I U C L I D

D a t a s e t

Existing Chemical	Substance ID: 5205–93–6
CAS No.	5205–93–6
EINECS Name	N–[3–(dimethylamino)propyl]methacrylamide
EINECS No.	226–002–3
Molecular Weight	170.26
Structural Formula	CH2=C(CH3)CONH(CH2)3N(CH3)2
Molecular Formula	C9H18N2O

Dataset created by: EUROPEAN COMMISSION – European Chemicals Bureau

This dossier is a compilation based on data reported by the European Chemicals Industry following 'Council Regulation (EEC) No. 793/93 on the Evaluation and Control of the Risks of Existing Substances'. All (non–confidential) information from the single datasets, submitted in the IUCLID/HEDSET format by individual companies, was integrated to create this document.

The data have not undergone any evaluation by the European Commission.

Creation date: 18–FEB–2000

Number of Pages: **20**

Chapters: **all**

Edition: **Year 2000 CD–ROM edition**

Flags: **non–confidential**

(C) 2000 EUROPEAN COMMISSION
European Chemicals Bureau

1.0.1 OECD and Company Information

Name: Roehm GmbH
Town: 64275 Darmstadt
Country: Germany

1.0.2 Location of Production Site

–

1.0.3 Identity of Recipients

–

1.1 General Substance Information

Substance type: organic
Physical status: liquid

1.1.1 Spectra

–

1.2 Synonyms

2–Methyl–acrylic acid 3–dimethylamino–propylamide
Source: Roehm GmbH Darmstadt

Acrylamide, N–[3–(dimethylamino)propyl]–2–methyl– (7CI, 8 CI)
Source: Roehm GmbH Darmstadt

DMAPMA
Source: Roehm GmbH Darmstadt

N–Dimethylaminopropyl methacrylamide
Source: Roehm GmbH Darmstadt

N–[3–(Dimethylamino)propyl] methacrylamide
Source: Roehm GmbH Darmstadt

1.3 Impurities

–

1.4 Additives

–

1.5 Quantity

–

1.6.1 Labelling

–

1.6.2 Classification

-

1.7 Use Pattern

-

1.7.1 Technology Production/Use

-

1.8 Occupational Exposure Limit Values

Type of limit: MAK (DE)
Limit value:
Remark: Does not exist.
Source: Roehm GmbH Darmstadt

(1)

Type of limit: MAK (DE)
Limit value:
Remark: Does not exist.
Source: Roehm GmbH Darmstadt

(2)

1.9 Source of Exposure

-

1.10.1 Recommendations/Precautionary Measures

-

1.10.2 Emergency Measures

-

1.11 Packaging

-

1.12 Possib. of Rendering Subst. Harmless

-

1.13 Statements Concerning Waste

-

1.14.1 Water Pollution

Classified by: other: provisionally by manufacturer
Labelled by: other: provisionally by manufacturer
Class of danger: 1 (weakly water polluting)
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(material safety data sheet)

(3)

Classified by: other: provisionally by manufacturer
Labelled by: other: provisionally by manufacturer
Class of danger: 1 (weakly water polluting)
Source: Roehm GmbH Darmstadt

(4)

1.14.2 Major Accident Hazards

–

1.14.3 Air Pollution

Classified by: TA–Luft (DE)
Labelled by: TA–Luft (DE)
Number: 3.1.7 (organic substances)
Class of danger: III
Source: Roehm GmbH Darmstadt

(4)

1.15 Additional Remarks

Memo: General hints:
Remark: Flammable! Polymerization may be initiated by contamination with peroxides, azo compounds, heavy metal ions, S compounds.
Source: Roehm GmbH Darmstadt

(5)

Memo: Shipment:
Remark: Packaging: PE–lined iron drums, 180 kg net weight, or stainless steel tanks
Source: Roehm GmbH Darmstadt

(5)

Memo: Storage:
Remark: Keep only in the original container at a temperature not exceeding 30 degree Celsius. Keep out of light. Fill the container by approximately 90 % only as oxygen (air) is required for stabilisation. With large storage containers, make sure the oxygen (air) supply is sufficient to ensure stability.
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions

(material safety data sheet)

(3) (6)

Memo: Storage:
Remark: Shelf life: max. 3 months (material with standard stabilization)
Source: Roehm GmbH Darmstadt

(6) (5)

Remark: Shelf life: max. 3 months at 30 degree Celsius (material with standard stabilization)
Source: Roehm GmbH Darmstadt

(7) (6)

Remark: Flammable! Polymerization may be initiated by contamination with peroxides, azo compounds, heavy metal ions, S compounds.
Source: Roehm GmbH Darmstadt

(7)

1.16 Last Literature Search

-

1.17 Reviews

-

1.18 Listings e.g. Chemical Inventories

-

2.1 Melting Point

-

2.2 Boiling Point

Value: = 112.2 degree C
Method: other: no data
Year: 1988
GLP: no data
Source: Roehm GmbH Darmstadt
Reliability: (4) not assignable
(material safety data sheet, no more information available)
(8)

Value: > 150 degree C at 1013 hPa
Method: other: no data
Year: 1994
GLP: no data
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(material safety data sheet)
(3) (6)

2.3 Density

Type: relative density
Value: = .94 g/cm3 at 20 degree C
Method: other: no data
Year: 1994
GLP: no data
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(material safety data sheet)
(3)

Type: relative density
Value: = .9419
Method: other: no data
Year: 1988
GLP: no data
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(material safety data sheet)
(8)

2.3.1 Granulometry

-

2.4 Vapour Pressure

Value: = 3 hPa at 134 degree C
Year: 1994
GLP: no data
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(material safety data sheet)

(3)

2.5 Partition Coefficient

log Pow: = .08
Method: other (calculated): according to Rekker
Year: 1977
GLP: no
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(general valid method)

(9)

2.6.1 Water Solubility

Qualitative: miscible
pH: = 11.7 at 1000 g/l and 20 degree C
Method: other: no data
Year: 1994
GLP: no data
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(material safety data sheet)

(3)

pH: = 10.2
Year: 1988
GLP: no data
Remark: pH of undiluted product
Source: Roehm GmbH Darmstadt
Reliability: (4) not assignable
(material safety data sheet, no more information available)

(8)

2.6.2 Surface Tension

-

2.7 Flash Point

Value: = 128.5 degree C
Type:
Method: other: DIN 51758
Year: 1994
GLP: no
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(general valid laboratory method)
(3)

Value: = 140.6 degree C
Type: other: no data
Method: other: PMCC
Year: 1988
GLP: no data
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(material safety data sheet)
(8)

2.8 Auto Flammability

-

2.9 Flammability

-

2.10 Explosive Properties

-

2.11 Oxidizing Properties

-

2.12 Additional Remarks

Memo: Appearance:
Remark: clear, colourless to yellowish liquid
Source: Roehm GmbH Darmstadt
(5)

Memo: Hazardous reactions:
Remark: Dimethylaminopropylmethacrylamide is normally stabilised by addition of inhibitors during transport and storage. To be effective these inhibitors require the presence of oxygen. Exposure to heat, light, peroxide activators, catalysts or storage without air contact may result in exothermic polymerisation. If the permissible storage period or storage temperature is noticeably exceeded, exothermic polymerisation may occur.
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions

(material safety data sheet)
(3)

Memo: Odour:
Remark: amine like
Source: Roehm GmbH Darmstadt
(3) (5)

Memo: Relative vapour density:
Remark: Value: > 1 at 20 degree Celsius (air = 1)
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(material safety data sheet)
(3)

Memo: Solidification temperature:
Remark: Value: < –60 degree Celsius
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(material safety data sheet)
(3)

Memo: Viscosity (dynamic):
Remark: Value: 30 – 70 mPa*s at 23 degree Celsius
Method: according to Brookfield
Source: Roehm GmbH Darmstadt
Reliability: (2) valid with restrictions
(general valid laboratory method)
(3)

3.1.1 Photodegradation

-

3.1.2 Stability in Water

Type: abiotic
Method:
Year: 1994 **GLP:** no
Test substance:
Remark: A solution of 20 % N-Dimethylaminopropyl methacrylamide in water is at least 1 week stable. After 1 week 100 ppm of methacrylic acid (CAS-No.: 79-41-4) were found in the solution.
Source: Roehm GmbH Darmstadt

(10)

3.1.3 Stability in Soil

-

3.2 Monitoring Data (Environment)

-

3.3.1 Transport between Environmental Compartments

-

3.3.2 Distribution

-

3.4 Mode of Degradation in Actual Use

-

3.5 Biodegradation

Type: aerobic
Inoculum: activated sludge
Concentration: related to COD (Chemical Oxygen Demand)
Degradation: = 74.7 % after 28 day
Result: readily biodegradable
Kinetic:
4 day = 0 %
5 day = 19 %
6 day = 53 %
8 day = 73.4 %
23 day = 74.7 %
Method: OECD Guide-line 301 C "Ready Biodegradability: Modified MITI Test (I)"
Year: 1993 **GLP:** no data
Test substance:
Source: Roehm GmbH Darmstadt
Reliability: (1) valid without restriction
(guideline study)

(11)

Type:
Inoculum:
Method: other: TTC-Test according to DEV L3
Year: 1993 **GLP:** no data
Test substance:
Remark: Endpoint: dehydrogenase activity
Result: EC50= 3760 mg/l (TTC)
Source: Roehm GmbH Darmstadt
Reliability: (1) valid without restriction
(in accordance with national standard methods)

(11)

3.6 BOD5, COD or BOD5/COD Ratio

-

3.7 Bioaccumulation

-

3.8 Additional Remarks

-

AQUATIC ORGANISMS

4.1 Acute/Prolonged Toxicity to Fish

Type: static
Species: Salmo gairdneri (Fish, estuary, fresh water)
Exposure period: 96 hour(s)
Unit: mg/l **Analytical monitoring:** yes
NOEC: = 50
LC50: = 290
LC100: = 555
LOEC : = 95
Method: OECD Guide-line 203 "Fish, Acute Toxicity Test"
Year: 1991 **GLP:** yes
Test substance:
Remark: All reported results are related to nominal concentrations of the test substance. During test duration the test substance concentrations were in the range of 84.9 – 114.3 % of the nominal values, under test conditions the test substance was sufficiently stable.
Result: LC50= 128 – 657 mg/l (95 % conf. lim.)
lowest lethal concentration (LLC)= 309 mg/l
Source: Roehm GmbH Darmstadt
Test substance: Purity: 99.8 %
Known impurity: 0.02 % N-Allylmethacrylamide
Reliability: (1) valid without restriction
(guideline study, GLP)

(12)

4.2 Acute Toxicity to Aquatic Invertebrates

-

4.3 Toxicity to Aquatic Plants e.g. Algae

-

4.4 Toxicity to Microorganisms e.g. Bacteria

Type: aquatic
Species: Photobacterium phosphoreum (Bacteria)
Exposure period: 3 hour(s)
Unit: mg/l **Analytical monitoring:** no data
EC50: = 4512
EC20 : = 1034
EC80 : = 19740
Method: other: DIN 38412 Part 34
Year: 1992 **GLP:** no data
Test substance:
Source: Roehm GmbH Darmstadt
Reliability: (1) valid without restriction
(test procedure in accordance with national standard methods)

(13) (11)

Type: other: cell inhibition test
Species: Pseudomonas putida (Bacteria)
Exposure period: 16 hour(s)
Unit: mg/l **Analytical monitoring:** no data
EC10: = 1350
EC50: = 2100
Method: other: DIN 38412 L8
Year: 1991 **GLP:** yes
Test substance:
Source: Roehm GmbH Darmstadt
Test substance: Purity: 99.8 %
Known impurities: 0.02 % N–Allylmethacrylamide
Reliability: (1) valid without restriction
(test procedure in accordance with national standard methods)

(14)

4.5 Chronic Toxicity to Aquatic Organisms

4.5.1 Chronic Toxicity to Fish

–

4.5.2 Chronic Toxicity to Aquatic Invertebrates

–

TERRESTRIAL ORGANISMS

4.6.1 Toxicity to Soil Dwelling Organisms

–

4.6.2 Toxicity to Terrestrial Plants

–

4.6.3 Toxicity to other Non–Mamm. Terrestrial Species

–

4.7 Biological Effects Monitoring

–

4.8 Biotransformation and Kinetics

–

4.9 Additional Remarks

–

5.1 Acute Toxicity

5.1.1 Acute Oral Toxicity

Type: LD50
Species: rat
Sex:
Number of Animals:
Vehicle:
Value: = 3334 mg/kg bw
Method: other: no data
Year: 1988 **GLP:** no data
Test substance: no data
Remark: LD50= 3.54 ml/kg (oral, rat, original value)
Density = 0.94 g/cm3
Source: Roehm GmbH Darmstadt
Reliability: (4) not assignable
(material safety data sheet, no more information available)
(8)

5.1.2 Acute Inhalation Toxicity

-

5.1.3 Acute Dermal Toxicity

Type: LD50
Species: rabbit
Sex:
Number of Animals:
Vehicle:
Value: = 2355 mg/kg bw
Method: other: no data
Year: 1988 **GLP:** no data
Test substance: no data
Remark: LD50= 2.50 ml/kg (dermal, rabbit, original value)
Density = 0.94 g/cm3
Source: Roehm GmbH Darmstadt
Reliability: (4) not assignable
(material safety data sheet, no more information available)
(8)

5.1.4 Acute Toxicity, other Routes

-

5.2 Corrosiveness and Irritation

5.2.1 Skin Irritation

Species: rabbit
Concentration:

Exposure:
Exposure Time:
Number of Animals:
PDII:
Result: not irritating
EC classificat.: not irritating
Method: Draize Test
Year: 1983 **GLP:** no
Test substance: no data
Source: Roehm GmbH Darmstadt
Test condition: Application: 0.5 ml, undiluted
Duration of the test: 24 h, occlusiv
Primary irritation index: 0.34 of 8
Reliability: (2) valid with restrictions
(test procedure in accordance with national standard methods, no GLP)

(15)

Species: rabbit
Concentration:

Exposure:
Exposure Time:
Number of Animals:
PDII:
Result: moderately irritating
EC classificat.: irritating
Method: other: no data
Year: 1988 **GLP:** no data
Test substance: no data
Source: Roehm GmbH Darmstadt
Test condition: Primary irritation index: 4.3 of 8
Reliability: (4) not assignable
(material safety data sheet, no more information available)

(8)

5.2.2 Eye Irritation

Species: rabbit
Concentration:
Dose:
Exposure Time:
Comment:
Number of Animals:
Result: highly irritating
EC classificat.: risk of serious damage to eyes
Method: other: no data
Year: 1988 **GLP:** no data
Test substance: no data
Result: Primary irritation index: 66.3 of 110
Source: Roehm GmbH Darmstadt
Reliability: (4) not assignable
(material safety data sheet, no more information available)
(8)

5.3 Sensitization

–

5.4 Repeated Dose Toxicity

–

5.5 Genetic Toxicity 'in Vitro'

Type: Cytogenetic assay
System of testing: V79 Chinese hamster cells
Concentration: 10 – 1700 ug/ml (0.06 – 10 mM)
Metabolic activation: with and without
Result: negative
Method: OECD Guide–line 473 "Genetic Toxicology: In vitro Mammalian Cytogenetic Test"
Year: 1994 **GLP:** yes
Test substance: other TS
Remark: In cytogenetic experiment I, in the absence of S9 mix cultures after treatement with 100 ug/ml (18 h) and 300 ug/ml (28 h) as highest concentration were evaluated for cytogenetic damage; in experiment II, 300 ug/ml as highest concentration was used at each interval. The cytogenetic of higher concentrations in the respective intervals (without S9 mix) was impossible due to toxic effects (reduced cell density and low metaphase number, partially combined with poore metaphase quality).
With S9 mix the guideline recommendation of 10 mM as maximum concentration was fulfilled.
Source: Roehm GmbH Darmstadt
Test substance: Purity: 98.78 % stabilised with 643 ppm hydroquinone monomethylether
Reliability: (1) valid without restriction

(guideline study, GLP)
(16)

Type: Mammalian cell gene mutation assay
System of testing: HPRT locus in V79 cells of the Chinese hamster
Concentration: 100 – 1700 ug/ml
Metabolic activation: with and without
Result: negative
Method: OECD Guide–line 476 "Genetic Toxicology: In vitro Mammalian Cell Gene Mutation Tests"
Year: 1994 **GLP:** yes
Test substance: other TS
Source: Roehm GmbH Darmstadt
Test substance: Purity: 98.78 % stabilised with 643 ppm hydroquinone monomethylether
Reliability: (1) valid without restriction
(guideline study, GLP)
(17)

Type: Salmonella typhimurium reverse mutation assay
System of testing: S. typhimurium TA1535, TA1537, TA98, TA100 and TA102
Concentration: 33.3 – 5000.0 ug/plate
Metabolic activation: with and without
Result: negative
Method: OECD Guide–line 471 "Genetic Toxicology: Salmonella thyphimurium Reverse Mutation Assay"
Year: 1994 **GLP:** yes
Test substance: other TS
Source: Roehm GmbH Darmstadt
Test substance: Purity: 98.78 % stabilised with 643 ppm hydroquinone monomethylether
Reliability: (1) valid without restriction
(guideline study, GLP)
(18)

5.6 Genetic Toxicity 'in Vivo'

–

5.7 Carcinogenicity

–

5.8 Toxicity to Reproduction

–

5.9 Developmental Toxicity/Teratogenicity

–

5.10 Other Relevant Information

–

5.11 Experience with Human Exposure

–

(1) DFG; Deutsche Forschungsgemeinschaft: MAK- und BAT-Werte-Liste; Senatskommission zur Prüfung gesundheitsschädlicher Arbeitstoffe, Mitteilung 31, VCH Verlagsgesellschaft mbH, D-69451 Weinheim, ISBN-3-527-27569-X (1995)

(2) DFG (Deutsche Forschungsgemeinschaft): MAK- und BAT-Werte-Liste 1997; Senatskommission zur Prüfung gesundheitsschädlicher Arbeitstoffe (Mitteilung 33); VCH Verlagsgesellschaft mbH, D-69451 Weinheim (1997); ISBN-3-527-27576-2

(3) Röhm GmbH, material safety data sheet (91/155/EEC) Dimethylaminopropylmethacrylamide (DMAPMA) (24.03.1994)

(4) Röhm GmbH, material safety data sheet (91/155/EEC) Dimethylaminopropyl methacrylamide (DMAPMA) (96-05-28)

(5) Röhm GmbH: Product Information Monomere Dimethyl aminopropyl methacrylamide FM 302

(6) Röhm GmbH: Aminofunctional acrylates and methacrylates

(7) Röhm GmbH, product information monomers; Dimethylaminopropyl methacrylamide FM 302 (Aug 97)

(8) TEXACO, material safety data sheet Dimethylaminopropylmethacrylamide (DMAPMA) (04/1988)

(9) Rekker R.F.: The Hydrophobic Fragmental Constant; Vol. 1, Elsevier Scientific Publishing Company (1977) ISBN: 0-4444-41548-3

(10) Röhm GmbH: Hydrolysestabilität von Dimethylaminopropyl-methacrylamid (1994)

(11) Röhm GmbH: Produktuntersuchungen zur Thematik umweltfreundlicher Injektionsmittel und -verfahren zur Behebung örtlichbegrenzter Schäden und Undichtigkeiten in Kanalisationen unter Berücksichtigung des Gewässerschutzes; Hygiene-Institut des Ruhrgebiets, Gelsenkirchen (1993)

(12) Röhm GmbH: Acute Toxicity of Dimethylaminopropylmethacryl-amide to Rainbow trout (Oncorhynchus mykiss) in static Test (96 hours); RCC Umweltchemie GmbH & Co. KG (1991)

(13) Röhm GmbH: Nachweis der Toxizität im Leuchtbakterientest; Hygiene-Institut des Ruhrgebiets, Gelsenkirchen (1992)

(14) Röhm GmbH: Pseudomonas putida Zellvermehrungshemmtest mit Dimethylaminopropylmethacrylamid; CCR Cytotest Cell Research GmbH & Co. KG (1991)

(15) Röhm GmbH: Prüfung von N–Dimethylaminopropylmethacrylamid im Hautreiztest am Kaninchen; IBR Forschungs–GmbH (1983)

(16) Röhm GmbH: Chromosome aberration assay in Chinese V79 cells in vitro with N–Dimethylaminopropyl methacrylamide; CCR Cytotest Cell Research GmbH & Co. KG (1994)

(17) Röhm GmbH: Gene mutation assay in Chinese V79 cells in vitro (V79/ HPRT) with N–Dimethylaminopropyl methacrylamide; CCR Cytotest Cell Research GmbH & Co. KG (1994)

(18) Röhm GmbH: Salmonella typhimurium reverse mutation assay with N–Dimethylaminopropyl methacrylamide; CCR Cytotest Cell Research GmbH & Co. KG (1994)

7.1 Risk Assessment

-