

RECEIVED  
601 769 2734

97 DEC 16 AM 7:31



December 5, 1997

Certified Mail No. Z 380 732 961  
Return Receipt Requested

Document Control Office (7407)  
Office of Pollution Prevention and Toxics  
U.S. Environmental Protection Agency  
401 M St. S.W.  
Washington, DC 20460-0001

Re: TSCA Section 8(e) Notification

Dear Sir or Madam:

ChemFirst Inc is submitting this notice in accordance with Section 8(e) of the Toxic Substances Control Act (TSCA) and EPA's Statement of Interpretation and Enforcement Policy, 43 Fed. Reg. 1110 (March 16, 1978).

The basis for this submission is preliminary information from a fourteen day inhalation toxicity study in rats of N-ethyl-meta-toluidine (NEM), CAS no. 102-27-2. This study was sponsored by ChemFirst Inc. Rats were exposed by inhalation for six hours per day for a total of 10 days to concentrations of 3, 35, or 70 ppm. Analysis of blood samples found increases in methemoglobin levels at all concentrations. Draft tables and graphs of these results are attached.

ChemFirst Inc. submitted a notice under Section 8(e) previously for this chemical, based on methemoglobin formation after acute oral exposure of rats. The document control number for this submission was 8EHQ-97-13977.

Exposure is minimized during production and handling of NEM by the use of recommended protective suits, neoprene gloves, and a full-face respirator with organic vapor/acid gas cartridges. Protective clothing and equipment are specified on the Material Safety Data Sheet (attached). NEM is produced by First Chemical Corporation, a ChemFirst Inc. Company, for use as a cure accelerator in polymerizations. No change will be made in the MSDS at this time, since the potential for methemoglobin formation is already noted. A copy of the completed final report will be sent as a follow up to this submission.

ChemFirst Inc. would like to maintain as confidential only information that identifies the testing laboratory.

8EHQ-1297-13977s

9EHQ-97-13977

8996000074s

COMPANY SANITIZED

RECEIVED  
601 769 2734  
DEC 16 1997

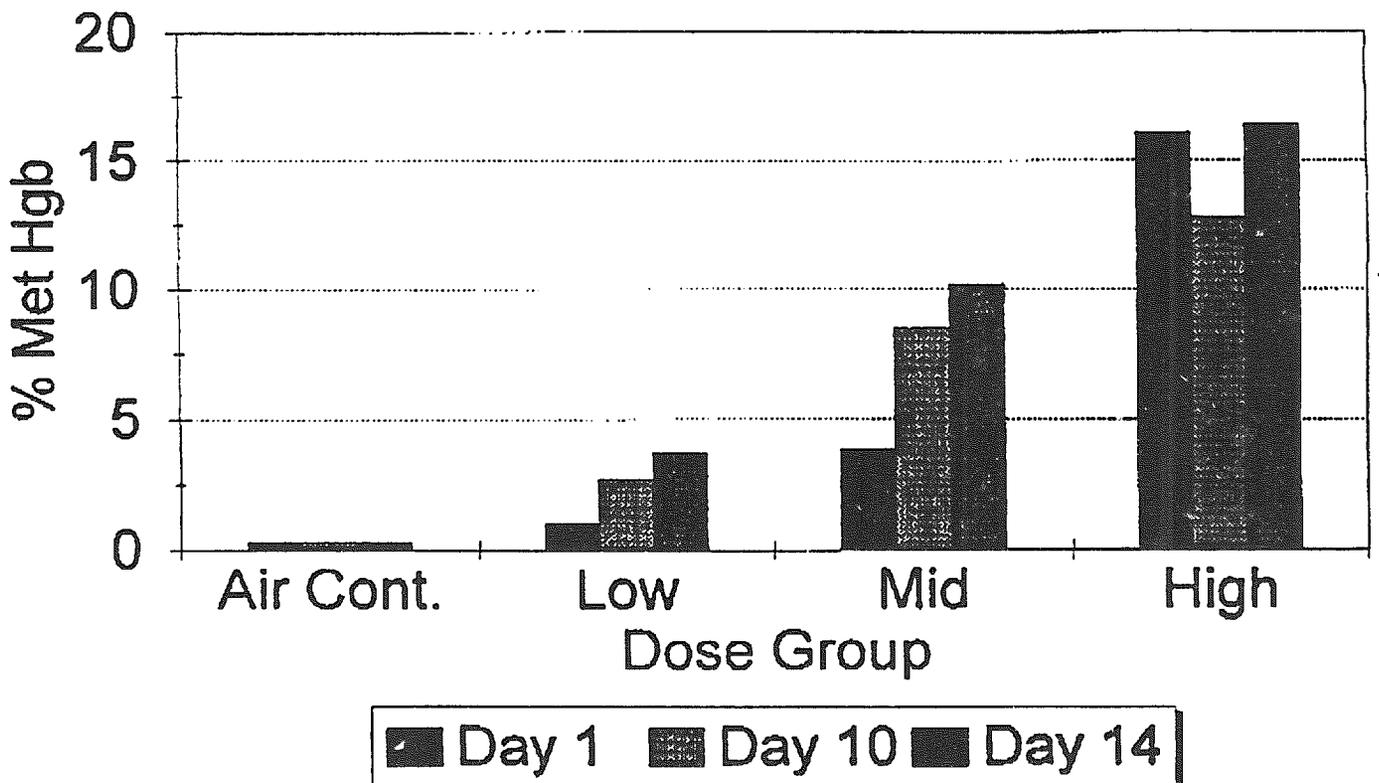
If you have any further questions related to this submission, please contact me.

Sincerely,

A handwritten signature in black ink that reads "Ellen R. Stephens". The signature is written in a cursive style with a large initial "E" and "S".

Ellen R. Stephens, Ph.D. DABT  
Manager, Toxicology  
228-938-2219

# Met Hemoglobin in Rats exposed to NEM



**INDIVIDUAL ANIMAL REPORT BY GROUP**  
**PERIOD: Day 1**

SEX: MALE

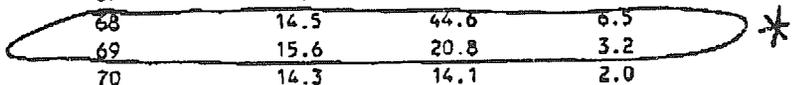


Animal ID	THB g/dL	METHB %	METHGB g/dL
GROUP: I:FAC			
11	14.3	0.0	0.0
12	15.1	0.4	0.1
13	14.5	0.0	0.0
14	16.0	0.6	0.1
15	16.2	0.5	0.1
MEAN	15.2	0.3	0.1
SD	0.86	0.28	0.05
N	5	5	5

Animal ID	THB g/dL	METHB %	METHGB g/dL
GROUP: II:3 NEM(ppm)			
31	14.1	0.9	0.1
32	16.3	1.0	0.2
33	15.5	1.1	0.2
34	14.7	0.9	0.1
35	16.3	1.1	0.2
MEAN	15.4	1.0	0.2
SD	0.98	0.10	0.05
N	5	5	5

Animal ID	THB g/dL	METHB %	METHGB g/dL
GROUP: III:35 NEM(ppm)			
46	15.8	3.3	0.5
47	14.3	5.4	0.8
48	14.7	4.2	0.6
49	14.4	3.2	0.5
50	15.2	2.9	0.4
MEAN	14.9	3.8	0.6
SD	0.62	1.02	0.15
N	5	5	5

Animal ID	THB g/dL	METHB %	METHGB g/dL
GROUP: IV:70 NEM(ppm)			
66	13.9	14.1	2.0
67	15.4	16.6	2.6
68	14.5	44.6	6.5
69	15.6	20.8	3.2
70	14.3	14.1	2.0
MEAN	14.7	22.0	3.3
SD	0.73	12.91	1.88
N	5	5	5



LABCAT CC4.41a

\* this may be suggestive  
of potential morbidity  
or death

10/26/97 [ ]

DRAFT  
29-OCT-1997  
**COPY**

SUMMARY REPORT  
PERIOD: Day 1

SEX: MALE

ANALYSIS OF VARIANCE FOLLOWED BY DUNNETT'S PROCEDURE

TEST(s): UNITS:	THB g/dL	METHB %	METHGB g/dL
Group: I : FAC			
MEAN	15.2	0.3	0.1
SD	0.86	0.28	0.05
N	5	5	5
Group: II : 3 NEM(ppm)			
MEAN	15.4	1.0	0.2
SD	0.98	0.10	0.05
N	5	5	5
Group: III : 35 NEM(ppm)			
MEAN	14.9	3.8	0.6
SD	0.62	1.02	0.15
N	5	5	5
Group: IV : 70 NEM(ppm)			
MEAN	14.7	22.0**	3.3**
SD	0.73	12.91	1.88
N	5	5	5

DRAFT  
COPY

\*\*-Significant Difference from Control P < .01

SUMMARY REPORT  
PERIOD: Day 10

SEX: MALE

ANALYSIS OF VARIANCE FOLLOWED BY DUNNETT'S PROCEDURE

TEST(s):	THB	METHB	METHGB
UNITS:	g/dL	%	g/dL
Group: I : FAC			
MEAN	16.1	0.3	0.0
SD	0.69	0.19	0.05
N	5	5	5
Group: II : 3 NEM(ppm)			
MEAN	16.0	2.7	0.4
SD	0.98	0.23	0.05
N	5	5	5
Group: III : 35 NEM(ppm)			
MEAN	14.8*	13.9**	2.0**
SD	0.55	11.98	1.67
N	5	5	5
Group: IV : 70 NEM(ppm)			
MEAN	13.5**	12.8*	1.7*
SD	0.71	1.29	0.23
N	5	5	5

DRAFT  
COPY

\*-Significant Difference from Control P < .05

\*\*--Significant Difference from Control P < .01

SUMMARY REPORT  
PERIOD: Day 14

SEX: MALE

ANALYSIS OF VARIANCE FOLLOWED BY DUNNETT'S PROCEDURE

TEST(s): UNITS:	THB g/dL	METHB %	METHGB g/dL
Group: I : FAC			
MEAN	15.4	0.3	0.0
SD	0.84	0.26	0.05
N	5	5	5
Group: II : 3 NEM(ppm)			
MEAN	15.3	3.7*	0.6**
SD	0.67	0.34	0.05
N	5	5	5
Group: III : 35 NEM(ppm)			
MEAN	13.7*	11.8**	1.6**
SD	0.93	3.24	.30
N	4	4	4
Group: IV : 70 NEM(ppm)			
MEAN	13.7**	16.4**	2.3**
SD	0.61	1.46	0.25
N	5	5	5

DRAFT  
COPY

\*-Significant Difference from Control P < .05

\*\* -Significant Difference from Control P < .01



## MATERIAL SAFETY DATA SHEET

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: N-ETHYL-m-TOLUIDINE  
General Use: Chemical Intermediate  
Product Description: Organic Liquid  
Formula:  $C_9H_{13}N$   
Molecular Weight: 135

**MANUFACTURER:**  
First Chemical Corporation  
1001 Industrial Road  
Pascagoula, MS 39581  
(601) 762-0870

**EMERGENCY TELEPHONE NUMBERS:**  
CHEMTREC (800) 424-9300  
24 Hours Everyday

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

	<u>wt. %</u>	<u>CAS Registry #</u>
N-Ethyl m-Toluidine	97.0	102-27-2
N,N-Diethyl-m-Toluidine	2.0	91-67-8

EXPOSURE LIMITS 8 hrs. TWA (ppm)

	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
--	-----------------	------------------

N-Ethyl m-Toluidine	None	None
N,N-Diethyl-m-Toluidine	None	None

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW:

Dark liquid with amine-like odor.  
Harmful if inhaled.  
Overexposure may cause cyanosis.

#### POTENTIAL HEALTH EFFECTS:

##### INHALATION:

May cause cyanosis (oxygen deficiency in blood caused by methemoglobin formation). Symptoms include headaches, weakness and dizziness, and can be recognized by blue color of the lips, fingernails, nose, ear lobes and other extremities. High level exposures can cause shallow breathing, confusion, rapid heart beat, unconsciousness and death.

**EYE CONTACT**

May cause eye irritation.

**SKIN CONTACT:**

Symptoms are similar to those caused by inhalation. N-Ethyl-m-Toluidine may be absorbed through the intact skin causing systemic toxicity.

**INGESTION:**

Symptoms are similar to those caused by inhalation. May also cause nausea, vomiting, and gastrointestinal irritation.

**TARGET ORGANS:**

Liver, central nervous system, and blood.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:**

Overexposure may aggravate existing cardiovascular or respiratory conditions or blood disorders.

**CARCINOGENICITY:**

None of the components in this product at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA, or ACGIH as carcinogens.

---

**4. FIRST AID MEASURES**

**INHALATION:**

Remove to fresh air immediately. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Consult a physician.

**EYE CONTACT:**

Immediately flush eyes with water for at least 15 minutes. Have eyes examined and treated by a physician.

**SKIN CONTACT:**

Speed is essential in removing N-Ethyl-m-Toluidine from skin, hair, and nails. Immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin, hair, and nails with soap and water. Have the person lie down and keep warm and quiet. Call a physician. If breathing is difficult, give oxygen.

**INGESTION:**

Immediately induce vomiting as directed by a physician. Repeat until vomit is clear. Never give anything by mouth to an unconscious person. Consult a physician.

**NOTE TO PHYSICIAN:**

Absorption of this product into the body leads to the formation of methemoglobin, which in sufficient concentration causes cyanosis. Because reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need be treated only by supportive measures such as bed rest and oxygen inhalation. Thorough cleansing of the entire contaminated area of the body is of utmost importance. If cyanosis is severe, intravenous injection of methylene blue, 1-2 mg/kg body weight over a 5 minute period as a 1 percent solution may be of value. If cyanosis persists after an hour, the treatment may be repeated, but the total dose should not exceed 7 mg/kg body weight. Cyanocobalamin (Vitamin B-12), 1 mg intramuscularly is reported to speed recovery. Intravenous fluids and blood transfusions may be indicated in very severe exposures.

---

**5. FIRE FIGHTING MEASURES**

Flashpoint:	210°F (99°C)
Method:	Pensky Martin Closed Cup (PMCC)
Flammable Limits in Air, % by volume:	Lower: 1.6 Upper: 10
Autoignition Temperature:	Not available
Extinguishing Media:	Carbon dioxide or dry chemicals for small fires. Water spray, fog or foam for large fires.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:**

Vapors may flow along surfaces to distant ignition sources and flash back. Toxic vapors may be given off at high temperatures.

**FIRE FIGHTING INSTRUCTIONS:**

Use water spray to cool containers and fire exposed surfaces. Shut off fuel to fire if possible to do so without hazard.

**FIRE FIGHTING EQUIPMENT:**

Wear full protective clothing with self-contained positive pressure breathing apparatus. If there is potential for skin exposure to N-Ethyl-m-Toluidine see Section 8 of this MSDS.

**HAZARDOUS COMBUSTION PRODUCTS:**

Carbon monoxide, Nitrogen oxides.

---

**6. ACCIDENTAL RELEASE MEASURES**

**SPILL OR LEAK PROCEDURES:**

Evacuate area and keep personnel upwind. Cut off any source of ignition and ventilate spill area. Contain spill with absorbent material. Transfer absorbent and other contaminated materials to a UN approved covered container for disposal. Consult with Federal, State, and local regulatory agencies to determine acceptable clean-up levels. Comply with Federal, State, and local regulations on reporting releases.

---

**7. HANDLING AND STORAGE:**

**STORAGE TEMPERATURE:**

Storage in a cool, dry, well-ventilated area at 40° - 90°F (5° - 32°C ) is recommended.

**GENERAL:**

Keep in original tightly closed containers.  
Keep away from strong oxidizing agents or acids.  
Prevent skin and eye contact.  
Avoid breathing vapors.  
Thorough showering at the end of the work shift is strongly recommended.  
Work clothes should be laundered daily.

---

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**PERSONAL PROTECTION:**

**RESPIRATORY PROTECTION:**

If vapors of N-Ethyl-m-Toluidine are present, use, as a minimum, a NIOSH approved full-face respirator with canisters or cartridges specifically approved for use with organic vapors. Whenever cartridge or canister respirators are used, insure the frequent changing of the filter element. Use a supplied air respirator when in doubt of the atmospheric concentration. Consult 29 CFR 1910.134 regarding use of respirators.

**PROTECTIVE CLOTHING:**

Take all precautions to prevent skin contact. Use supported neoprene gloves for routine work and butyl rubber gloves when there is a probability of liquid contact. Do not use nitrile rubber as a protective material. Additional protection, such as a butyl rubber full body suit may be required depending upon conditions.

**EYE / FACE PROTECTION:**

Use chemical goggles. Wear a full face shield if splashing is possible.

---

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Vapor Pressure: 0.145 mmHg at 77°F (25°C)      Vapor Density: 4.70 (Air = 1)  
Specific Gravity: 0.957 @ 68°F (20°C)              pH: Not available  
Evaporation Rate: Not available                      Odor: Amine-like  
Solubility in Water: 0.1g/l @ 77°F (25°C)          Appearance: Yellow to brown  
Boiling Point: 430°F (221°C)                          Physical State: Liquid

---

**10. STABILITY AND REACTIVITY**

**GENERAL:**

Stable at normal temperatures and conditions of storage. Decomposes slowly at 392°F (200°C). Temperatures above 428°F (220°C) are normally required to initiate rapid exothermic decomposition but foreign matter may lower the decomposition temperature substantially.

**INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:**

Strong oxidizing agents, acids, acid chlorides, acid anhydrides, hypochlorite bleaches and chloroformates are incompatible.

**HAZARDOUS DECOMPOSITION:**

Carbon monoxide, Nitrogen oxides.

**HAZARDOUS POLYMERIZATION:**

Will not normally occur.

---

**11. TOXICOLOGICAL INFORMATION**

**DATA FOR N-ETHYL-m-TOLUIDINE:**

**INHALATION:**                      LC<sub>50</sub>, rat (4 hr): 435 ppm, moderately toxic.  
**EYE CONTACT:**                      No information is available.  
**SKIN CONTACT:**                      LD<sub>50</sub>, rabbit: >2000 mg/kg, no more than slightly toxic.  
Primary irritation index: 0.7/8.0, practically nonirritating.  
Not a sensitizer in guinea pigs.  
**INGESTION:**                              LD<sub>50</sub>, rat: 984 mg/kg, slightly toxic.  
**GENOTOXICITY:**                      Mutagenic in bacterial cells in culture.  
**TARGET ORGANS:**                      Liver, central nervous system, and blood.

---

**12. ECOLOGICAL INFORMATION.**

No data are available for N-Ethyl-m-Toluidine.

---

**13. DISPOSAL CONSIDERATIONS**

**DISPOSAL METHODS:**

Consult 40 CFR, Parts 261 and 268, State, and local regulations for guidance on disposal of this product. Incineration at a facility with proper Federal and State issued permits is the recommended method for disposal.

**CONTAINER DISPOSAL:**

Empty containers retain product residue. Observe all hazard precautions. Keep away from heat, sparks, and flames. Do not distribute, make available, or reuse empty containers except for storage and shipment of original product. Remove all hazardous product residue, and puncture or otherwise destroy empty containers before disposal. Consult 40 CFR 261 and 268 for guidance on disposal.

---

**14. TRANSPORT INFORMATION**

**DOT/IMO/ICAO/IATA:**

Proper Shipping Name: N-ETHYLTOLUIDINES  
(N-ETHYLMETATOLUIDINE)  
Hazard Class: 6.1  
Identification Number: UN 2754  
Packing Group: II  
Labels Required: Toxic  
IMDG Page No.: 6152

---

**15. REGULATORY INFORMATION**

**TSCA (Toxic Substance Control Act):**

This product is listed on the TSCA Inventory.

**SARA TITLE III (Superfund Amendments and Reauthorization Act):**

311/312 Hazard Categories. . .  
Acute, Chronic.

313 This product is not subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

**Name: N-ETHYL-m-TOLUIDINE**

Rev. A – Date Prepared: February 4, 1997

CERCLA (Comprehensive Response Compensation and Liability Act):  
Not Reportable.

We recommend you contact local authorities to determine if there may be other local reporting requirements.

---

**16. OTHER INFORMATION**

Preplacement and periodic physical examinations should be performed on all individuals working in N-Ethyl-m-Toluidine exposure areas. Individuals with liver or kidney disorders, impaired cardiovascular status, or a history of alcoholism should avoid exposure to N-Ethyl-m-Toluidine. Because the long term human health effects of N-Ethyl-m-Toluidine, have not been fully evaluated, exposure should be kept to the lowest level possible. This material is for industrial use. Use only under the supervision of a technically qualified individual.

Label Information:

HMIS Codes

Health - 2

Fire - 1

Reactivity - 0

Specific Hazard - None

**REVISION SUMMARY:**

Rev. A -- Initial 16 Section MSDS.

Prepared by: Steven C. Dawson, CIH  
Manager, Industrial Hygiene & Health

The information included in this document is taken from sources, or based on data believed to be reliable and given in good faith. No warranty is made, however, as to the absolute correctness of any of this information, or that additional or other measures may not be required under particular conditions. The data in this Material Safety Data Sheet relates only to the specific material designated and does not relate to use in combination with any other material or in any process. Please refer to the OSHA Hazard Communication Standard 29 CFR 1910.1200 for guidance in the use of this information.

**Best Available Copy**