARCH 18, 1991
PREVIOUS REVISION DATE: SEPTEMBER 25, 1990
DATE: MAY 29, 1991

(R) INDICATES REGISTERED OR TRADEMARK OF THE DOW CORNING CORPORATION.

# DOW CORNING®

# X1-6145A additive

BEFORE HANDLING, READ product and material safety data sheets for detailed use and health information

**DANGER!** MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. IF VOMITING OCCURS, INHALING LIQUID CAN INJURE LUNGS SERIOUSLY. MAY BURN EYES. IRRITATES SKIN. VAPOR OVEREXPOSURE MAY CAUSE DROWSINESS AND MAY IRRITATE NOSE AND THROAT.

OVEREXPOSURE CAN INJURE EYES, NERVOUS SYSTEM, AND MAY CAUSE UNCONSCIOUSNESS.

Read precautions on side panel

LOT

NET WT. 40 lb (18.1 kg)

**DANGER!** Continued:
Do not take internally. Do not get in eyes. Avoid skin contact. Avoid breathing vapor. Use with ventilation to maintain vapor within inhalation guidelines. Keep container closed. IF SWALLOWED, do not induce vomiting. Obtain medical attention. If vomiting occurs, keep head lower than hips to reduce chance of inhaling liquid. IN CASE OF EYE CONTACT, flush immediately with water for 15 minutes and obtain medical attention. IN CASE OF SKIN CONTACT, wipe off and flush with water for 15 minutes. Obtain medical attention if irritation develops. Thoroughly clean contaminated clothing before reuse. IN CASE OF INHALATION ILL EFFECTS, remove to fresh air. Obtain medical attention if effects persist.

SPECIAL USE AND SAFE HANDLING INFORMATION: Forms methanol when exposed to water or humid air. See Material Safety Data Sheet for details.

FOR INVESTIGATIONAL USE ONLY: Properties of this composition have not been completely studied. Use and dispcsal of this material should be supervised by technically qualified individuals.

**ATTENTION!** This container will have vapor and/or product residues when emptied. All hazard precautions on label must be observed when handling emptied container. DO NOT REUSE CONTAINER. DO NOT CUT OR WELD CONTAINER.


X1[illegible]-0690

MADE IN U.S.A.
DOW CORNING CORPORATION
MIDLAND, MI 48686-0994, U.S.A.

DOW CORNING

ATTACHMENT 3

DOW CORNING

26 ATTACHMENT 4

CONTAINS NO CBI

August 28, 1990

Dear Customer:

Enclosed is a revised Material Safety Data Sheet for Dow Corning(R) X1-6145A Additive, a product which you have received from us within the past year. This revision is based on new information which Dow Corning has obtained internally through our continuing program to provide health and safety information for our customers and employees. A rangefinding acute inhalation study has shown that hexamethoxydisilylethane (X1-6145A Additive) is highly toxic to rats when exposed to a nominal concentration of 83 parts per million in air for four hours. The revised Material Safety Data Sheet reflects this new information. Although this material has a low vapor pressure (109 parts per million saturated vapor concentration at 25 degrees centigrade), care should be taken to assure that adequate ventilation is provided when exposure to the product could occur. Particular caution should be exercised when the material is exposed to elevated temperatures. Conditions that could cause mists or aerosols should be avoided.

Because no toxicological information could be found in published scientific literature and the above information appears to be new, Dow Corning has reported this information to the Environmental Protection Agency (EPA) under Section 8(e) of the Toxic Substances Control Act (TSCA). A copy of that notification is also attached.

We are continuing to investigate this finding and plan further studies to better determine the toxicological properties of this material. We will keep you informed of any new information that we obtain.

Dow Corning is committed to providing current and accurate health and safety information on our products. This commitment to Product Stewardship is a cornerstone of our Code of Business Conduct. If you have further questions concerning the above issue, please contact me at (517)496-4908.

Sincerely,

David R. Sylvester
Chief Product Steward
Fluids Resins and Process Industries
Dow Corning Corporation

DOW CORNING CORPORATION, MIDLAND, MICHIGAN 48686-0994 TELEPHONE 517 496-4000

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