FOREWORD INTRODUCTION

DIETHYLENETRIAMINE

CAS N°: 111-40-0

Substance

End Point	:	**IDENTIFIERS, PHYSICAL AND CHEMICAL PROPERTIES**
Chemical Name	:	**1,2-Ethanediamine, N-(2-aminoethyl)-**
Common Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**

Synonyms

N-(2-Aminoethyl)ethylenediamine
Bis(.beta.-aminoethyl)amine
ChS-P 1
2,2'-Diaminodiethylamine
2,2'-Iminobis(ethanamine)
1,4,7-Triazaheptane
3-Aza-1,5-pentanediamine
Bis(2-aminoethyl)amine
DETA
2,2'-Diaminoethylamine
2,2'-Iminodiethylamine

Properties & Definitions

Molecular Formula	:	**C4H13N3**
Molecular Weight	:	**103.20**
Melting Point	:	**-39C**
Boiling Point	:	**205C**
State	:	**Liquid, hygroscopic viscous**
Flash Point	:	**97C(c-cup)***
Flamable Limit	:	**Flammable, 2.0-6.7% at 150**
Density	:	**0.95 g/cm3 at 20C**
Vapour Pressure	:	**0.02 kP (0.15 mmHg) at 20C**
Octanol/Water Partition Coefficient	:	**log Pow = ca.-1.3 calculated**
Water Solubility	:	**Miscible**
Additives	:	**No additives used.**
Impurities	:	**Traces of aminoethylypeperazine (AEP) and ethylenediamine (EDA)**
General Comments	:	For VP the values 0.37 hPa and 1 hPa at 20C are also reported. *104C (o-cup). For auto flammability the following values are reported: 325C, 358C at 1010 hPa and 395C. Diethylenetriamine is not explosive, has no oxidizing properties. Dangerous reaction: exothermal reaction with acids. Alkaline liquid, corrosive.

Overall Evaluation

EXPOSURE

ENVIRONMENTAL EXPOSURE

Biodegradability: "inherently biodegradable"

RELEASE AND SOURCES

Production and processing occurs in closed systems. Therefore no high emissions are expected to the atmosphere. During production and processing emissions are expected to waste water.

PARTITIONING AND FATE

DETA is miscible with water and inherently biodegradable.
DETA does not form N-nitrosamines at concentrations equal to or greater than the detection limit (500 mg/L) during a 2-week incubation period in sewage or lake water samples.
The formation of N-nitrosamines from DETA in soil could not be determined with confidence utilizing the available analytical techniques (EPA, 1991).

Results from MacKay level 1 calculation indicate that 0.077% and 99.9% of the substance will partition into air and water, respectively (Mackay et al. 1992). The alkaline properties of DETA are not evaluated in the model and Log Kow of -1.315 has been used. As DETA will be protonated under relevant environmental conditions the adsorption to sediment and soil will in fact be higher based on this Log Kow. But although the model can in fact not be applied it can be concluded that the substance will mainly partition into water.

CONSUMER EXPOSURE

Although most likely consumers will not be exposed to DETA, it is possible that dermal exposure occurs after contact with epoxy resins products containing the substance (EPA, 1985). In addition, it is known that some packaging materiel (plastics) may contain DETA and consumers will probably be exposed after migration (CEC; 1983).

OCCUPATIONAL EXPOSURE

EXPOSURE DURING PRODUCTION AND INDUSTRIAL USE

Occupational exposure to DETA can occur during production, transport, processing and clean-up activities (EPA, 1985).

In the Netherlands workplace monitoring data are available for the Dow Benelux Terneuzen location. Data were obtained from the Dow Amines Plant (production facility), the Chemical Handling Department (drumming) and the Chemical Lab (Quality Assurance Measurements). All data relate to exposure by inhalation and an 8-hour working period during the period January 1986 - Novermber 1992. Mean values were ranging from 0.093-0.16 ppm approximately equal to 0.372-0.64 mg/m3.

Workplace exposure measurements of DETA have been carried out in Finland in 11 working places (1989-1991). As a typical value in an industrial hall (gluing and laminating) 0.003 mg/m3 DETA was detected (Finland, 1993).

INITIAL ASSESSMENT

The human and/or environmental profiles presented in this assessment describe the risk for three scenarios:
Scenario 1: A risk assessment is carried out for a "standard environment" using the Uniform System for the Evaluation of Substances (USES) (RIVM, VROM & WVC, 1994). In this scenario waster water is discharged to a Sewage Treatment Plant (STP). The PEC is calculated 1000 m from the point of discharge of the effluent.
Scenario 2: A risk assessment using exposure data from the plant in Delfzijl.
Scenario 3: A risk assessment using exposure data from the plant in Terneuzen.

Assumptions made are:
Overall production: 25000 - 30000 tonnes/year (Europe) for 5 production sites
Estimated production/site: 6000 tonnes/year.

HUMAN

The human effects alone indicate a moderate degree of toxicity. From a suitable 90-day oral rat toxicity study an overall NOAEL is established of 1000 mg/kg in the diet (equal to 70-80 mg/kg body weight for males and females, respectively).

Scenario 1: From the USES model it is calculated that the margin of safety (MOS) between the NOAEL and the data for indirect exposure are 3428.
Scenarios 2 & 3: No adequate data are available to assess the risk to humans following indirect exposure.

ENVIRONMENTAL

Ecotoxicological data indicate that at acute exposure DETA is not toxic to algae and fish but harmful to daphnids. Using an uncertainty factor of 10 to the lowest NOEC of 5.6 mg/L to daphnids a PNEC (predicted no effect concentration) of 0.56 mg/L is calculated for aquatic organisms.
Using the equilibrium partioning method from the PNEC-aquatic organisms and the Kd (adsorption constant) a PNEC for terrestrial organisms can be derived:
Kd = PNEC terr/PNEC aqua
PNEC terr = 0.56 (mg/L) X 380 (L/kg) = 213 mg/kg
Scenario 1:
-The PEC/PNEC ratio for aquatic organisms according to the USES model is 0.7.

Applying a scenario of USES in which sewage sludge is applied on agricultural land a PEC/PNEC ratio for terrestrial organisms is 2.0/213 = 0.009.
Using a NOEC of 6.25 mg/L a PEC/PNEC ratio of 3.2 for micro-organisms in the STP is calculated. The concentration in the aeration tank is used as the PEC.
Scenario 2:
-Calculation of DETA-concentration in the Zeehavenkanaal:
DETA is discharged into the flow Zeehavenkanaal. The waste water volume is 500 m3/day and of the Zeehavenkanaal is 6.9 X 10E+6 m3/day (average). The dilution factor of waste water to the Zeehavenkanaal is 13800. The actual concentration of DETA in the waste water was 31.3 mg/L in 1993. The concentration of DETA in the Zeehavenkanaal will approximately be 31.3/13800 = 0.0023 mg/L. Biodegradation and adsorption data are not taken into account. (V&W, 1991; Van Wijk, 1994).
-Estimation of Hazard-Quotient for the aquatic ecosystem:
PEC/PNEC = 0.0023/0.56 = 0.0041.
Scenario 3:
-Calculation of DETA-concentration in the river Westerschelde.
Worst case releases to the environment from the Terneuzen Plant are estimated to be 0.05% to air and 0.5% to water. This leads to an estimated emission to water of 30 tonnes/year or 82 kg/day.
DETA is discharged into the river Westerschelde. The volume of the waste water is 350 m3/day. The concentrations of DETA in waste water is estimated to be 234 mg/L. The waste water is diluted to 60000 m3 before it leaves the Dow Terneuzen site. The Westerschelde flow is estimated to be 10 million m3/day. From these data an overall dilution factor of ca. 29000 can be derived. The concentration of DETA in the river is approximately 0.008 mg/L. Biodegradation and adsorption data are not taken into account (Dow Europe S.A., 1994).
-Estimation of Hazard-Quotient for the aquatic ecosystem:
PEC/PNEC = 0.008/0.56 = 0.014

CONCLUSIONS

Based upon the available information local risks were estimated for 3 scenarios.
For scenario 1 the initial assessment gave no indication for concern for humans for indirect exposure. For the scenarios 2 and 3 no initial assessment for humans after indirect exposure could be made.
In all three scenarios no indications for concern for the aquatic environment were found.
There are indications for a risk for micro-organisms in the STP in scenario 1.
An accurate workplace assessment based on systemic effects has not been carried out since no adequate toxicological data were available. However, it should be noted that workplace measurements were well below the established TLV of 4 mg/m3.

RECOMMENDATIONS

Information on processing is needed. Human as well as environmental exposure data have to be supplied in particular with respect to other producing and processing industries.
The availability of toxicological inhalation data at low exposure levels would be helpfull in assessing the risk for workers.

Production-Trade

Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Geographic Area : **EUR**

Production

Quantity	*Year*
25000-30000 t - P	**1993**

General Comments : 25000-30000 tonnes is the estimated production by five producers in Europe. In the Netherlands diethylenetriamine is produced at Terneuzen and Delfzijl.

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

#DOWEU*
Wilmer, J. Dow Europe. Unpublished Report or Communications, (1994)

Processes

Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Process

Process comments : DETA is manufactured by various routes. One route is by catalytic reduction of ethylene with NH3. Another route is by reaction of ethylene dichloride with NH3, neutralisation with sodium hydroxide and salt removal. DETA is separated by fractional distillation. The manufacturing process is completely closed. There are five production sites in Europe. The following companies produce and/or process DETA: Dow Europe S.A., Bayer AG, BASF AG, Delamine bv in the Netherlands and Berol Nobel.

References

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Uses

Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Use

Quantity	*Year*	*Comments*
		Main type of category is non-dispersive use, closed systems. The substance is used in the following processing industries: Chemical industry: used for synthesis Paper, pulp and board industry Polymer industry Textile processing industry

References

Secondary References : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Uses

Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Use

Quantity	*Year*	*Comments*
		DETA is used in the following applications: Complexing agents Corrosive agents Intermediates Lubricants and additives Paper-wet-strength resins Softners

References

Secondary References : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Uses

Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Geographic Area : **FIN**

Use

Quantity		*Year*	*Comments*
			Used in the following applications: as a hardener
5 %	**wt**	**1993**	Epoxy curing agent
11 %	**wt**	**1993**	Epoxy hardener
60 %	**wt**	**1993**	Epoxy patching for cement

References

Secondary References : **!SIDSP***

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **Pathway into the Environment and Environmental Fate.**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Geographic Area : **NLD**

Quantity Transported

General Comments : Production and processing occurs in closed systems. Therefore, no high emissions are expected to the atmosphere. During production and processing emissions are expected to waste water.

References

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **Pathway into the Environment and Environmental Fate.**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Test Method and Conditions

Test method description : Mackay level 1 model

Quantity Transported

Medium	*to Medium*	*Quantity*	*Time*	*Year*	*to Year*
	to AIR	**0.077 %**			
Mackay level 1 calculation					
	to AQ	**99.9 %**			
Mackay level 1 calculation					

General Comments : All above values are calculated. The alkaline properties of DETA are not evaluated in the model and a log Kow of -1.315 has been used. DETA will mainly partition into water.

References

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**CONCENTRATION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**NLD**

Test Subject

Organism	*Medium*	*Specification*	*Lifestage*	*Sex*
	AIR	**OCC**		

Test Results

Matrix	*Concentrations*	*Spec.*	*Date*
AIR	**0.372-0.64 mg/m3**		**JAN1986-NOV1992**

Mean values for occupational exposure (0.093-0.16 ppm). Data relate to exposure by inhalation and an 8 hour working period.

General Comments : Data were obtained from the Dow Amines Plant (production facility), the Chemical Handling Department (drumming) and the Chemical Lab (Quality Assurance Measurements).

References

Secondary Reference : **!SIDSP***

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**CONCENTRATION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**FIN**

Test Subject

Organism	*Medium*	*Specification*	*Lifestage*	*Sex*
	AIR	**OCC**		

Test Results

Matrix	*Concentrations*	*Spec.*	*Date*
AIR	**0.003 mg/m3**		**1989-1991**

As a typical value in an industrial hall (gluing and laminating)

General Comments : Workplace exposure measurements of DETA have been carried out in Finland in 11 working places.

References

Secondary Reference : **!SIDSP***

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**HUMAN INTAKE AND EXPOSURE**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Geographic Area	:	**NLD**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*
HUMAN			**SKN**		

Test Results

General Comments : Although most likely consumers will not be exposed to DETA, it is possible that dermal exposure occurs after contact with epoxy resins products containing the substance (EPA, 1985). In addition, it is known that some packaging material (plastics) may contain DETA and consumers will probably be exposed after its migration.

References

Primary Reference : **OJEC****
CEC. Official Journal of the European (Communities)/Union, L110A, (1993)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**HUMAN INTAKE AND EXPOSURE**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Geographic Area	:	**NLD**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*
HUMAN					

Test Results

General Comments : Exposure during production and industrial use: occupational exposure to DETA can occur during production, transport, processing and clean-up activities.

References

Primary Reference : **#EPADM***
EPA. EPA Personal Communication, 40 CFR(799), (1985)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Geographic Area	:	**NLD**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SEW**
	AQ	**LAKE**
	SOIL	**-**

Exposure

Exposure Period	:	**2 wk**

Test Results

General Comments	:	DETA does not form N-nitrosamines at concentrations equal or greater than the detection limit (500 mg/L). The formation of N-nitrosamines from DETA in soil could not be determined with confidence utilizing the available analytical techniques.

References

Primary Reference	:	**#EPADM*** EPA. EPA Personal Communication, (1991)
Secondary Reference	:	**!SIDSP*** OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**USA**
Area Specifications	:	**NE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SEW**

Species/strain/system	:	Primary sewage from the city of Midland, Michigan

Test Substance

Purity Grade : **97%**
Labelled Compound : **14C-labelled DETA**

Test Method and Conditions

Test method description : Stability determination; GLP: yes
Temperature : **20 C**
pH : **8**

Exposure

Exposure Period : **2-4 d**
Dose / Concentration : **5-15 mg/L**
Exposure comments : 3 samples. Other concentrations tested were 5 and 15 mg/L.

Test Results

Quantity	*Time*	*Comments on result*
T/2	**8 d**	50% degradation of DETA; approximately 8 days for 5 mg/L.
T/2	**14 d**	50% degradation of DETA; approximately 14 days for 15 mg/L.

References

Primary Reference : **DOWSF***
Dow Europe S.A. DOW Corning Bulletin 22-069B-01. Information about Silicone Fluids, (1991)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **BIODEGRADATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **USA**
Area Specifications : **NE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**FRESH**

Species/strain/system : Higgins Lake and Houghton Lake (Michigan, USA)

Test Substance

Purity Grade : **97%**
Labelled Compound : **14C-labelled DETA**

Test Method and Conditions

Test method description	:	Stability determination; GLP: yes
Temperature	:	**20 C**
pH	:	**8**

Exposure

Exposure Period	:	**14 d**
Dose / Concentration	:	**1-15 mg/L**
Exposure comments	:	3 samples from each lake. Other concentrations tested were 5 and 15 mg/L.

Test Results

Quantity	*Time*	*Comments on result*
T/2	**>14 d**	50% degradation of DETA at more than 14 days for 1 mg/L.
61.2 %	**14 d**	61.2% removal after 14 days.

General Comments : There was no evidence of formation of N-nitrosamine.

References

Primary Reference : **DOWSF***
Dow Chemical Company. DOW Corning Bulletin 22-069B-01. Information about Silicone Fluids, (1991)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**CHE**

Test Subject

Organism	*Medium*	*Specification*
	SOIL	**LOAM**

Species/strain/system : Londo soil (Sandy loam)

Test Substance

Purity Grade	:	**97%**
Labelled Compound	:	**14C-labelled DETA**

Test Method and Conditions

Test method description	:	Dissipation method: EPA protocol; GLP: yes. Soil humidity expressed as 18.75 g water/100 g dry weight; cation exchange capacity: approximately 9.4 meq/100 g soil dry weight.
Temperature	:	**25 C**
Organic Matter Content	:	**3.6-4.3 %**
Water Content	:	**18.75 %**

Exposure

Exposure Period	:	**4-28 d**
Dose / Concentration	:	**10-25 mg/kg**
Exposure comments	:	Content of clay = 12-14%; content of silt = 20-24%; content of sand = 64-68%; soil classification: USDA (1991).

Test Results

Quantity	*Time*	*Comments on result*
T/2	**4 d**	50% degradation at 4 days. Reported as DT50.
	28 d	DT90 = 28 days

References

Primary Reference	:	**DOWSF*** Dow Europe S.A. DOW Corning Bulletin 22-069B-01. Information about Silicone Fluids, (1991)
Secondary Reference	:	**!SIDSP*** OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**CHE**

Test Subject

Organism	*Medium*	*Specification*
	SOIL	**LOAM**

Species/strain/system : Perrinton soil (clay loam)

Test Substance

Purity Grade	:	**97%**
Labelled Compound	:	**14C-labelled DETA**

Test Method and Conditions

Test method description	:	Dissipation method: EPA protocol; GLP: yes. Soil humidity expressed as 25.62 g water/100 g dry weight; cation exchange capacity: approximately 13.5 meq/100 g soil dry weight.
Temperature	:	**25 C**
Organic Matter Content	:	**5.9 %**
Water Content	:	**25.62 %**

Exposure

Dose / Concentration	:	**10-25 mg/kg**
Exposure comments	:	Content of clay = 36%; content of silt = 28-30%; content of sand = 34-36%; content of organic carbon = 5.9%. Soil classification: USDA (1991).

Test Results

Quantity	*Time*	*Comments on result*
T/2	**4 d**	50% degradation at 4 days. Reported as DT50.
	28 d	DT90 = 28 days

References

Primary Reference	:	**DOWSF*** Dow Europe S.A. DOW Corning Bulletin 22-069B-01. Information about Silicone Fluids, (1991)
Secondary Reference	:	**!SIDSP*** OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**NLD**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system	:	Activated sludge, domestic

Test Method and Conditions

Test method description	:	Directive 87/302/EEC, part C, p.123 (1988); GLP: yes
(An)aerobic	:	**AEROB**

Exposure

Dose / Concentration : **20 mg/L**

Test Results

Quantity	*Time*	*Comments on result*
80-90 %	**30 d**	Related to DOC; degradation after 30 days
	23 d	Lag phase was approximately 23 days

General Comments : The results indicate the substance is "inherently biodegradable".

References

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **BIODEGRADATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **FRG**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Predominantly domestic sewage, adapted

Test Method and Conditions

Test method description : Directive 84/449/EEC, C.6 (1984).

(An)aerobic : **AEROB**

Exposure

Exposure Period : **20 d**
Dose / Concentration : **80 mg/L**
Exposure comments : Concentrations of 2, 4, 8 and 24 mg/L also tested.

Test Results

Quantity	*Time*	*Comments on result*
0 %	**20 d**	No biodegradation observed after 20 days under test conditions used.

General Comments : Comparable results were obtained using concentrations 2, 4, 8 and 24 mg COD/L.

References

Primary Reference : **#BAYUR***
Bayer AG.

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **BIODEGRADATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **FRG**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Activated sludge

Test Method and Conditions

Test method description : OECD Guideline 302 B (1981).

(An)aerobic : **AEROB**

Test Results

Quantity	*Time*	*Comments on result*
>70 %	**28 d**	Related to DOC; degradation after 28 days.

General Comments : The results indicate the substance is "inherently biodegradable".

References

Primary Reference : **BASFM***
BASF. Material Safety Data Sheets of BASF, (1991)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**JPN**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Activated sludge

Test Method and Conditions

Test method description : According to OECD Guideline 301 C; modified MITI (1981); test I.

(An)aerobic : **AEROB**

Exposure

Exposure Period	:	**14 d**
Dose / Concentration	:	**100 mg/L**
Exposure comments	:	Sludge sampling were made at 10 different places in Japan. The sludge samples were mixed. Test substance was added to 30 mg/L sludge.

Test Results

Quantity	*Time*	*Comments on result*
0 %	**14 d**	No biodegradation observed after 14 days under the test conditions used. Related to test substance.

General Comments : Under test conditions no biodegradation observed.

References

Primary Reference : **MITIB***

MITI. Biodegradation and Bioaccumulation Data of Existing Chemicals Based on the CSCL Japan, (1992)

Secondary Reference : **!SIDSP***

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**CHE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SEW**

Species/strain/system : Predominantly industrial sewage

Test Method and Conditions

Test method description : Test method unspecified; GLP: no

(An)aerobic : **AEROB**

Exposure

Exposure Period : **20 d**

Test Results

Quantity	*Time*	*Comments on result*
0 %	**20 d**	No biodegradation observed after 20 days under test conditions used. Related to COD.

References

Primary Reference : **#DOWSF***

Dow Europe S.A. DOW Corning Bulletin 22-069B-01. Information about Silicone Fluids, (1978)

Secondary Reference : **!SIDSP***

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**FRG**

Test Subject

Organism	*Medium*	*Specification*
MCR		

Species/strain/system : Aerobic micro-organisms

Test Method and Conditions

Test method description : Test method unspecified; (1976); GLP: no

(An)aerobic : **AEROB**

Exposure

Exposure Period : **10 d**

Exposure comments : Tests were performed after neutralization of the aqueous solution.

Test Results

Quantity	*Time*	*Comments on result*
55 %	**10 d**	Related to COD; approximately 50% degradation after 10 days. Under test conditions biodegradation observed.
<10 mg/g		BOD
1315 mg/g		COD

General Comments : Biodegradation observed under test conditions used.

References

Primary Reference : **#BASFC***
BASF AG. BASF Wyandotte Corporation, 4327, (1976)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**SORPTION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Specifications	:	**SOIL**
Geographic Area	:	**CHE**
Species/strain/system	:	A variety of surface and subsurface soils were used.

Test Method and Conditions

Test method description	:	Batch equilibrium adsorption studies were conducted to examine the physical-chemical factors which influence the partitioning of DETA to soil.

Test Results

Quantity	*Time*	*Comments on result*
		The average Koc value for DETA was 19.111.
		Adsorption of the substance correlated closely with both the cation exchange capacity (CEC) and organic content of the soil. Soils with increased CEC and organic content exhibited higher affinities for the amines.
		Despite the miscibility of DETA in water, it adsorbs strongly to soil. The rate of adsorption was fairly rapid and equilibrium was achieved within several hours.
General Comments :		Adsorption of the ethyleneamines correlated closely with both the cation exchange capacity (CEC) and organic content of the soil. Soils with increased CEC and organic content exhibited higher affinities for the amines. This dependence of adsorption on CEC and organic content was most likely due to the strong electrostatic interaction between the positively charged amine and the negatively charged soil surface.

References

Primary Reference : **#URDOW***
Dow Europe S.A. Dow Chemical Company Unpublished Report, (1991)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **BIOCONCENTRATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **JPN**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
FISH	**AQ**	**FRESH**					

Species/strain/system : Carp (Cyprinus carpio)

Test Method and Conditions

Test method description : According to OECD Guideline 301 C; modified MITI (1981); Test I. Test was done under flow-through condition. Dissolved oxygen in the test tank was 6-8 mg/L.
Temperature : **25 C**

Exposure

Exposure Period : **42 d**
Dose / Concentration : **2 mg/L**
Exposure comments : Concentration of 0.2 mg/L also tested.

Test Results

Organ	*Bioconcent. Factor*	*Calc Basis*	*Time*	*State*	*Comments on result*
	<0.3-1.7				Bioconcentration factor
	<2.8-6.3		**6 wk**		Bioconcentration factor at a concentration of 0.2 mg/L at 6 weeks.

References

Primary Reference : **MITIB***
MITI. Biodegradation and Bioaccumulation Data of Existing Chemicals Based on the CSCL Japan, (1992)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**EXCRETION**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**

Evaluations

Evaluation text	:	Feces and urine were the primary routes of excretion with less than 2% of the administered dose being expired as 14CO2. More than 96% of the recovered dose was eliminated within 48 hours after dosing. There was a significant increase in the percentage of radioactivity excreted in the urine and a significant decrease in that eliminated as 14CO2 at the higher dose level (animals were treated with 50 and 500 mg/kg doses). The route of administration, oral or endotracheal, had little effect on the distribution within the body or the elimination of radioactivity. The route of administration at 50 mg/kg level did not affect bioavailability, total clearance or terminal half-life.

References

Primary Reference	:	**#UCCYDF** Tyler, T. R. et al. Union Carbide Co-operation
Secondary Reference	:	**!SIDSP*** OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

[redacted]

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Dose / Concentration : **600 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no data

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
GPIG			**ORL**			**LD50**	Oral LD50 for guinea pigs was established as 600 mg/kg body weight.

References

Primary Reference : **GISAAA**
Trubko et al. Gigiena i Sanitariya
(Hygiene and Sanitary), 37, 103-104, (1972)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

[redacted]

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Dose / Concentration : **1140 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no data

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**ORL**			**LD50**	Oral LD50 for rats was established as ca. 1140 mg/kg body weight.

References

Primary Reference : **#URBSF***
Oettel, H. and Hofmann, H. T. BASF Unpublished Report, (1957)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Dose / Concentration : **2080-2600 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no; five rats were tested.

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**ORL**			**LD50**	Oral LD50 for rats was established as 2080 - 2660 mg/kg body weight.

References

Primary Reference : **JIHTAB**
Smyth, H. F. et al. Journal of Industrial Hygiene and Toxicology, 31, 60-62, (1949)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Species/strain/system : Long-Evans rats
Dose / Concentration : **819-1430 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no data

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**ORL**		**M**	**LD50**	Oral LD50 for rats was established at dose level of 819 - 1430 mg/kg body weight.

References

Primary Reference : **AMIHAB**
Hine, C. H. et al. Archives of Industrial Health, 17, 129-144, (1958)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Dose / Concentration : **1800 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no data; six male rats were tested.

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**ORL**		**M**	**LD50**	Oral LD50 for male rats was established as ca. 1800 mg/kg body weight.

References

Primary Reference : **JIHTAB**
Smyth, H. E. and Carpenter, C. P. Journal of Industrial Hygiene and Toxicology, 26, 269-273, (1944)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Dose / Concentration : **455.5-558.8 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no data

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
MOUSE			**IPR**		**F**	**LD50**	Intraperitoneal LD50 for female was established as 455.5 - 558.8 mg/kg body weight.

References

Primary Reference : **CMSHAF**
Srivastava, A. and Katiyar, S. S. Chemosphere. Chemistry, Biology and Toxicology as Related to Environmental Problems, 17, 839-844, (1988)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Dose / Concentration : **855 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
MOUSE			**SCU**			**LD50**	Subcutaneous LD50 for mice was established as ca. 855 mg/kg body weight.

References

Primary Reference : **#URBSF***
BASF Unpublished Report, (1957)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Dose / Concentration : **50-103 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
MOUSE			**IPR**			**LD50**	Intraperitoneal LD50 for mice was established as 50 - 103 mg/kg body weight.

References

Primary Reference : **#AMIHAB**
Archives of Industrial Health, 17, 129-144, (1958)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Dose / Concentration : **1690-2850 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**SCU**			**LD50**	Subcutaneous LD50 for rats was established at a dose level of 1690 - 2850 mg/kg body weight.

References

Primary Reference : **#URBSF***
Oettel, H. and Hoffmann, H. T. BASF Unpublished Report, (1957)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Species/strain/system : Long-Evans rats
Dose / Concentration : **43-127 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**IPR**		**M**	**LD50**	Intraperitoneal LD50 for rats was established as 43 - 127 mg/kg body weight.

References

Primary Reference : **AMIHAB**
Hine, C. H. et al. Archives of Industrial Health, 17, 129-144, (1958)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Species/strain/system : Guinea pig
Dose / Concentration : **170 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
GPIG			**SKN**			**LD50**	Dermal LD50 for guinea pigs was established as 170 mg/kg body weight.

References

Primary Reference : **JIHTAB**
Smyth, H. F. and Carpenter, C. F. Journal of Industrial Hygiene and Toxicology, 26, 269-273, (1944)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Species/strain/system : Rabbit
Dose / Concentration : **950-1240 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RBT			**SKN**			**LD50**	Dermal LD50 for rabbits was established as 950 - 1240 mg/kg body weight.

References

Primary Reference : **JIHTAB**
Smyth, H. F. et al. Journal of Industrial Hygiene and Toxicology, 31, 60-62, (1949)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Species/strain/system : Rabbit
Dose / Concentration : **1040 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no data

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RBT			**SKN**			**LD50**	Dermal LD50 for rabbits was established as 1040 mg/kg body weight.

References

Primary Reference : **UCCYDF**
Union Carbide Co-operation, (1983)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Dose / Concentration : **1950 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no data

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**ORL**			**LD50**	Oral LD50 for rats was established as 1950 mg/kg body weight .

References

Primary Reference : **UCCYDF**
Union Carbide Co-operation, (1983)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Dose / Concentration : **1539 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**ORL**			**LD50**	Oral LD50 for rats was established as 1539 mg/kg body weight .

References

Primary Reference : **UCCYDF**
Berthold, R. V. Union Carbide Co-operation, (1974)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Species/strain/system : Rabbit
Dose / Concentration : **672 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no data

Test Results

Organism	Medium	Spec.	Route	Lifestage	Sex	Effect	Effect Comments
RBT			**SKN**			**LD50**	Dermal LD50 for rabbits was established as ca. 672 mg/kg body weight.

References

Primary Reference : **UCCYDF**
Berthold, R. V. Union Carbide Co-operation, (1974)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
CAT			**IHL**				
RBT							
GPIG							

Species/strain/system : Cats, rabbits and guinea pigs

Test Method and Conditions

Test method description : BASF test; 1957; GLP: no

Exposure

Exposure Period : **6 h**
Exposure comments : Cats, rabbits and guinea pigs were exposed to saturated atmosphere (vapour) of DETA at 25C.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

No lethality found.

References

Primary Reference : **#URBSF***
BASF AG. BASF Unpublished Report, (1957)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
CAT			**ORL**			**2/DOSE**	

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure Type : **SHORT**
Exposure Period : **<50 d**
Frequency : **1 x/d**
Dose / Concentration : **95-190 mg/kg BW/d**
Exposure comments : The compound was administered daily by gavage at doses of 95 and 190 mg/kg body weight/day. No control group.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	DEATH				

The application of the compound as base was lethal for all animals of the high dose group after 3 or 10 days of application.

STM	**FUNCT**
GIT	**FUNCT**
BW	**DECR**

Blood vomiting, diarrhea and weight reduction were observed.

BLOOD	**BIOCH**
URINE	**CHNG**

Dead animals showed a strong increase in blood urea. In the urine erythrocytes and cylinders were seen.

RBC	**DECR**
LIVER	**NEF**

The animals of high dose group had a slight anemia, but the liver function was unaffected.

STM	**STRUC**

Severe damage of the stomach mucosa was detected at necropsy in the high dose group.

DEATH	**1/2**

After application of the lower dose, one animal died after 5 doses, while the same dose was tolerated by the other cat for 50 times.

NOEL
LOEL

NOEL: <95 mg/kg body weight/day; LOEL: 95 mg/kg body weight/day

General Comments : Application of the compound as hydrochloride resulted in the death of 1 cat after 14 days at 190 mg/kg dose. Histopathology revealed nephrosis and changes in stomach mucosa.

References

Primary Reference : **#URBSF***
Oettel, H. and Hofmann, H. T. BASF Unpublished Report, (1957)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
GPIG			**ORL**				

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure Period : **6 mo**
Dose / Concentration : **0.6 mg/kg**
Exposure comments : The compound was administered daily in drinking water at a dose of 0.6 mg/kg for 6 months.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

No deviations from the controls were observed.

NOEL

NOEL >= 0.6 mg/kg

References

Primary Reference : **ANEADE**
Argonne National Laboratory, IL., (1982)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**IHL**		**M** **F**		

Species/strain/system : Alderly-Park rats

Test Method and Conditions

Test method description : GLP: no data

Exposure

Exposure Type : **SHORT**
Exposure Period : **3 wk**
Frequency : **6 h**
5 d/wk
Dose / Concentration : **550 mg/m3 AIR**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

No signs of toxicity were observed. At autopsy all organs were found normal.

NOEL

NOEL >= 0.55 mg/L.

References

Primary Reference : **BJIMAG**
Gage, J. C. British Journal of Industrial Medicine, 27, 1-18, (1970)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**ORL**		**M**	**5/GROUP**	**5/GROUP**
					F	**5/GROUP**	**5/GROUP**

Species/strain/system : Harlan-Wistar albino rats

Test Method and Conditions

Test method description : GLP: no data

Exposure

Exposure Type : **SHORT**
Exposure Period : **7 d**
Dose / Concentration : **240-1465 mg/kg BW**
Exposure comments : Doses of 240, 610 or 1465 mg/kg body weight/day were applied: 2 control groups were used.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
BW	**DECR**				

Body weight depression was observed at 610 and 1465 mg/kg body weight/day.

LIVER	**SIZE**

Increased liver weight in males at 1465 mg/kg body weight/ day.

NEF

No treatment-related histopathological findings.

NOEL
LOEL

NOEL: 240 mg/kg body weight/day; LOEL: 610 mg/kg body weight/day

References

Primary Reference : **#UNCUR***
Berthold, R. V. Union Carbide Unpublished Report, (1974)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**ORL**		**M**	**4/GROUP**	**4**
					F	**4/GROUP**	**4**

Species/strain/system : Wistar rats

Test Substance

Purity Grade : **99.4%**

Test Method and Conditions

Test method description : OECD draft Guideline 421 for testing of chemicals. Dose-finding study for a reproduction/developmental study; GLP: yes

Exposure

Exposure Type : **SHORT**
Exposure Period : **7 d**
Frequency : **1 x/d**
Dose / Concentration : **100-1000 mg/kg BW/d**
Exposure comments : The compound was administered by gavage at doses of 0, 100, 300, 500 or 1000 mg/kg/day.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	DEATH				

Animals in the 1000 mg/kg group showed a severe reaction to the treatment, as indicated by the mortality rate and macroscopic observations.

BW	**DECR**

Animals in the 500 mg/kg group showed a moderate reaction as conducted from pathological examination and decreased body weight.

BEHAV

Animals in the 300 mg/kg group showed a slight decrease in food consumption.

References

Primary Reference : **#DOWEU***
Dow Chemical Company. Dow Europe. Unpublished Report or Communications, (1993)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**IHL**				

Test Method and Conditions

Test method description : GLP: no data. Five male and five female rats were observed 14 days and only one concentration was used.

Exposure

Exposure Period : **4 h**
Dose / Concentration : **1800 mg/m3 AIR**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	LC90				

9/10 animals died.

General Comments : OECD/SIDS remark: "this laboratory test is considered to be unthrustworthy. Therefore this study is not considered reliable".

References

Primary Reference : **CGRVBB**
Ciba-Geigy Review, (1972)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**ORL**		**M**	**10/GROUP**	**10**
					F	**10/GROUP**	**10**

Species/strain/system : Fischer 344 rats

Test Substance

Description of the test substance : DETA hydrochloride

Test Method and Conditions

Test method description : GLP: yes

Exposure

Exposure Type : **SHORT**
Exposure Period : **14 d**
Dose / Concentration : **5000-50000 mg/kg BW**
Exposure comments : The doses of 0, 5000, 10000, 25000 or 50000 mg/kg/day were administered.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
BW	**DECR**				
BW	**RETAR**				

Weight loss at 50000 mg/kg/day and reduced body weight gain were observed at 10000 mg/kg/day and above.

BEHAV

At 25000 mg/kg/day and above reduced food consumption was noted.

SPLN **SIZE**

Reduced weight of spleen at 25000 mg/kg/day was noted.

NOEL
LOEL

NOEL: 5000 mg/kg body weight/day; LOEL: 10000 mg/kg body weight/day

References

Primary Reference : **BUSRC***
Bushy Run Research Center, (1986)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
RAT			**ORL**		**M**		
					F		

Species/strain/system : Fischer 344 rats

Test Substance

Description of the test substance : Dihydrochloride salt of DETA

Test Method and Conditions

Test method description : OECD Guideline 409; GLP: yes

Exposure

Exposure Type : **SHORT**
Exposure Period : **90 d**
Dose / Concentration : **1000-15000 mg/kg DIET**
Exposure comments : The tested substance was administered in the diet at concentrations of 1000, 7500 or 15000 mg/kg (equal to: 70, 530, 1060 mg/kg body weight/day and 80, 620, 1210 mg/kg body weight/day for males and females, respectively.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	BEHAV				

Decreases in food consumption in males and females at the high dose.

BW	**DECR**			

Dose-related decrease in body weight or weight gain in mid- and high-dose groups.

RBC	**INCR**			**M**
RBC	**BIOCH**			

Increased MCV and MCH in males in the mid- and high-dose groups.

BLOOD	**BIOCH**			**F**

Decreased glucose and albumin, and increased MCV in the mid -and high-dose groups in females.

WBC	**INCR**			**F**

Dose-related increases of WBC and lymphocytes in mid- and high-dosed females.

URINE	**BIOCH**	**13 wk**		**F**

Increased urine pH in females from mid- and high-dose groups, possibly associated with increase in kidney weight and/or excretion of test material.

KIDNY	**SIZE**			**F**
LIVER	**SIZE**			
ADREN	**SIZE**			

Increased kidney and liver weights (mid- and high-dose) and adrenal weight (high dose only) in females.

	NOAEL			
	-			
	LOEL			

NOAEL was established as 70-80 mg/kg body weight for males and females, respectively. LOEL: 530 and 620 mg/kg body weight for males and females, respectively.

References

Primary Reference : **UCCYDF**
Van Miller, V. P. et al. Union Carbide Co-operation, (1988)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**IVN**				

Species/strain/system : Rabbit

Test Substance

Description of the test substance : The hydrochloride was used.

Test Method and Conditions

Test method description : GLP: no

Exposure

Dose / Concentration : **475 mg/kg BW**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	LD100				

Intravenous LD100 for rabbits was established as ca. 475 mg/kg body weight.

General Comments : A dose of 95 mg/kg was tolerated without fatalities.

References

Primary Reference : **#URBSF***
Oettel, H. and Hoffmann, H. T. BASF Unpublished Report, (1957)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**ORL**			**2/DOSE**	

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure Type : **SHORT**
Exposure Period : **11 d**
Dose / Concentration : **190-475 mg/kg BW**
Exposure comments : Doses of 190 mg/kg/day and 475 mg/kg/day were used.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	DEATH				

The application of the compound as a base was lethal for all animals of the high dose group after 6 - 8 days and for all animals of the lower dose group after 4 - 11 days.

BW	**DECR**

Slight reduction in body weight.

GIT	**FUNCT**

Diarrhea.

RBC	**BIOCH**
RBC	**DECR**

A slight decrease in hemoglobin and erytrocytes.

LIVER	**NEF**

The function of the liver was unaffected.

STM	**INFL**
LUNG	**CIRC**

At necropsy, animals showed an inflammation of the stomach mucosa and lung-edema.

Application of the compound as hydrochloride showed similar results.

	NOEL
	LOEL

NOEL: < 190 mg/kg body weight/day; LOEL: 190 mg/kg body weight/day

References

Primary Reference : **#URBSF***
Oettel, H. and Hofmann, H. T. BASF Unpublished Report, (1957)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
RBT			**SKN**		**M**	**10/GROUP**	**10**
					F	**10/GROUP**	**10**

Species/strain/system : New Zealand white rabbits

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure Type : **SHORT**
Exposure Period : **28 d**
Dose / Concentration : **20-400 mg/L**
Exposure comments : 2% and 40% (wt/v) concentrations were used.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
SKIN	**IRRIT**				

The high dose group was terminated at day 8 because of severe irritation.

RBC	**BIOCH**
RBC	**INCR**
BLOOD	**BIOCH**

Hb, Ht and RBC were slightly higher, bilirubin and cholesterol were elevated in the high-dose group.

SKIN	**CIRC**
SKIN	**STRUC**

The incidence and/or severity of erythema, atonia, desquamation, fissuring, eschar formation and exfoliation was higher in the low dose group, compared to controls.

BW	**DECR**

Body weight in the low dose group was 9-15% lower than in the control group.

GONAD **SIZE**

Absolute and relative weights of testes and epididymides were lower in both treated groups than in control animals.

LOEL

LOEL: 2%

General Comments : OECD/SIDS remark: "since no specific methodological data are available it is not possible to obtain a clear impression of the actual dermal exposure".

References

Primary Reference : **BIDSA2**
Bio-Dynamics, (1982)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**ORL**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure Type : **SHORT**
Exposure Period : **6 mo**
Dose / Concentration : **1-10 mg/kg**
Exposure comments : The compound was administered daily in drinking water at doses of 1 and 10 mg/kg.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
BLOOD	**BIOCH**				

In the high dose group prothrombine activity decreased to 62% of control values and ASAT and ALAT activities increased up to 3 times compared to control values.

NOEL
LOEL

NOEL: 1 mg/kg; LOEL: 10 mg/kg

References

Primary Reference : **ANEADE**
Argonne National Laboratory, IL., (1972)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **CARCINOGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
MOUSE			**SKN**	**M**		**50**	**50**

Species/strain/system : C3H/HeJ mice

Test Substance

Description of the test substance : DETA comm. and DETA HP
Vehicle - Solvent : Deionised water

Test Method and Conditions

Test method description : GLP: yes

Exposure

Exposure Type : **LONG**
Exposure Period : **LIFE**
Frequency : **3 d/wk**
Dose / Concentration : **1.25 mg/ ANIMAL**
Exposure comments : Applied dose amounted to ca. 62.5 mg/kg body weight.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

No treatment-related skin tumours were observed, nor was there evidence of increased incidence of any internal tumor.

	NEF				

Nor the survival time neither the mortality rate significantly different from the controls.

General Comments : In a life-time study with mice no increase in skin tumours incidences was observed after dermal application of 1.25 mg DETA/animal (ca. 62.5 mg/kg body weight).

References

Primary Reference : **FAATDF**
DePass, L. R. et al. Fundamental and Applied Toxicology, 9, 807-811, (1987)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **CARCINOGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
RAT			**SCU**		**M**	**5/DOSE**	**5**
					F	**5/DOSE**	**5**

Species/strain/system : Wistar rats

Test Method and Conditions

Test method description : GLP: no data

Exposure

Exposure Type : **LONG**
Exposure Period : **LIFE**
Dose / Concentration : **10-50 mg/kg/ BW**
Exposure comments : Rats were treated with 10 mg/kg body weight (daily) or 50 mg/kg body weight (every other day) of DETA for life-time.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
	DEATH				

The average days of survival were 335 days in the low dose group, and 275 days in the high dose group; and 581 days in control group.

	NEF

There were no notable hematological or pathological findings in any group. There was no difference in body weight between treated and control groups.

KIDNY	**STRUC**
LIVER	**STRUC**

Histopathological changes were observed in kidney and liver. The damages were marked in the high dose group.

KIDNY	**STRUC**
TUBUL	

Renal tubular damage was demonstrated in the low dose group.

SPLN	**STRUC**
ADREN	**STRUC**

Some slight histopathological changes were observed in spleen and adrenals.

OFFSP	**NEF**

No effect on offspring was found. (Animals were mated and litter size was observed).

References

Primary Reference : **AMOKAG**
Fujino, M. Acta Medica Okayama, 40(2), (1970)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **CARCINOGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**SKN**		**M**	**5**	**5**
					F	**5**	**5**

Species/strain/system : Wistar rats

Test Method and Conditions

Test method description : GLP: no data

Exposure

Exposure Type : **LONG**
Exposure Period : **LIFE**
Dose / Concentration : **0.4 mL/ ANIMAL**
Exposure comments : 0.4 mL/animal (1:10 diluted solution) of DETA was applied daily for life-time.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	DEATH				

The average days of survival were 407 days in treated group and 581 days in controls.

	NEF

There were no notable hematologic or pathologic findings in treated rats.

	NEF

There was no effect on body weight.

KIDNY	**STRUC**
LIVER	**STRUC**

Histopathological changes were observed mainly in kidney and liver.

Some slight histopathological changes were observed in both spleen and adrenals, but there was no difference between control and treated animals.

	NEF

No effects on offsprings were found.

References

Primary Reference : **AMOKAG**
Fujino, M. Acta Medica Okayama, 23(2), 23-48, (1970)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium

Test Method and Conditions

Test method description : Ames test; GLP: no data

Exposure

Exposure comments : Test was performed with and without metabolic activation. No data concerning concentrations.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative results

References

Primary Reference : **ENMUDM**
Zeiger, E. et al. Environmental Mutagenesis, 9 suppl., 1-110, (1987)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium TA100 and TA1535

Test Method and Conditions

Test method description : Ames test; GLP: no data

Exposure

Exposure comments : Test was performed with and without metabolic activation. Concentrations not given.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
GENE	**MUT**				

Positive result

General Comments : Author's comment: "the positive results in the study could be ascribed to alkylating impurities."

References

Primary Reference : **MUREAV**
Hedenstedt, A. Mutation Research, 53, 198-199, (1978)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium TA100

Test Method and Conditions

Test method description : Ames test; GLP: no data

Exposure

Exposure comments : No data concerning concentration and metabolic activation.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
GENE	**MUT**				

The compound showed only slight activity in TA100 strain.

References

Primary Reference : **ENMUDM**
Hulla, J. E et al. Environmental Mutagenesis, 9 Suppl. 9, 1-100, (1981)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium TA98, TA100, TA1535, TA1537, TA1538

Test Substance

Description of the test substance : DETA 1258 - 139A

Test Method and Conditions

Test method description : Ames test; GLP: no data

Exposure

Dose / Concentration : **100-2000 ug/ PLATE**
Exposure comments : Concentrations of 100, 200, 300, 400 or 500 ug/plate without metabolic activation and 400, 500, 800, 1200, 1600 or 2000 ug/plate with metabolic activation were used. Test was run in duplicate.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative results for genotoxicity

References

Primary Reference : **HASLR***
Haskell Laboratory Report, (1977)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium TA98, TA100, TA1535, TA1537, TA1538

Test Substance

Description of the test substance : DETA 1258 - 139B

Test Method and Conditions

Test method description : Ames test; GLP: no data

Exposure

Dose / Concentration : **100-1000 ug/ PLATE**
Exposure comments : Concentrations of 100, 200, 300, 400 or 500 ug/plate without metabolic activation and 200, 400, 500, 600, 800 or 1000 ug/plate with metabolic activation were used. Test was run in duplicate.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---
	NEF				

Negative results for genotoxicity

References

Primary Reference : **HASLR***
Haskell Laboratory Report, (1977)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium TA98, TA100, TA1535, TA1537, TA1538

Test Method and Conditions

Test method description : Ames test; GLP: no data

Exposure

Dose / Concentration : **0.001-10 uL/ PLATE**
Exposure comments : Concentrations of 0.001 - 10 uL/plate with and without metabolic activation.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---
	INC				

Positive result only in strains TA1537 and TA1538 without metabolic activation. No dose-related response was obtained.

NEF

No cytotoxicity

General Comments : OECD/SIDS considered the results as ambiguous.

References

Primary Reference : **HASLR***
Haskell Laboratory Report

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium TA98

Test Substance

Description of the test substance : Purified DETA

Test Method and Conditions

Test method description : Ames test; EPA method; GLP: no data

Exposure

Dose / Concentration : **600-3000 ug/ PLATE**
Exposure comments : Concentrations of 600, 1200, 1800, 2400 and 3000 ug/plate without metabolic activation were used.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---
	NEF				

Negative result. Purified DETA did not induce a positive response in either of the two trials performed.

References

Primary Reference : **HASLR***
Haskell Laboratory Report, (1976)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium TA98, TA100, TA1535, TA1537, TA1538

Test Substance

Description of the test substance : DETA Sample B

Test Method and Conditions

Test method description : Ames test; GLP: yes

Exposure

Dose / Concentration : **10-5000 ug/ PLATE**
Exposure comments : Concentrations of 10-1000 ug/plate without and 100-5000 ug/plate with metabolic activation were used. Test was run in duplicate.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
GENE	**MUT**				

1.6 to 2-fold increase in mutants in TA98, TA100 and TA1537 strains without metabolic activation. Retesting with concentrations of 200-500 ug/plate was positive in TA1537 without S9.

General Comments : OECD/SIDS considered the result as ambiguous.

References

Primary Reference : **BUSRC***
Bushy Run Research Center, (1987)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium TA98, TA100, TA1535, TA1537, TA1538

Test Substance

Description of the test substance : DETA Sample A

Test Method and Conditions

Test method description : Ames test; GLP: no data

Exposure

Dose / Concentration : **3-10000 ug/ PLATE**
Exposure comments : Concentrations of 3-300 ug/plate without metabolic activation and 100-10000 ug/plate with metabolic activation were used. Test was run in duplicate.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative results for genotoxicity

References

Primary Reference : **BUSRC***
Bushy Run Research Center, (1987)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium TA98, TA100, TA1535, TA1537, TA1538

Test Method and Conditions

Test method description : Ames test; GLP: no data

Exposure

Dose / Concentration : **1000-3000 ug/ PLATE**
Exposure comments : Concentrations of 1000, 1500, 2000, 2500 and 3000 ug/plate were used with and without metabolic activation. Tests were run in duplicate.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
GENE	**MUT**				

DETA was weakly mutagenic in TA98 without activation (3.7 fold dose-related increase in the mutation rate).

NEF

Negative results in S. typhimurium TA100, TA1535, TA1537 and TA1538 with and without metabolic activation.

General Comments : OECD/SIDS considered the result as ambiguous.

References

Primary Reference : **HASLR***
Haskell Laboratory Report, (1976)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium TA98, TA100, TA1535, TA1537, TA1538

Test Method and Conditions

Test method description : Ames test; GLP: no

Exposure

Dose / Concentration : **0.001-5.0 ug/ PLATE**
Exposure comments : Test with DETA run in duplicate with and without metabolic activation. Concentrations of 0.001, 0.01, 0.1, 1.0 or 5.0 ug/plate were used.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative results with and without metabolic activation

References

Primary Reference : **LITBI***
Litton Bionetics, Inc., (1977)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT			**VTR**				

Species/strain/system : Salmonella typhimurium TA98, TA100, TA1535, TA1537, TA1538

Test Substance

Purity Grade : **98.5%**

Test Method and Conditions

Test method description : Ames test; GLP: no

Exposure

Dose / Concentration : **0.01-10 ug/ PLATE**
Exposure comments : Test was performed with and without metabolic activation. Test was run in duplicate at concentrations of 0.01, 0.1, 1.0, 5.0 or 10 ug/plate.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result with and without metabolic activation

References

Primary Reference : **LITBI***
Litton Bionetics, Inc., (1978)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
FUNGI			**VTR**				

Species/strain/system : Saccharomyces cerevisiae D4

Test Substance

Description of the test substance : Substance B314

Test Method and Conditions

Test method description : Gene mutation in Saccharomyces cerevisiae; GLP: no

Exposure

Dose / Concentration : **0.001-5.0 uL/ PLATE**
Exposure comments : Concentrations of 0.001, 0.01, 0.1, 1.0 and 5.0 uL/plate were used with and without metabolic activation. Test was run in duplicate.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result

References

Primary Reference : **LITBI***
Litton Bionetics, Inc., (1977)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
FUNGI			**VTR**				

Species/strain/system : Saccharomyces cerevisiae D4

Test Substance

Description of the test substance : Substance B314

Test Method and Conditions

Test method description : Gene mutation in Saccharomyces cerevisiae; GLP: no

Exposure

Dose / Concentration : **0.01-10 uL/ PLATE**
Exposure comments : Concentrations of 0.01, 0.1, 1.0, 5.0 and 10 uL/plate with and without metabolic activation were used. Test was run in duplicate.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result

CELL

Cytotoxic at 10 uL/plate

References

Primary Reference : **LITBI***
Litton Bionetics, Inc., (1978)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
HAMST			**VTR**				

Species/strain/system : Chinese hamster ovary (CHO) cells (CHO-KI, CCL61)

Test Method and Conditions

Test method description : Cytogenetic Assay, chromosomal aberration in vitro; EPA protocol; GLP: yes

Exposure

Dose / Concentration : **250-2500 ug/mL**
Exposure comments : Concentrations of 250, 833 and 2500 micrograms/mL were used with and without metabolic activation.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result

References

Primary Reference : **DOWSF***
Gollapudi, B. et al. DOW Corning Bulletin 22-069B-01. Information about Silicone Fluids, (1987)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
HAMST			**VTR**				

Species/strain/system : Chinese hamster ovary (CHO) cells

Test Substance

Description of the test substance : DETA-HP, DETA-(commercial grade) and DETA-HC
Vehicle - Solvent : DMSO

Test Method and Conditions

Test method description : Mammalian Cell Gene Mutation Assay. (HGPRT assay); EPA method; GLP: no data

Exposure

Dose / Concentration : **0.0125-0.4 %**
Exposure comments : Concentrations of 0.0125, 0.025, 0.05, 0.1, 0.2 and 0.4% (v/v) were used with and without metabolic activation.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Test result was negative for DETA-HP and DETA-HC.

	CELL				

0.4% was cytotoxic.

GENE	**MUT**				

DETA-comm. (commercial grade) showed positive results at 0.2% (v/v), in a second test with concentrations 0.0125-0.2% (v/v) with S9. No dose-related response was obtained.

General Comments : OECD/SIDS comment: "since no dose-related response was obtaied the overall results were considered to be negative". The following reference is also cited: Slesinski et al. (1984) The Toxicologist, 4, page 35, Abstract 140.

References

Primary Reference : **BUSRC***
Bushy Run Research Center, (1980)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
INSEC			**ORL**				

Species/strain/system : Drosophila melanogaster; canton-S

Test Method and Conditions

Test method description : Drosophila Sex-linked Recessive Lethal Assay (SLRL); GLP: yes

Exposure

Exposure Period : **22-24 h**
Dose / Concentration : **6360 mg/L**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result in Drosophila SLRL test

References

Primary Reference : **MUREAV**
Lee, W. R. et al. Mutation Research, 123, 183-279, (1983)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
MAMM			**VTR**				

Species/strain/system : CHO cells

Test Substance

Description of the test substance : DETA-HP, DETA-(commercial grade) and DETA-HC

Test Method and Conditions

Test method description : Sister Chromatid Exchange Assay; EPA method; GLP: no data

Exposure

Dose / Concentration : **0.0125-0.2 %**
Exposure comments : Concentrations of 0.0125, 0.025, 0.05, 0.1, and 0.2% (v/v) were used with and without metabolic activation.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	CELL				

0.2% was cytotoxic

CHROM	**RECOM**

Test gave positive results for DETA-HP and DETA-comm. without S9 at 0.2% and for DETA-HC without S9 at 0.1%. No dose related response was obtained.

General Comments : The result was classified as negative by OECD/SIDS. The following reference is also cited: Slesinski et al. (1984) The Toxicologist, 4., page 35, Abstract 140.

References

Primary Reference : **BUSRC***
Bushy Run Research Center, (1980)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
MAMM			**VTR**				

Species/strain/system : CHO cells

Test Substance

Description of the test substance : DETA Sample A
Purity Grade : **98.9%**

Test Method and Conditions

Test method description : Sister Chromatid Exchange Assay; EPA method; GLP: yes

Exposure

Dose / Concentration : **100-700 ug/ PLATE**
Exposure comments : Concentrations of 100-400 ug/plate without metabolic activation and 400-700 ug/plate with metabolic activation were used.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
CHROM	**RECOM**				

Positive effect without S9, marginally positive effects with S9.

General Comments : The result was classified as negative by OECD/SIDS. The following reference is also cited: Slesinski et al. (1984) The Toxicologist, 4., page 35, Abstract 140.

References

Primary Reference : **BUSRC***
Bushy Run Research Center, (1980)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
MOUSE			**ORL**		**M**		
					F		

Species/strain/system : CD-1 mice

Test Method and Conditions

Test method description : Micronucleus Assay. OECD Guideline 474; GLP: yes

Exposure

Exposure Period : **24-72 h**
Dose / Concentration : **85-850 mg/kg BW**
Exposure comments : The test substance was administered by gavage at doses of 85, 283 or 850 mg/kg body weight.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result. The test substance did not significantly increase the frequency of micronucleated polychromatic erythrocytes and was, therefore, considered negative in the mouse bone marrow micronucleus test.

General Comments : DETA did not show clastogenic properties in mice.

References

Primary Reference : **DOWSF***
Gollapudi, B. B. DOW Corning Bulletin 22-069B-01. Information about Silicone Fluids, (1988)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**VTR**				

Species/strain/system : Rat hepatocytes

Test Substance

Description of the test substance : DETA-HP, DETA-(commercial grade) and DETA-HC

Test Method and Conditions

Test method description : Unscheduled DNA synthesis. EPA method; GLP: no data

Exposure

Dose / Concentration : **0.0001-0.1 %**
Exposure comments : Concentrations of 0.0001, 0.001, 0.003, 0.01, 0.03, 0.1 (v/v) were used. No data concerning metabolic activation.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				
	NEF				

Negative result No cytotoxicity observed at the highest dose.

General Comments : An unscheduled DNA-synthesis assay with rat hepatocytes was found negative.

References

Primary Reference : **BUSRC***
Bushy Run Research Center, (1980)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **SENSITIZATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
GIPG			**SKN**			**20**	

Species/strain/system : Hartley albino guinea pigs

Test Substance

Description of the test substance : DETA-HP grade
Purity Grade : **98.8%**

Test Method and Conditions

Test method description : Maximization test. OECD Guide-line 406; GLP: yes

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
SKIN	**ALLER**				

Sensitization. Positive reactions in 16/20 guinea pigs and cross sensitization with EDA, TEAT, AEP, AEEA, TEPA and piperazine were observed.

General Comments : Classification: sensitizing

References

Primary Reference : **BIDSA2**
Bio-Dynamics, (1990)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **SENSITIZATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
GIPG			**SKN**				

Species/strain/system : Guinea pig

Test Method and Conditions

Test method description : Patch-Test; GLP: no

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
SKIN	**ALLER**				

Sensitizing

General Comments : Classification: sensitizing

References

Primary Reference : **HASLR***
Buchler, E. V. Haskell Laboratory Report, (1963)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **SENSITIZATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
GIPG			**SKN**			**20**	

Species/strain/system : Hardley albino guinea pigs

Test Substance

Description of the test substance : DETA commercial grade
Purity Grade : **90.8%**

Test Method and Conditions

Test method description : Guinea pig maximization test. OECD Guideline 406; GLP: yes

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
SKIN	**ALLER**				**11/20**

Sensitization. Positive reactions in 11/20 guinea pigs and cross sensitization with EDA, TETA and other derivatives were observed.

General Comments : Classification: sensitizing

References

Primary Reference : **BIDSA2**
Bio-Dynamics, (1990)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **SENSITIZATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
GPIG			**SKN**				

Species/strain/system : Guinea pig

Test Method and Conditions

Test method description : Guinea pig maximization test; GLP: yes

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
SKIN	**ALLER**				

Sensitizing

General Comments : Classification: sensitizing

References

Primary Reference : **ADVEA4**
Jhorgeirsson, A. Acta Dermato-Venereologica, 58, 332-336, (1978)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **SENSITIZATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
GPIG			**SKN**				

Species/strain/system : Guinea pig

Test Method and Conditions

Test method description : GLP: no. Test method not specified.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Not sensitizing

General Comments : Classification: not sensitizing

References

Primary Reference : **AEXPBL**
Zeller, H. Archiv fuer Experimentelle Pathologie und Pharmakologie, 232, 239-240, (1957)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **SENSITIZATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
HUMAN			**SKN**				

Test Method and Conditions

Test method description : Patch-Test; GLP: no data

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
SKIN	**ALLER**				

Sensitizing effect

General Comments : Classification: sensitizing

References

Primary Reference : **CODEDG**
Ormerod, A. D. et al. Contact Dermatitis, 21, 326-329, (1989)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **SENSITIZATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
HUMAN			**SKN**				

Test Method and Conditions

Test method description : Patch-Test; GLP: no

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
SKIN	**ALLER**				

Sensitizing effect

General Comments : Classification: sensitizing

References

Primary Reference : **JOCMA7**
Booth, B. H. et al. Journal of Occupational Medicine, 4, 367-369, (1962)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **SENSITIZATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
HUMAN			**SKN**				

Test Method and Conditions

Test method description : Test method not specified; GLP: no

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

No sensitization

General Comments : Classification: not sensitizing

References

Primary Reference : **AEXPBL**
Zeller, H. Archiv fuer Experimentelle Pathologie und Pharmakologie, 232, 239-240, (1957)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**SKN**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize-Test; GLP: no

Exposure

Exposure Period : **24 h**
Exposure comments : Exposure time 24 hours, observation time 72 hours.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
SKIN	**COR**				

Highly corrosive

General Comments : Classification: highly corrosive (causes severe burns).

References

Primary Reference : **AMIHAB**
Hine, C. H. et al. Archives of Industrial Health, 17, 129-144, (1958)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**SKN**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize-Test; GLP: no

Exposure

Exposure comments : Exposure time, dose, observation period: no data. Belly open. Diluting the amine to 10% in water practically eliminated the reaction.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
SKIN	**COR**				

Highly corrosive

General Comments : Classification: highly corrosive (causes severe burns).

References

Primary Reference : **ARDEAC**
Savitt, L. E. Archives of Dermatology, 71, 212-213, (1955)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
RBT			**SKN**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize-Test; GLP: no

Exposure

Exposure Type : **ACUTE**
Exposure Period : **24 h**
Dose / Concentration : **10 mg**
Exposure comments : Applied dose amounted to 10 mg/24 hours.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
SKIN	**COR**				

Corrosive

General Comments : Classification: corrosive (causes burns).

References

Primary Reference : **JIHTAB**
Smyth, H. F. et al. Journal of Industrial Hygiene and Toxicology, 31, 60-62, (1949)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
RBT			**SKN**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : GLP: no data

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
SKIN	**COR**				

Highly corrosive

General Comments : Classification: highly corrosive (causes severe burns).

References

Primary Reference : **#EKODC***
Eastman Kodak Co. Unpublished Data, (1979)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**SKN**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : BASF irritation test; GLP: no

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
SKIN	**COR**				

Corrosive

References

Primary Reference : **#URBSF***
BASF AG. BASF Unpublished Report, (1960)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**OCU**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize Test; GLP: no data

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
EYE	**COR**				

Highly corrosive

General Comments : Classification: risk of serious damage to eyes.

References

Primary Reference : **#EKODC***
Eastman Kodak Co. Unpublished Data, (1979)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
RBT			**OCU**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize Test; GLP: no

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
EYE	**COR**				

Highly corrosive. (Undiluted grade 8; 15% severe corneal injury; 5% minor injury).

References

Primary Reference : **ARDEAC**
Savitt, L. E. Archives of Dermatology, 71, 212-213, (1955)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**OCU**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize Test; GLP: no

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
EYE	**COR**				

Highly corrosive

General Comments : Classification: risk of serious damage to eyes.

References

Primary Reference : **JIHTAB**
Smyth, H. F. et al. Journal of Industrial Hygiene and Toxicology, 31, 60-62, (1949)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**OCU**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : BASF irritation test; GLP: no

Exposure

Exposure Type : **ACUTE**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
EYE	**IRRIT**				

Irritating

References

Primary Reference : **#URBSF***
BASF AG. BASF Unpublished Report, (1956)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**OCU**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize-Test; GLP: no data

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
EYE	**COR**				

Corrosive

General Comments : Classification: risk of serious damage to eyes.

References

Primary Reference : **ACCTAF**
American Cyanamide Company Technical Bulletin, (1969)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**OCU**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize-Test; GLP: unknown

Exposure

Exposure Type : **ACUTE**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
EYE	**COR**				

Highly corrosive

General Comments : Classification: risk of serious damage to eyes.

References

Primary Reference : **UCCYDF**
Union Carbide Co-operation, (1983)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**OCU**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize-Test; GLP: no

Exposure

Exposure Type : **ACUTE**

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
EYE	**COR**				

Highly corrosive. One drop resulted in permanent loss of vision. A drop of 1% solution in water resulted in slight, transient corneal damage and very slight conjunctivities. The treated eye was normal 2 days after exposure.

General Comments : Classification: risk of serious damage to eyes.

References

Primary Reference : **DOWSF***
Hollingworth, R. L. DOW Corning Bulletin 22-069B-01. Information about Silicone Fluids, (1951)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
RBT			**SKN**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize-Test; GLP: no

Exposure

Exposure Type : **ACUTE**
Exposure Period : **24 h**
Dose / Concentration : **0.5 mL/ ANIMAL**

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
SKIN	**COR**				

Corrosive

General Comments : Classification: corrosive (causes burns).

References

Primary Reference : **ACCTAF**
American Cyanamide Company Technical Bulletin, (1969)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
RBT			**SKN**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize-Test; GLP: no

Exposure

Exposure Type : **ACUTE**
Exposure Period : **12 mi**
Exposure comments : The substance was applied to shaved abdomen.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
SKIN	**COR**				

Highly corrosive

General Comments : Classification: highly corrosive (causes severe burns).

References

Primary Reference : **DOWSF***
Hollingworth, R. L. DOW Corning Bulletin 22-069B-01. Information about Silicone Fluids, (1951)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**SKN**				

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Draize-Test; GLP: no data

Exposure

Exposure Type : **ACUTE**
Exposure Period : **24 h**
Dose / Concentration : **0.01 mL/ ANIMAL**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
SKIN	**COR**				

Highly corrosive

General Comments : Classification: highly corrosive (causes severe burns).

References

Primary Reference : **UCCYDF**
Union Carbide Co-operation, (1983)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **REPRODUCTION**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**ORL**		**M**		
					F		

Species/strain/system : Wistar rats

Test Substance

Purity Grade : **99.4%**

Test Method and Conditions

Test method description : OECD "Oral Preliminary and Reproduction/Developmental Toxicity Screening Study "(No. 421); GLP: yes

Exposure

Exposure Type : **SHORT**
Exposure Period : **29-54 d**
Frequency : **1 x/d**
Dose / Concentration : **30-300 mg/kg BW**
Exposure comments : DETA was administered by gavage at doses of 30, 100 or 300 mg/kg body weight/day during 2 weeks premating period and during mating and gestation up to day 4 post partum or at least during a 4-week period.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

No mortality occured that could be ascribed to the administration of DETA. Clinical observations & macroscopic and microscopic examinations, revealed no effects of the treatment on parents.

BEHAV

Food consumption showed a statistically significant decrease in females at 300 mg/kg during the first week of the study.

BW **DECR**

High dose male body weight was decreased from day 0-28 and high dose female body weight gain was decreased during premating and during the gestation period (days 0-21).

NOAEL

The no-adverse effect level for parental toxicity is 100 mg/ kg body weight per day.

NEF

Most mating and litter data like precoital time, mating index, fertility index, number of live and dead pups, showed no adverse effects of the treatment.

REPRO **CHNG**

Maternal performance of the females in 100 and 300 mg/kg groups were affected: duration of gestation was increased significantly and post-implantation loss was increased in a dose-related way and mean litter size was reduced.

NOAEL

The no-adverse effect level for reproduction and development is 30 mg/kg body weight/day.

NEF

Pup body weight and clinical and necropsy observations did not reveal any reaction to the treatment.

References

Primary Reference : **#DOWEU***
Dow Europe S.A. Dow Europe. Unpublished Report or Communications, (1993)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

[redacted]

End Point : **AQUATIC ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Species/strain/system : Water flea (Daphnia magna)
Exposure Type : **ACUTE**
Exposure Period : **48 h**

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : EEC Directive 79/831, Annex V, part C; static test condition. Dutch standard water; hardness 1.4 meq/L; photoperiod 8:16 hours light dark.
Temperature : **20 C**
pH : **8**

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
CRUS	**AQ**	**FRESH**				**LC50**	LC50 for 48 hours = 53.5 mg/L.

General Comments : At acute exposure, based on the EC directive, DETA is harmful to daphnids.

References

Primary Reference : **ECTCDK**
Van Wijk, R. J. et al. Environmental Toxicology and Chemistry, 13, 167-171, (1994)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

[redacted]

End Point : **AQUATIC ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Species/strain/system : Red Killifish (Oryzias latipes, 0.2 g)
Exposure Period : **48 h**

Test Method and Conditions

Test method description : Static; (1982).

Test Results

Organism	Medium	Spec.	Route	Lifestage	Sex	Effect	Effect Comments
FISH	**AQ**	**FRESH**				**LC50**	LC50 for 48 hours = 1000 mg/L.

General Comments : At acute exposure, based on EC directive, DETA is non-toxic to fish.

References

Primary Reference : **JTSCDR**
Tonogai, Y. et al. Journal of Toxicological Sciences, 7, 193-203, (1982)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **JPN**

Species/strain/system : Red Killifish (Oryzias latipes)
Exposure Type : **ACUTE**
Exposure Period : **48 h**

Test Method and Conditions

Test method description : Semi-static; according to Japanese Industrial Standard JIS K; 0102-1986-71. LC50 was estimated by Daudoroff method or Probit method. Dissolved O2 = 6-8 mg/L. Renewal of water at every 8-16 hours.
Temperature : **25 C**

Test Results

Organism	Medium	Spec.	Route	Lifestage	Sex	Effect	Effect Comments
FISH	**AQ**	**FRESH**				**LC50**	LC50 for 48 hours = 780 mg/L. (Estimated).

General Comments : Analytical monitoring: yes. DETA is non-toxic to fish.

References

Primary Reference : **MITIB***
MITI. Biodegradation and Bioaccumulation Data of Existing Chemicals Based on the CSCL Japan, (1992)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**AQUATIC ACUTE TOXICITY**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**FRG**
Species/strain/system	:	Golden orfe (Leuciscus idus)
Exposure Type	:	**ACUTE**
Exposure Period	:	**96 h**

Test Method and Conditions

Test method description	:	Static; DIN 38412 Teil 15 (1977); GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
FISH	**AQ**	**FRESH**				**LC50** **NOEC**	LC50 for 96 hours = 248 mg/L; NOEC for 96 hours = 100 mg/L.

General Comments : DETA is non-toxic to fish.

References

Primary Reference : **#BASFW***
BASF AG. , (1979)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**AQUATIC ACUTE TOXICITY**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**CHE**
Species/strain/system	:	Fathead minnow (Pimephales promelas)
Exposure Type	:	**ACUTE**
Exposure Period	:	**96 h**

Test Method and Conditions

Test method description	:	Static; (1978)

Test Results

Organism	Medium	Spec.	Route	Lifestage	Sex	Effect	Effect Comments
FISH	**AQ**	**FRESH**				**LC50**	LC50 for 96 hours = 322 mg/L.

General Comments : DETA is non-toxic to fish.

References

Primary Reference : **DOWSF***
DOW Europe S.A. DOW Corning Bulletin 22-069B-01. Information about Silicone Fluids, (1978)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC ACUTE TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**

Species/strain/system : Guppy (Poecilia reticulata)
Exposure Type : **ACUTE**
Exposure Period : **96 h**

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : Semi-static; EEC Directive 79/831, Annex V, part C.

Test Results

Organism	Medium	Spec.	Route	Lifestage	Sex	Effect	Effect Comments
FISH	**AQ**	**FRESH**				**LC50**	LC50 for 96 hours = 1014 mg/L.

General Comments : DETA is non-toxic to fish.

References

Primary Reference : **ECTCDK**
Van Wijk, R. J. et al. Environmental Toxicology and Chemistry, 13, 167-171, (1978)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**AQUATIC ACUTE TOXICITY**
Chemical Name	:	**Diethylenetriamine**
CAS Number	:	**111-40-0**
Study type	:	**LAB**
Geographic Area	:	**NLD**
Species/strain/system	:	Guppy (Poecilia reticulata)
Exposure Type	:	**ACUTE**
Exposure Period	:	**96 h**

Test Method and Conditions

Test method description	:	Semi-static; Directive 84/449/EEC, C.1; GLP: yes

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
FISH	**AQ**					**LC50**	LC50 for 96 hours = 430 mg/L; LC50 for 24 hours = 2020 mg/L; for 48 hours = 1320 mg/L; for 72 hours = 660 mg/L.

General Comments	:	DETA is non-toxic to fish.

References

Secondary Reference	:	**!SIDSP*** OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **NLD**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
ALGAE	**AQ**	**FRESH**					

Species/strain/system : Algae (Selenastrum capricornutum), strain ATCC 22662

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : Static test condition; EEC algal inhibition test. Endpoint of study was growth rate. Cultured medium, KH2PO4 = 160 mg/L and NaHCO3 = 100 mg/L.
Temperature : **22 C**

Exposure

Exposure Period : **96 h**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
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	EC50				

EC50 for 96 hours = 345.6 mg/L.

References

Primary Reference : **ECTCDK**
Van Wijk, R. J. et al. Environmental Toxicology and Chemistry, 13, 167-171, (1994)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **FRG**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
ALGAE	**AQ**	**FRESH**					

Species/strain/system : Green algae (Scenedesmus subspicatus)

Test Method and Conditions

Test method description : DIN 38412 L9; Scenedesmus cell multiplication test. Growth rate as end-point.

Exposure

Exposure Period : **96 h**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---

EC10

EC10 for 96 hours = 206 mg/L.

EC50

EC50 for 96 hours = 592 mg/L.

References

Primary Reference : **#BASFC***
BASF AG. BASF Wyandotte Corporation, (1988)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **NLD**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
ALGAE	**AQ**	**FRESH**					

Species/strain/system : Algae (Selenastrum capricornutum)

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : Directive 87/302/EEC, part C, p.89. GLP: yes. Growth rate and biomass as end-point.

Exposure

Exposure Period : **72 h**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
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NOEC

NOEC for 72 hours = 10.2 mg/L. NOEC estimated from curve and based on biomass: 1.9% inhibition (LOEC = 32.8 mg/kg; 15.8% inhibition).

EC50

EC50 for 72 hours = 1164 mg/L. EC50 based on growth rate.

EbC50

EbC50 for 72 hours = 187 mg/L. EbC50 based on biomass.

General Comments : At acute exposure, based on the EC directive, DETA is non-toxic to algae (EC, 1993).

References

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **FRG**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT	**AQ**						

Species/strain/system : Bacteria (Pseudomonad fluorescens)

Test Method and Conditions

Test method description : DEV L8, modified (1968). Measured endpoint was bacterial growth.

Exposure

Exposure Period : **24 h**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
BIOMA	**EC50**				

EC50 for 24 hours = 500 mg/L.

References

Primary Reference : **#BATUR***
Bayer AG. Bayer Institute of Toxicology Unpublished Report, (1992)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **FRG**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT							

Species/strain/system : Bacteria (Pseudomonas putida)

Test Method and Conditions

Test method description : Bringmann-Kuehn; according to DIN 38412 Teil 8 (1988); draft. Measured endpoint was growth rate.

Exposure

Exposure Period : **17 h**

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
	EC10				

EC10 for 17 hours = 16 mg/L.

EC50

EC50 for 17 hours = 96 mg/L.

EC90

EC90 for 17 hours = 230 mg/L.

References

Primary Reference : **#BASFC***
BASF AG. BASF Wyandotte Corporation, 9/1121/88/W, (1988)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **NLD**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
CRUS	**AQ**	**FRESH**					

Species/strain/system : Water flea (Daphnia magna)

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : Semi-static with renewal 3 times a week: EEC Draft H (XI/681/86) (1986); GLP: yes. Endpoint: reproduction rate (number of juveniles per parent animal.

Exposure

Exposure Period : **21 d**

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
REPRO	**NOEC**				

NOEC for 21 days = 5.6 mg/L.

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
REPRO	**LOEC**				

LOEC (lowest observed effect concentration) for 21 days = 11.3 mg/L.

General Comments : Analytical monitoring: no

References

Secondary Reference : **!SIDSP***

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**

Chemical Name : **Diethylenetriamine**

CAS Number : **111-40-0**

Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
CRUS	**AQ**	**MARIN**					

Species/strain/system : Brine shrimp (Artemia salina)

Exposure

Exposure Type : **ACUTE**

Exposure Period : **24 h**

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
	EC50				

EC50 for 24 hours = 710 mg/L.

General Comments : At acute exposure, based on the EC directive, DETA is harmful to daphnids.

References

Secondary Reference : **!SIDSP***

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **CHE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
CRUS	**AQ**	**FRESH**					

Species/strain/system : Water flea (Daphnia magna)

Exposure

Exposure Type : **ACUTE**
Exposure Period : **48 h**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	EC50				

EC50 for 48 hours = 17 mg/L.

General Comments : Analytical monitoring: no. At acute exposure, based on the EC directive, DETA is harmful to daphnids.

References

Primary Reference : **DOWSF***
DOW Europe S.A. DOW Corning Bulletin 22-069B-01. Information about Silicone Fluids, (1978)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **FRG**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
CRUS	**AQ**	**FRESH**					

Species/strain/system : Water flea (Daphnia magna)

Test Method and Conditions

Test method description : DIN 38412 Teil 11.

Exposure

Exposure Type : **ACUTE**
Exposure Period : **48 h**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	EC0				

EC0 for 48 hours = 2 mg/L.

EC50

EC50 for 48 hours = 16 mg/L.

EC100

EC100 for 48 hours = 100 mg/L.

General Comments : At acute exposure, based on the EC directive, DETA is harmful to daphnids.

References

Primary Reference : **#BASFC***
BASF AG. BASF Wyandotte Corporation, (1988)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **FRG**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
CRUS	**AQ**	**FRESH**					

Species/strain/system : Water flea (Daphnia magna)

Test Method and Conditions

Test method description : DIN 38412 Teil 11; Directive 84/449/EEC; C.2.

Exposure

Exposure Type : **ACUTE**
Exposure Period : **24 h**

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls

EC0

EC0 for 24 hours = 20 mg/L.

EC50

EC50 for 24 hours = 37 mg/L.

EC100

EC100 for 24 hours greater than 100 mg/L.

General Comments : At acute exposure, based on the EC directive, DETA is harmful to daphnids (EC, 1993).

References

Primary Reference : **#BASFC***
BASF AG. BASF Wyandotte Corporation, (1988)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **NLD**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
CRUS	**AQ**	**FRESH**					

Species/strain/system : Water flea (Daphnia magna)

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : Directive 84/449/EEC, C.2; GLP: yes

Exposure

Exposure Type : **ACUTE**
Exposure Period : **48 h**
Exposure comments : Only 5 daphnids used per test concentration.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
	EC50				

EC50 for 48 hours = 64.6 mg/L.

General Comments : Analytical monitoring: no. At acute exposure based on the EC directive, DETA is harmful to daphnids (EC, 1993).

References

Secondary Reference : **!SIDSP***

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **NLD**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
FISH	**AQ**	**FRESH**					

Species/strain/system : Stickleback, three-spined (Gasterosteus aculeatus)

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : Draft OECD Guideline "Fish Early Life Stage" (1980). Test was semi-static with renewal 2-3 times a week; GLP: yes. Endpoint: length and weight of young fish; hatching.

Exposure

Exposure Period : **28 d**
Exposure comments : Test conducted at 0.1, 1, 10, 50 or 100 mg/L.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
	NOEC				

NOEC for 28 days greater than 10 mg/L. No effects were observed on weight and length. Complete hatching observed in control at day 6 and for 10 mg/L at day 9 (62% at day 6). This effect did not occur in a range-finding test conducted at 0.1, 1, 10, 50 or 100 mg/L.

General Comments : Analytical monitoring: no

References

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **AQUATIC TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **FRG**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
FISH	**AQ**	**FRESH**					

Species/strain/system : Golden orfe (Leuciscus idus)

Test Method and Conditions

Test method description : Static; (1974).

Exposure

Exposure Type : **ACUTE**
Exposure Period : **48 h**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	LC0				

LC0 for 48 hours = 200 mg/L.

General Comments : DETA is non-toxic to fish.

References

Primary Reference : **BADSR***
Bayer AG. Bayer AG Data Short Report

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **TERRESTRIAL TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **NLD**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT	**SOIL**						

Species/strain/system : Nitrifying bacteria

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : AKZO (1989). Measured endpoint was the respiratory rate.

Exposure

Exposure Period : **2 h**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---

EC50

EC50 for 2 hours = 32.7 mg/L.

NOEC

NOEC for 2 hours = 6.25 mg/L.

LOEC

LOEC (lowest observed effect concentration) for 2 hours = 12.5 mg/L. DETA inhibited respiratory activity 22%.

General Comments : Analytical monitoring: no.

References

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point : **TERRESTRIAL TOXICITY**
Chemical Name : **Diethylenetriamine**
CAS Number : **111-40-0**
Study type : **LAB**
Geographic Area : **NLD**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
BACT							

Species/strain/system : Rhizobacteria (Pseudomonas putida)

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : ISO/TC 147/SC 5/WG 1 Guideline; GLP: yes. Measured endpoint was growth rate.

Exposure

Exposure Period : **17 h**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	EC50				

EC50 for 17 hours = 1.7 mg/L.

LOEC

LOEC (lowest observed effect concentration) for 17 hours = 0.8 mg/L. (LOEC: 27% inhibition of growth observed).

General Comments : Analytical monitoring: no

References

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
ARG	**REG**	**AIR**	**OCC**	**MPC**	8H-TWA: 4MG/M3 (1PPM). SKIN ABSORPTION.

Title : LIMIT VALUES FOR CHEMICAL SUBSTANCES IN THE W ORKING ENVIRONMENT-RESOLUTION NO. 444/1991 OF THE MINISTRY OF WORK AND SOCIAL SECURITY (AM ENDING REGULATION DECREE NO. 351/1979 UNDER L AW NO. 19587/1972: HYGIENE AND SAFETY AT WORK)

Reference : **ARGOB*, 24170, I, 1, 1979** ***Effective Date :*** 29MAY1991
Boletin Oficial de la Republica Argentina (Argentinian Official Bulletin)

Last Amendment : **ARGOB*, 27145, I, 4, 1991** ***Entry / Update :*** OCT1991
Boletin Oficial de la Republica Argentina (Argentinian Official Bulletin)

Substance

Chemical Name : **DIETHYLENETRIAMINE 2,2'-DIAMINODIETHYLAMINE**
Reported Name : **DIETHYLENE TRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
CAN	**REG**	**AIR**	**OCC**	**TLV**	TWA: 1 PPM, 4 MG/M3; SKIN ABSORPTION. PRESCRIBED BY THE CANADA OCCUPATIONAL SAFETY AND HEALTH REGULATIONS, UNDER THE CANADA LABOUR CODE (ADMINISTERED BY THE DEPARTMENT OF LABOUR). THE REGULATIONS STATE THAT NO EMPLOYEE SHALL BE EXPOSED TO A CONCENTRATION OF AN AIRBORNE CHEMICAL AGENT IN EXCESS OF THE VALUE FOR THAT CHEMICAL AGENT ADOPTED BY ACGIH (AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS) IN ITS PUBLICATION ENTITLED: "THRESHOLD LIMIT VALUE AND BIOLOGICAL EXPOSURE INDICES FOR 1985-86".

Title :

Reference : ***Effective Date :*** 13MCH1986

Last Amendment : **CAGAAK, 120, 6, 1105, 1986** ***Entry / Update :*** MCH1991
Canada Gazette Part II

Substance

Chemical Name : **DIETHYLENETRIAMINE (FR) 2,2'-DIAMINODIETHYLAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	*Type*	*Subject*	*Spec.*	*Description*	*Level / Summary Information :*
CAN	**REG**	**TRNSP LABEL PACK**	**-**	**CLASS RQR**	PIN (PRODUCT IDENTIFICATION NO.): UN2079. CLASS (8): CORROSIVE. PACKING GROUP II, (I=GREAT DANGER, III=MINOR DANGER). MAXIMUM AMOUNT PER PACKAGE THAT MAY BE TRANSPORTED ON A PASSENGER AIRCRAFT OR VEHICLE: 1 L. MAXIMUM AMOUNT PER PACKAGE THAT MAY BE TRANSPORTED ON A CARGO AIRCRAFT: 30 L. PRESCRIBED BY THE TRANSPORTATION OF DANGEROUS GOODS REGULATIONS, UNDER THE TRANSPORTATION OF DANGEROUS GOODS ACT (ADMINISTERED BY THE DEPARTMENT OF TRANSPORT). THE ACT AND REGULATIONS ARE INTENDED TO PROMOTE SAFETY IN THE TRANSPORTATION OF DANGEROUS GOODS IN CANADA, AS WELL AS PROVIDE ONE COMPREHENSIVE SET OF RULES APPLICABLE TO ALL MODES OF TRANSPORT ACCROSS CANADA. THESE ARE BASED ON UNITED NATIONS RECOMMENDATIONS. THE ACT AND REGULATIONS SHOULD BE CONSULTED FOR DETAILS. RECORDS ARE ENTERED UNDER THE PROPER SHIPPING NAME FOUND IN THE REGULATIONS; THIS MAY INCLUDE VERY GENERAL GROUPS OF CHEMICAL SUBSTANCES. ***Title :*** ***Reference :*** ***Effective Date :*** 06DEC1990 ***Last Amendment :*** **CAGAAK, 124, 26, 5523, 1990** ***Entry / Update :*** OCT1991 **Canada Gazette Part II**

Substance

[redacted]

Chemical Name : **2,2'-DIAMINODIETHYLAMINE**
DIETHYLENETRIAMINE (FR)

Reported Name : **DIETHYLENETRIAMINE**

CAS Number : **111-40-0**

Area	*Type*	*Subject*	*Spec.*	*Description*	*Level / Summary Information :*
CAN	**REG**	**USE STORE LABEL**	**OCC**	**RQR**	INGREDIENT DISCLOSURE LIST CONCENTRATION 0.1% WEIGHT/WEIGHT. THE WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) IS A NATIONAL SYSTEM TO PROVIDE INFORMATION ON HAZARDOUS MATERIALS USED IN THE WORKPLACE. WHMIS IS IMPLEMENTED BY THE HAZARDOUS PRODUCTS ACT AND THE CONTROLLED PRODUCTS REGULATIONS (ADMINISTERED BY THE DEPARTMENT OF CONSUMER AND CORPORATE AFFAIRS). THE REGULATIONS IMPOSE STANDARDS ON EMPLOYERS FOR THE USE, STORAGE AND HANDLING OF CONTROLLED PRODUCTS AND ADDRESS LABELLING AND IDENTIFICATION, EMPLOYEE INSTRUCTION AND TRAINING, AS WELL AS THE UPKEEP OF A MATERIALS SAFETY DATA SHEET (MSDS). THE PRESENCE IN A CONTROLLED PRODUCT OF AN INGREDIENT IN A CONCENTRATION EQUAL TO OR GREATER THAN SPECIFIED IN THE INGREDIENT DISCLOSURE LIST MUST BE DISCLOSED IN THE SAFETY DATA SHEET. ***Title :*** ***Reference :*** ***Effective Date :*** 31DEC1987 ***Last Amendment :*** **CAGAAK, 122, 2, 551, 1988** ***Entry / Update :*** APR1991 **Canada Gazette Part II**

Substance

[redacted]

Chemical Name : **DIETHYLENETRIAMINE**

Reported Name : **DIETHYLENETRIAMINE**

CAS Number : **111-40-0**

Area	*Type*	*Subject*	*Spec.*	*Description*	*Level / Summary Information :*
DEU	**REG**	**CLASS** **LABEL** **PACK**	**-**	**CLASS** **RQR** **RQR**	CLASSIFICATION AND LABELLING IN GERMANY IS GE NERALLY THE SAME AS FOR THE EEC (SEE OJEC** L 180, 1991). HOWEVER, SLIGHT MODIFICATIONS MAY BE INTRODUCED FOR SOME SUBSTANCES IN THE GER MAN LEGISLATION. ***Title :*** ORDINANCE ON HAZARDOUS SUBSTANCES. (GEFAHRSTO FFVERORDNUNG) ***Reference :*** **BGZBAD, I, 1931, 1991** ***Effective Date :*** 15JUN1991 **Bundesgesetzblatt (Federal Law Gazette)** ***Last Amendment :*** ***Entry / Update :*** APR1992

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **diethylene triamine**
CAS Number : **111-40-0**

Area	*Type*	*Subject*	*Spec.*	*Description*	*Level / Summary Information :*
GBR	**REG**	**TRNSP** **AQ** **AQ**	**MARIN** **MARIN** **EMI**	**RQR** **RSTR** **RSTR**	CATEGORY D SUBSTANCE: DISCHARGE INTO THE SEA IS PROHIBITED; DISCHARGE OF RESIDUAL MIXTURES IS SUBJECT TO RESTRICTIONS. ***Title :*** THE MERCHANT SHIPPING (CONTROL OF POLLUTION B Y NOXIOUS LIQUID SUBSTANCES IN BULK) REGULATI ONS 1987, SCHEDULE 1 ***Reference :*** **GBRSI*, 551, 15, 1987** ***Effective Date :*** 06APR1987 **Statutory Instruments** ***Last Amendment :*** **GBRSI*, 2604, 2, 1990** ***Entry / Update :*** 1992 **Statutory Instruments**

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **1,4,7-TRIAZAHEPTANE**
CAS Number : **111-40-0**

Area	*Type*	*Subject*	*Spec.*	*Description*	*Level / Summary Information :*
GBR	**REG**	**AIR**	**OCC**	**OES**	8H-TWA: 4MG/M3 (1PPM) SKIN ABSORPTION ***Title :*** EH40 OCCUPATIONAL EXPOSURE LIMITS FOR USE WIT H THE CONTROL OF SUBSTANCES HAZARDOUS TO HEAL TH REGULATIONS ***Reference :*** **GBRSI*, 1657, 10, 1988** ***Effective Date :*** **Statutory Instruments** ***Last Amendment :*** **GNHSE*, EH40, 11, 1992** ***Entry / Update :*** AUG1992 **Guidance Note from the Health and Safety Executive**

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **diethylenetriamine**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
GBR	REG	AIR	OCC	OES	8H-TWA: 4MG/M3 (1PPM). SKIN ABSORPTION.

Title : EH40 OCCUPATIONAL EXPOSURE LIMITS FOR USE WIT H THE CONTROL OF SUBSTANCES HAZARDOUS TO HEAL TH REGULATIONS

Reference : **GBRSI*, 1657, 10, 1988** — **Statutory Instruments** — ***Effective Date :*** 01JAN1992

Last Amendment : **GNHSE*, EH40, 11, 1992** — **Guidance Note from the Health and Safety Executive** — ***Entry / Update :*** 1992

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
IND	REG	MANUF	-	RQR	These rules define the responsabilities of oc cupiers of any industrial activity in which t his toxic and hazardous substance may be invo lved. These responsabilities encompass: (a) a ssessment of major hazards (causes, occurrenc e, frequency); (b) measures to prevent accide nts and limit eventual impairment to human he alth and pollution of the environment; (c) pr ovision of relevant factual knowledge and ski lls to workers in order to ensure health and environmental safety when handling equipments and the foregoing chemical; (d) notification of the competent authorities in case of majo r accidents; (e) notification of sites to the competent authorities 3 months before commen cing; (f)preparation of an on-site emergency plan as to how major accidents should be cope d with; (g) provision of competent authoritie s with information and means to respond quick ly and efficiently to any off-site emergency; (h) provision of information to persons outs ide the site, liable to be affected by a majo r accident; (i) labelling of containers as to clearly identify contents, manufacturers, ph ysical, chemical and toxicological data; (j) preparation of a safety data sheet including any significant information regarding hazard of this substance and submission of safety re ports to the competent authorities; (k) for t he import of a hazardous chemical to India, i mporters must supply the competent authoritie s with specified information regarding the sh ipment.
		SAFTY		RQR	
		STORE		RQR	
		IMPRT		RQR	

Title : THE MANUFACTURE, STORAGE AND IMPORT OF HAZARD OUS CHEMICALS RULES. 1989

Reference : **GAZIN*, 787, 1989** — **THE GAZETTE OF INDIA** — ***Effective Date :*** 27NOV1989

Last Amendment : — ***Entry / Update :*** SEP1992

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
MEX	REG	AIR	OCC	MXL	AT ANY WORKPLACE WHERE THIS SUBSTANCE IS PROD UCED, STORED OR HANDLED A MAXIMUM PERMISSIBLE LEVEL OF 4MG/M3 (1PPM) MUST BE OBSERVED FOR A PERIOD OF 8 HOURS.

Title : INSTRUCTION NO.10 RELATED TO SECURITY AND HYG IENIC CONDITIONS AT WORKPLACES. (INSTRUCTIVO NO. 10, RELATIVO A LAS CONDICIONES DE SEGURID AD E HIGIENE DE LOS CENTROS DE TRABAJO).

Reference : **DOMEX*, 1984** — **Diario Oficial** — ***Effective Date :*** 28MAY1984

Last Amendment : **DOMEX*, 1989** — **Diario Oficial** — ***Entry / Update :*** DEC1991

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
RUS	**REG**	**AQ**	**SURF**	**MAC CLASS**	0.2 MG/L HAZARD CLASS: IV

Title :

Reference : ***Effective Date :*** 1JAN1989

Last Amendment : **SPNPV*, 4630-88, 1988** ***Entry / Update :*** JUL1990

SANITARNYE PRAVILA I NORMY OKHRANY POVERKHNOSTNYKH VOD OT ZAGRIAZNENIA
(HEALTH REGULATION AND STANDARDS OF SURFACE WATER PROTECTION FROM CONTAMINATION)

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
RUS	**REG**	**AIR**	**AMBI**	**PSL**	0.01MG/M3 1X/D

Title :

Reference : ***Effective Date :*** DEC1983

Last Amendment : **OBUAV*, 2947-83, 1983** ***Entry / Update :*** SEP1985

Orientivovochnye bezopasnye urovni vozdeystvya (OBUV) zagryaznyayushchikh veschchestv v atmosfernom vozdukhe naselennykh mest
(Tentative Safe Exposure Limits (TSEL) of contaminants in AmbientAir of Residential Areas)

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
SWE	**REG**	**AIR**	**OCC**	**HLV**	1D-TWA: 4.5MG/M3 (1PPM); 15MIN-STEL: 10MG/M3 (2PPM). SKIN ABSORPTION, SENSITIZING.

Title : HYGIENIC LIMIT VALUES.

Reference : **AFS***, 1990:13, 5-64, 1990** ***Effective Date :*** 01JUL1991

ARBETARSKYDDSSTYRELSENS FOERFATTNINGSSAMLING

Last Amendment : ***Entry / Update :*** 1992

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **1,2-ETHANEDIAMINE,N-(2-AMINOETHYL)-**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
USA	REG	MANUF	REQ	PRMT	; Summary - THE FOLLOWING CHEMICAL IS INCLUDE D ON A LIST OF CHEMICALS AND MIXTURES FOR WHI CH REPORTING IS CURRENTLY REQUIRED UNDER THE TOXIC SUBSTANCES CONTROL ACT SECTION 2607A. T HIS TOXIC SUBSTANCE IS SUBJECT TO PRELIMINARY ASSESSMENT INFORMATION RULES ON PRODUCT ION QUANTITIES, USES, EXPOSURES, AND ADVERSE EFFE CTS. MANUFACTURERS INCLUDING IMPORTERS MUST S UBMIT A REPORT FOR THIS LISTED CHEMICAL MANUF ACTURED AT EACH SITE.
		USE	OCC	PRMT	
		SAFTY	OCC	MXL	

Title : PRELIMINARY ASSESSMENT INFORMATION RULES

Reference :	**FEREAC, 47, 26998, 1982** Federal Register	***Effective Date :***	1982
Last Amendment :	**CFRUS*, 40, 712, 30, 1990** Code of Federal Regulations	***Entry / Update :***	OCT1991

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
USA	REG	USE	-	RSTR	; Summary - THIS SUBSTANCE IS INCLUDED ON A L IST OF SUBSTANCES WHICH ARE CONDITIONALLY APP ROVED TO BE USED AS COMPONENTS OF THE UNCOATE D OR COATED FOOD CONTACT SURFACE OF PAPER AND PAPERBOARD FOR USE WITH FOODS HAVING THE PRO PERTIES OF A DRY SOLID WITH NO FREE FAT O R O IL ON THE SURFACE. THESE SUBSTANCES ARE NOT T O BE USED IN QUANTITIES WHICH EXCEED THAT REQ UIRED TO ACCOMPLISH THEIR INTENDED PHYSICAL O R TECHNICAL EFFECT AND ARE SO USED AS TO ACCO MPLISH NO EFFECT IN FOOD OTHER THAN THAT ORDI NARILY ACCOMPLISHED BY PA CKAGING.
		FOOD	ADDIT	RSTR	
		STORE		RSTR	
		MANUF		RSTR	
		PACK		RSTR	

Title : INDIRECT FOOD ADDITIVES: PAPER AND PAPERBOARD COMPONENTS; COMPONENTS OF PAPER AND PAPERBOA RD IN CONTACT WITH DRY FOOD

Reference :	**FEREAC, 42, 14554, 1977** Federal Register	***Effective Date :***	1977
Last Amendment :	**CFRUS*, 21, 176, 180, 1988** Code of Federal Regulations	***Entry / Update :***	NOV1991

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
USA	REG	FOOD	ADDIT	RSTR	FOR USE ONLY AS A MODIFIER FOR AMINO RESINS; Summary - THIS SUBSTANCE IS INCLUDED ON A LIS T OF SUBSTANCES WHICH HAVE BEEN CONDITIONALLY APPROVED TO BE USED AS COMPONENTS OF THE UNC OATED OR COATED FOOD-CONTACT SURFACE OF PAPER AND PAPERBOARD FOR USE WITH MANUFACTURING, P ACKING, PROCESSING, PREPARING, TREATING , TRA NSPORTING OR HOLDING AQUEOUS AND FATTY FOODS. THESE ARE EXEMPTED FROM EXTRACTION ANALYSIS IN 21 CFR 176.170(C).
		MANUF		RSTR	
		STORE		RSTR	
		PACK		RSTR	

Title : INDIRECT FOOD ADDITIVES: PAPER AND PAPERBOARD COMPONENTS-COMPONENTS OF PAPER AND PAPERBOAR D IN CONTACT WITH AQUEOUS AND FATTY FOODS

Reference :	**FEREAC, 42, 14554, 1977** **Federal Register**	***Effective Date :***	1977
Last Amendment :	**CFRUS*, 21, 176, 170, 1988** **Code of Federal Regulations**	***Entry / Update :***	NOV1991

Substance

[redacted]

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
USA	REC	AIR	OCC	TLV	Time Weighted Avg (TWA) 1 ppm, 4.2 MG/M3, ski n; Summary - THIS THRESHOLD LIMIT VALUE IS IN TENDED FOR USE IN THE PRACTICE OF INDUSTRIAL HYGIENE AS A GUIDELINE OR RECOMMENDATION IN T HE CONTROL OF POTENTIAL HEALTH HAZARDS.

Title : THRESHOLD LIMIT VALUES

Reference :	**ACGIH*, 11, 1989** **Threshold Limit Values and Biological Exposure Indices**	***Effective Date :***	1989
Last Amendment :	**ACGIH*, 11, 1991** **Threshold Limit Values and Biological Exposure Indices**	***Entry / Update :***	DEC1991

Substance

[redacted]

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **1,2-ETHANEDIAMINE,N-(2-AMINOETHYL)-**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
USA	REG	MONIT	-	RQR	; Summary - THIS IS A CHEMICAL OR MIXTURE FOR WHICH REPORTING IS CURRENTLY REQUIRED UNDER THE TOXIC SUBSTANCE CONTROL ACT HEALTH AND SA FETY STUDIES SECTION 2607D. PERSONS WHO CURRE NTLY MANUFACTURE OR PROCESS CHEMICAL SUBSTANC ES OR MIXTURES FOR COMMERCIAL PURPOSES, THOSE WHO PROPOSE TO DO SO, AND THOSE WHO ARE NOT CURRENTLY INVOLVED WITH A LISTED CHEMICAL BUT WHO MANUFACTURED OR PROCESSED IT OR PROPOSED TO DO SO ANY TIME DURING THE TEN YEAR PERIOD PRIOR TO THE TIME IT BECAME LISTED MUST SUBM IT TO THE ADMINISTRATOR OF THE U.S. EPA STUDI ES OR LISTS OF HEALTH AND SAFETY STUDIES COND UCTED ON THIS SUBSTANCE FOR EVALUATION.

Title : HEALTH AND SAFETY DATA REPORTING RULES SECTIO N 8(D)

Reference :	**FEREAC, 51, 32726, 1986** **Federal Register**	***Effective Date :***	1986
Last Amendment :	**CFRUS*, 40, 716, 120, 1990** **Code of Federal Regulations**	***Entry / Update :***	OCT1991

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
EEC	**REG**	**CLASS LABEL PACK**	**-**	**CLASS RQR RQR**	CLASS: XN - HARMFUL; HARMFUL IN CONTACT WITH SKIN AND IF SWALLOWED (R 21/22). C - CORROSIV E; CAUSES BURNS (R 34). XI - IRRITANT; MAY CA USE SENSITISATION BY SKIN CONTACT (R 43). LAB EL: C - CORROSIVE; HARMFUL IN CONTACT WITH SK IN AND IF SWALLOWED (R 21/22); CAUSES BURNS (R 34); MAY CAUSE SENSITIZATION BY SKIN CONTAC T (R 43); IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK ME DICAL ADVICE (S 26); WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION (S 36/37/39). CLASSIFICATION OF PREPARATIONS CON TAINING THE SUBSTANCE IN CONCENTRATION RANGE: ABOVE 25%: C - CORROSIVE; HARMFUL IN CONTACT WITH SKIN AND IF SWALLOWED (R 21/22); CAUSES BURNS (R 34); MAY CAUSE SENSITIZATION BY SKI N CONTACT (R 43). FROM 10% TO 25%: C - CORROS IVE; CAUSES BURNS (R 34); MAY CAUSE SENSITIZA TION BY SKIN CONTACT (R 43). FROM 5% TO 10%: XI - IRRITANT; IRRITATING TO EYES AND SKIN (R 36/38); MAY CAUSE SENSITIZATION BY SKIN CONT ACT (R 43). FROM 1% TO 5%: XI - IRRITANT; MAY CAUSE SENSITIZATION BY SKIN CONTACT (R 43). ***Title :*** COUNCIL DIRECTIVE 67/548/EEC OF 27 JUNE 1967 ON THE APROXIMATION OF THE LAWS, REGULATIONS AND ADMINISTRATIVE PROVISIONS RELATING TO THE CLASSIFICATION, PACKAGING AND LABELLING OF D ANGEROUS SUBSTANCES ***Reference :*** **OJEC**, 196, 1, 1967** ***Effective Date :*** 1JUL1992 **Official Journal of the European (Communities)/Union** ***Last Amendment :*** **OJEC**, L 180, 79, 1991** ***Entry / Update :*** APR1992 **Official Journal of the European (Communities)/Union**

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
IMO	**REC**	**TRNSP LABEL PACK**	**MARIN**	**CLASS**	HAZARD CLASS: 8 = CORROSIVE. PACKING GROUP: I I = SUBSTANCE PRESENTING MEDIUM DANGER. UN NO .2079. ***Title :*** ***Reference :*** ***Effective Date :*** ***Last Amendment :*** **!, IMCOC*, 10004, 1990** ***Entry / Update :*** JAN1991 **International Maritime Dangerous Goods Code**

Substance

Chemical Name :
Reported Name : **Diethylenetriamine**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
IMO	REG	AQ AQ	EMI MARIN	PRO PRO	Category D substance (substance which is practically non-toxic to aquatic life): discharge into the sea of this substance, of ballast water, tank washings, or other residues of the substance shall be prohibited except where specified conditions are satisfied. Requirements prescribe port facilities for receiving residues or mixtures containing the regulated substance. Technical assistance for training of scientific and technical personnel shall be promoted where requested by the Parties of this Convention. ***Title :*** International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78). ***Reference :*** ***Effective Date :*** ***Last Amendment :*** **IMODC*,** ***Entry / Update :*** SEP1994

Substance

Chemical Name : **DIETHYLENETRIAMINE**
Reported Name : **DIETHYLENETRIAMINE**
CAS Number : **111-40-0**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
UN	REC	TRNSP LABEL PACK	-	CLASS	HAZARD CLASS: 8 = CORROSIVE. PACKING GROUP: I I = SUBSTANCE PRESENTING MEDIUM DANGER. UN NO .2079. ***Title :*** ***Reference :*** ***Effective Date :*** ***Last Amendment :*** **!, UNTDG*, 15, 1989** ***Entry / Update :*** SEP1982 **UN Transport of Dangerous Goods, Recommendation prepared by theCommittee of Experts on the Transport of Dangerous Goods**