



Texaco Chemical Company

PO Box 27707
Houston TX 77227 7707
713 961 3711

June 12, 1990

Dr. Richard Niemeier
Director
Division of Standards Development
and Technology Transfer
NIOSH
4676 Columbia Parkway C-14
Cincinnati, OH 45226

Dear Dr. Niemeier:

Texaco Chemical Company appreciates the opportunity to respond to the request for information concerning the health hazards associated with occupational exposure to cutting fluids (55 FR 20637).

Texaco Chemical Company is a manufacturer and marketer of chemical products some of which find their way into the cutting fluid industry. In particular, we manufacture diethanolamine which is widely used either "as is" or as the fatty acid diethanolamide in metal working fluid formulations. In addition, monoethanolamine and triethanolamine play some, although a less significant, role in this industry. Our customers are generally those who do the final formulating and supply directly to the end user.

Most of the questions posed in the Federal Register notice can be answered only by those either supplying to the end user or engaged directly in metal working activities. Texaco Chemical Company has little or no information on much of this. However, we do wish to comment on the issue of the occurrence of nitrosamines in metal working fluid formulations.

We know that the possible occurrence of nitrosamines in metal working fluids has been of concern for a number of years. In September 1984, the EPA issued a Chemical Advisory "Notice to Formulators of Metalworking Fluids/Potential Risk from Nitrosamines". Even earlier, in 1977 the cosmetic industry had been alerted to the potential for nitrosamine formation in cosmetic formulations and formed the Nitrosamine Task Force under the Cosmetic, Toiletry & Fragrance Association (CTFA) to respond to these concerns. Texaco Chemical Company was a charter member of

Dr. Richard Niemeier
June 12, 1990
Page 2

that task force. We took steps at that time to examine our products carefully for nitrosamine contamination and determined that the diethanolamine and triethanolamine being offered for sale contained no detectable amounts of nitrosodiethanolamine at a detecton limit of 50 ppb.

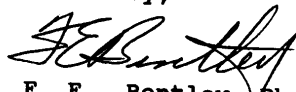
In addition, as early as 1977-78, Texaco Chemical Company began labelling containers of diethanolamine and triethanolamine (as well as other amines) with warning statements concerning the dangers of mixing these products with nitrosating agents such as nitrites. Also, similar warnings were added to our Material Safety Data Sheets. Copies of a drum label dated 12/15/77 and a MSDS dated November 14, 1978 for diethanolamine are attached for your inspection. Also enclosed are copies of our current label and MSDS. Further, Texaco Chemical sent out informational bulletins concerning the nitrosamine issues to its major customers in the late 1970's and early 1980's.

As a result of the efforts on the part of industry and the EPA to increase awareness of the nitrosamine problem, it is our opinion that the magnitude of nitrosamine contamination in present day cutting fluids has been greatly reduced since this concern was first identified. We doubt that major, reputable cutting fluid manufacturers would any longer deliberately mix ethanolamines or other amines with nitrites.

Although we know that NIOSH's concerns are not limited just to nitrosamines, this has been a major issue in the past. We are suggesting that NIOSH will find that this particular problem has been greatly alleviated since that time.

We hope that our comments will provide you with our perspective on at least one issue relevant to occupational exposure to cutting fluids.

Sincerely,



F. E. Bentley, Ph.D.
Sr. Coordinator Product Safety

FEB:sgv
11/06

Enclosure

TEXACO INC.
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL
SAFETY DATA SHEET



NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION
 HEREIN. SEE PAGE 4 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms
 Diethanolamine, DEA
 Manufacturer's Name
 Texaco Chemical Company
 Address
 4800 Fournace Place, P. O. Box 430, Bellaire, Texas 77401
 Chemical Name and/or Family or Description
 2,2'-Iminobisethanol
 THIS PRODUCT IS CLASSIFIED AS:
 X HAZARDOUS BY DEFINITION NO.(S) 5
 Emergency Telephone No.
 (713) 722-8381
 NOT HAZARDOUS:
 ON ATTACHED EXPLANATION SHEET 4.

WARNING STATEMENT: WARNING! CAUSES IRRITATION

PHYSICAL AND CHEMICAL EFFECTS

Effects of Exposure

Acute:

Eyes .. N.D. Believed to cause severe eye irritation.
 Skin .. N.D. Believed to be moderately irritating causing redness,
 edema, or drying of the skin.
 Respiratory System .. May cause irritation of upper respiratory tract.
 Chronic N.D. Other -

Sensitization Properties

Skin: Yes ___ No X Unknown ___
 Respiratory: Yes ___ No X Unknown ___
 Median Lethal Dose (LD₅₀, LC₅₀) (Species)
 Oral T.D.₅₀ (rat) = 1.41 g/kg Moderately toxic
 Irritation Index, Estimation of Irritation (Species)
 Skin Est. 3-5/8.0 (rabbit) Moderately irritating
 Inhalation N.D. Eyes Est. 50-80/110.0 (rabbit) Severely irritating
 Dermal T.D.₅₀ (rabbit) = 3.0 g/kg Practically non-toxic
 Symptoms of Exposure
 Other - See "Effects of Exposure" above

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes
 Skin .. Flush thoroughly with water for at least 15 minutes.
 Get immediate medical attention.
 Ingestion .. Wash exposed areas with soap and water.
 Inhalation .. Induce vomiting. Call a doctor.
 Other Instructions .. Should symptoms noted under Physiological Effects occur,
 remove to fresh air.
 .. None

*N.D.—Not Determined; *N.A.—Not Applicable
 <—Less Than; >—Greater Than

Protective Equipment (Type)

Eyes Chemical type goggles must be worn.
Skin Gloves impervious to chemicals required.

Code No.

Inhalation Supplied air respiratory protection for cleaning large spills or upon entry into large tanks, vessels, or other confined spaces.
Ventilation Required: Normal Other Local exhaust ventilation recommended.

Precautionary Label

WARNING! CAUSES IRRITATION
Avoid contact with eyes, skin, and clothing.
Wash thoroughly after handling.

Permissible Concentrations:

Air None established. Other -

Requirements for Transportation, Handling and Storage
No special precautions

DOT Proper Shipping Name: Not regulated.
DOT Hazard Class (if applicable) N.A.

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (°F) 516 Vapor Pressure .003 (mmHg) at 30°C.
Specific Gravity 1.09, 30/20°C (H₂O=1) Vapor Density 3.7 (Air=1)
Appearance and Odor Clear liquid above 28°C., solid below 28°C., mild ammoniacal odor.
pH of undiluted product 12.0 (50% aq.) Solubility Appreciable in water
Percent Volatile by Volume Nil Evaporation 1 (Butyl acetate)=1
Viscosity 350cP, 30°C Other -
Hazardous Polymerizations Occur X Do not occur
The Material Reacts Violently With:
Air Water Heat Strong Oxidizers Others
Acids

FIRE HAZARD INFORMATION

Ignition Temp. °F N.D. Flash Point F. (Method) 300 (PMCC)
Flammable Limits % Lower 1 Upper 10
Products Evolved When Subjected to Heat or Combustion Ammonia, carbon monoxide and carbon dioxide may be formed on burning in limited air supply.
Recommended Fire Extinguishing Agents and Special Procedures According to the National Fire Protection Association Guide, use water spray, dry chemical "alcohol" foam or carbon dioxide. Water or foam may cause frothing. Use water to cool fire-exposed containers.
Unusual Fire or Explosive Hazards None

| [REDACTED] | | Code No. |
|---|-----|--------------------|
| Components Presenting a Significant Hazard | % | Other Components % |
| HN(CH ₂ CH ₂ OH) ₂ | | |
| Diethanolamine | 100 | |
| C.A.S. Registry No. 111-42-2 | | |

ENVIRONMENTAL PROTECTION

Waste Disposal Method Dispose in approved chemical disposal area or in a manner which complies with all local, state and federal regulations.

Procedures in Case of Breakage or Leakage Contain spill if possible, ventilate area. Avoid breathing vapor. Use self-contained breathing apparatus or supplied-air mask for large spills in confined area. Avoid all personal contact. Wipe up or absorb on suitable material and shovel up.

Remarks:
None

ADDITIONAL COMMENTS

TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT
Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed.

State of Michigan Critical Materials Act (Revised 1977) - No critical materials present.

To determine applicability or effect of any law or regulation with respect to this product, user should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By: F. E. Bentley Title: Coordinator Product Safety
Texaco Chemical Company
Date: November 14, 1978 New Revised, Supersedes 12-17-78



Petrochemicals

Jefferson Chemical Company, Inc.

a subsidiary of Texaco Inc.

Main Office: Bellaire, Texas

DIETHANOLAMINE

WARNING! CAUSES EYE AND SKIN IRRITATION

Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.

FIRST AID: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. Flush skin with water.

ATTENTION!

Do not use Sodium Nitrite or other Nitrosating Agents in Formulations containing this product. Suspected Cancer-Causing Nitrosamines could be formed.

L-102
W-104
J-12
12-1577

FLASH POINT
310° F
CLOSED CUP
MADE IN U.S.A.

TEXACO
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL
SAFETY DATA SHEET



NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION
HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms

75091 DIETHANOLAMINE, DEA

Manufacturer's Name

Texaco Chemical Company

Emergency Telephone No.

(409) 722-8381

Address

3040 Post Oak Blvd. P.O. Box 27707 Houston, TX 77056

Chemical Name and/or Family or Description

Alkanolamine

THIS PRODUCT IS CLASSIFIED AS:

____ CARCINOGENIC BY OSHA, IARC, OR NTP

X

NOT CARCINOGENIC

WARNING STATEMENT:

WARNING! CAUSES IRRITATION TO EYES
MAY CAUSE IRRITATION TO SKIN
MAY FORM SUSPECTED CANCER-CAUSING NITROSAMINES IF
MIXED WITH NITRITES

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment (Type)

Eyes: Chemical type goggles must be worn.

Skin: Protective clothing such as uniforms, coveralls or lab coats should be worn. Launder or dry clean when soiled. Gloves resistant to chemicals and petroleum distillates required.

Inhalation: Supplied air respiratory protection for cleaning large spills or upon entry into tanks, vessels, or other confined spaces.

Ventilation: Local exhaust ventilation recommended

Permissible Concentrations:

Air: 3ppm 8 hour TWA ACGIH(1985-86)

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes: Flush thoroughly with water for at least fifteen minutes. Get immediate medical attention.

Skin: Wash exposed areas with soap and water.

Ingestion: Induce vomiting. Call a doctor.

Inhalation: Should symptoms noted under physiological effects occur, remove to fresh air. If not breathing, apply artificial respiration.

Other Instructions: None.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than



PHYSIOLOGICAL EFFECTS Code No. 75091

Effects of Exposure

Acute:
Eyes: Believed to cause severe eye irritation.

Skin: Believed to be moderately irritating; Believed to cause redness, edema or drying of the skin.

Respiratory System: May cause irritation of upper respiratory tract.

Chronic: See Additional Comments, page 6.

Other: -

Sensitization Properties:

Skin: Yes ___ No ___ Unknown X Respiratory: Yes ___ No ___ Unknown X

Median Lethal Dose (LD₅₀ LC₅₀) (Species)
Oral 1.41 g/kg (rat); moderately toxic
Inhalation N.D.
Dermal 3.0 g/kg (rabbit); practically non-toxic
Other N. D.
Irritation Index, Estimation of Irritation (Species)
Skin Believed to be 3-5/8.0 (rabbit); moderately irritating
Eyes Believed to be 50-80/110 (rabbit); severely irritating
Symptoms of Exposure See above

FIRE PROJECTION INFORMATION

Ignition Temp. °F. N.D. Flash Point °F. (Method) 300° F (PMCC)
Flammable Limits (%) Lower 1 Upper 10
Products Evolved When Subjected to Heat or Combustion:
Ammonia, carbon monoxide, and carbon dioxide may be formed on burning in limited air supply.

Recommended Fire Extinguishing Agents And Special Procedures:
According to the National Fire Protection Association Guide, use water spray, dry chemical, foam, or carbon dioxide. Water or foam may cause frothing. Use water to cool fire-exposed containers. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop the leak.

Unusual or Explosive Hazards:
None.



ENVIRONMENTAL PROTECTION

Waste Disposal Method:

Under RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixture, processes, etc. may render the resulting material hazardous. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Avoid all personal contact. Contain spill if possible. Wipe up or absorb on suitable material and shovel up.

Remarks:

Waste Classification: Product has been evaluated for RCRA characteristics and does not meet criteria of a hazardous waste if discarded in its purchased form.

PRECAUTIONS

WARNING! CAUSES IRRITATION TO EYES
MAY CAUSE IRRITATION TO SKIN
MAY FORM SUSPECTED CANCER-CAUSING NITROSAMINES IF MIXED WITH NITRITES
Avoid contact with eyes and prolonged contact with skin.
Wash thoroughly after handling.

Requirements for Transportation, Handling and Storage:
Minimum feasible handling temperatures should be maintained. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

DOT Proper Shipping Name: Not regulated
DOT Hazard Class (if applicable): N.A.

CHEMICAL AND PHYSICAL PROPERTIES

| | | | | |
|----------------------------|-------------------------------------|------------------------------------|------|---------|
| Boiling Point (°F) | 516 | Vapor Pressure | .003 | (mmHg) |
| Specific Gravity | 1.09 | (H ₂ O=1) Vapor Density | 3.7 | (Air=1) |
| Appearance and Odor | clear liq. above 28°C. ammonia odor | | | |
| pH of undiluted product | 11.5 | Solubility | sol. | |
| Percent Volatile by Volume | nil | Evaporation | 1 | ()=1 |
| Viscosity | 350 cP @ 30 C | Other | - | |

Hazardous Polymerizations Occur X Do not occur
The Material Reacts Violently With: (If others is checked below, see additional comments on page 6 for further details)
Air Water Heat Strong Oxidizers Others None of These
X

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than



COMPOSITION Code No. 75091

| Chemical/Common Name | CAS No. | Exposure Limit | Range in % |
|--------------------------|---------|---------------------------------|------------|
| *Ethanol, 2,2'-iminobis- | 111422 | 3ppm TWA ACGIH 3ppm TWA-OSHA | 100.00 |

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

HAZARD DATA TITLE III

| | | | | |
|---|---------|--------|----------|-----------|
| I. Title III Section 302/304 Extremely Hazardous Substance | | | | |
| Component | CAS No. | % | RQ (Lbs) | TPQ (Lbs) |
| NONE | | | | |
| II. CERCLA Section 102(a) Hazardous Substance | | | | |
| Component | CAS No. | % | RQ (Lbs) | |
| NONE | | | | |
| III. Title III Section 311 Hazard Categorization | | | | |
| Acute | Chronic | Fire | Pressure | Reactive |
| X | | | | |
| IV. Title III Section 313 Toxic Chemicals | | | | |
| Component | CAS No. | % | | |
| Ethanol, 2,2'-iminobis- | 111422 | 100.00 | | |

U



PRODUCT SHIPPING LABEL

Code No. 75091

75091 DIETHANOLAMINE, DEA

WARNING! CAUSES IRRITATION TO EYES
MAY CAUSE IRRITATION TO SKIN
MAY FORM SUSPECTED CANCER-CAUSING NITROSAMINES IF
MIXED WITH NITRITES
Avoid contact with eyes and prolonged contact with skin.
Wash thoroughly after handling.

In case of contact, immediately flush eyes with plenty of
water for at least 15 minutes.
Call a doctor.
Wash skin with soap and plenty of water.

| Chemical/Common Name | CAS No. | Range in % |
|--------------------------|---------|------------|
| *Ethanol, 2,2'-iminobis- | 111422 | 100.00 |

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.
Not classified as a hazardous material by DOT definition.

HMIS
 Health : 1 Reactivity : 0
 Flammability: 1 Special : -

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-3400 (EXT. 204)

Texaco
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:
Fuels/Lubricants/Antifreezes
call (914) 831-3400 (EXT.204)
Chemicals
call (512) 459-8543
Transportation Spills
call CHEMTREC (800) 424-9300

**ADDITIONAL COMMENTS**Code
No. 75091

STATE OF MICHIGAN CRITICAL MATERIALS ACT (REVISED 1989)
No critical materials present.

DO NOT ADD OR FORMULATE WITH NITRITES

The amines in this product combine with nitrites to form nitrosamines. Many nitrosamines have been found to cause cancer in laboratory animals and should therefore be regarded as potential human cancer hazards.

This material reacts violently with acids.

Recently conducted National Toxicology Program (NTP) subchronic toxicity studies with diethanolamine (DEA) have shown kidney damage in rats and mice following oral and dermal exposures. Additional findings include nervous system and cardiac effects, although no measurable deficits in performance of these systems were noted. The significance of the latter findings is not clear since they were limited to only one species under test, and did not exhibit a dose-response relationship. The NTP has scheduled DEA for chronic testing in rodents to clarify the onset, extent, and persistence of the above effects.

To determine applicability or effect of any law or regulation with respect to the product, users should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By F. E. Bentley Title Coordinator of Product Safety
Date 09-14-89 New Revised, Supersedes 04-04-89

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than



Texaco Chemical Company

Not classified as a hazardous material by D.O.T. definitions.

DIETHANOLAMINE

WARNING! CAUSES IRRITATION TO EYES; MAY CAUSE IRRITATION TO SKIN; MAY FORM SUSPECTED CANCER-CAUSING NITROSAMINES IF MIXED WITH NITRITES

Avoid contact with eyes and prolonged contact with skin. Wash thoroughly after handling.

FIRST AID: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a doctor. Wash skin with soap and plenty of water.

Chemical/Common Name

*Ethanol, 2,2'-iminobis-

| | |
|----------------|-------------------|
| CAS No. | Range in % |
| 111422 | 100 |

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

HMIS

| | | | |
|---------------|---|-------------|---|
| Health: | 1 | Reactivity: | 0 |
| Flammability: | 1 | Special: | — |

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

Health Emergency
(914) 831-3400 (Ext. 204)

Transportation Spills—CHEMTREC
(800) 424-9300

Additional Product Information
(512) 459-6543

FLASH POINT
300°F
CLOSED CUP
CODE 75091
4/15/89
MADE IN U.S.A.

TEXACO CHEMICAL COMPANY • 3040 POST OAK BLVD. • HOUSTON, TX 77056