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TRIMETHYLPROPANE
CAS N°: 77-99-6

Substance

<i>End Point</i>	:	IDENTIFIERS, PHYSICAL AND CHEMICAL PROPERTIES
<i>Chemical Name</i>	:	1,3-Propanediol, 2-ethyl-2-(hydroxymethyl)-
<i>Common Name</i>	:	Trimethylolpropane
<i>CAS Number</i>	:	77-99-6
<i>RTECS Number</i>	:	TY6470000

Synonyms

Ethriol	2-Ethyl-2-(hydroxymethyl)propanediol
2-Ethyl-2-(hydroxymethyl)-1,3-propanediol	Ethyltrimethylolmethane
Ettriol	Hexaglycerine
Propane, 1,1,1-tris(hydroxymethyl)-	TMP
TMP (alcohol)	1,1,1-Tri(hydroxymethyl)propane
1,1,1-Trimethylolpropane	Tris(hydroxymethyl)propane
1,1,1-Tris(hydroxymethyl)propane	

Properties & Definitions

<i>Molecular Formula</i>	:	C6H14O3
<i>Molecular Weight</i>	:	134.20
<i>Melting Point</i>	:	58C
<i>Boiling Point</i>	:	285C
<i>State</i>	:	Solid, flake
<i>Flash Point</i>	:	172 (liquid)
<i>Relative Vapor Density</i>	:	1.176
<i>Vapour Pressure</i>	:	2E-5 kPa(15E-5 mmHg) at 25C
<i>Octanol/Water Partition Coefficient</i>	:	log Pow = -0.47 at 26C experimental
<i>Water Solubility</i>	:	>100 g/L at room temp.
<i>Colour</i>	:	Colourless
<i>Impurities</i>	:	TMP-monomethyl ether, TMP-methyl formal
<i>General Comments</i>	:	Non-volatile; stable in neutral, acidic or alkaline solutions.

Overall Evaluation

PRESENTLY OF LOW CONCERN

SIDS INITIAL ASSESSMENT

2-Ethyl-2-(hydroxymethyl)-1,3-propanediol is stable solid, and the production volume is ca. 25000 tonnes/year for 1992 in Germany and ca. 11000 tonnes/year for 1985 and 12000 tonnes (including import) for 1991, respectively, in Japan. This chemical is used mainly as raw material for various resinous materials in closed system. This chemical is stable in neutral, acidic or alkaline solutions, and is classified as "not readily biodegradable" and "low bioaccumulation potential". This chemical is used as intermediate in closed system.

The chemical is non-toxic to fish, algae and daphnids. The chemical showed no genotoxic effects, and NOEL for repeated dose toxicity was 200 mg/kg/day and NOEL for reproductive toxicity was 800 mg/kg/day. Estimated dose of low concern (EDLC) was calculated as 0.2 mg/kg/day and 8 mg/kg/day for repeated dose toxicity and reproductive toxicity, respectively.

Daily intake of the chemical was estimated as 9.35E-4 mg/day from calculation using MNSEM 145I exposure model. Therefore health risk from general environment is presumably to be low because estimated human exposure (EHE) level of this chemical is lower than EDLC values.

ENVIRONMENTAL EXPOSURE

ESTIMATION OF ENVIRONMENTAL FATE, PATHWAY AND CONCENTRATION

Comparison of calculated environmental concentration using several models:

MNSEM Model:

Air: 7.96E-10 ug/L; water: 0.426 ug/L; soil: 0.0204 ug/kg; sediment: 0.947 ug/kg

CHEMCAN2 Model:

Air: 1.47E-11 ug/L; water: 0.427 ug/L; soil: 1.47E-5 ug/kg; sediment: 0.113 ug/kg

CHEMFRAN Model:

Air: 1.08E-12 ug/L; water: 0.427 ug/L; soil: 7.2E-7 ug/kg; sediment: 0.113 ug/kg

UKMODEL Model:

Air: 1.55E-8 ug/L; water: 0.426 ug/L; soil: 0.154 ug/kg; sediment: 0.307 ug/kg

CONSUMER EXPOSURE

No specific information were provided on consumer exposure. From present information on uses, consumer exposure seems to be low because the chemical is used as raw material for synthesis of various resinous materials.

OCCUPATIONAL EXPOSURE

Since processes are continuous closed system, occupational exposure seems to be low under usual processes. In Sweden, two products containing this chemical are produced in 1 site each.

1. Mixture of trimethylolpropane and pentaerythritol

Use: a component in PVC stabilizers

Work place exposure: occasional exposure (0.5 hour/week)

TLV values: 5 mg/m³

Release to the environment: >90% to water

Occupational exposure: no details available since this exposure is confined to customer's plants.

2. Mixture of mono-, di-, tri-methylolpropane and their acetals, formals, hemiacetals, hemiformals and methyl ethers

Use: a reactant in the production of polyesters

Work place exposure: occasional exposure (0.5 hour/week)

TLV values: not established

Release to the environment: >90% to water

Occupational exposure: no details available since this exposure is confined to customer's plants.

However, no other specific information were provided on occupational exposure.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, although 2-ethyl-2-(hydroxymethyl)-1,3-propanediol is persistent and toxicological tests showed moderate toxicity, no further testing are needed at present considering its use pattern and exposure levels.

Production-Trade

Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Geographic Area : **JPN**

Production

<u>Quantity</u>	<u>Year</u>
11000 t - P	1985
10000 t - P	1991
2000 t - IM	1991

References

!SIDSP*

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 4, (1994)

Production-Trade

Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Geographic Area : **DEU**

Production

<u>Quantity</u>	<u>Year</u>
25000 t - P	1992

References

!SIDSP*

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 4, (1994)

Processes

Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

Process

Process comments : Formaldehyde + Sodium hydroxide + Butyl aldehyde (Reaction) -> Condensation -> Extraction -> Product -> Purification Continuous closed systems

References

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 5, (1994)

Uses

Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Geographic Area : **ASIA**
Area Specifications : **E**

Use

<u>Quantity</u>	<u>Year</u>	<u>Comments</u>
7500 t		Paint resin
1500 t		Urethane resin
1400 t		Setting resin by UV ray
800 t		Synthetic lubricating oil
1200 t		Other uses

References

Secondary References : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High
Production Volume Chemicals Programme, 5, (1994)

Study

End Point : **CONCENTRATION**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Geographic Area : **JPN**

Species/strain/system : Air, water, soil and sediment

Test Method and Conditions

Test method description : Multi-Phase Non-Steady Equilibrium Model for Evaluation of Fate of Chemicals in Environment Consisting of Air, Water, Soil and Sediment Phases. Version 1.4.5.I also called MNSEM 145I. (Presented by Kikuo Yoshida).

Test Results

<u>Matrix</u>	<u>Concentrations</u>	<u>Spec.</u>	<u>Date</u>
AIR	7.86E-13 mg/L 1.43E-10 ppm also reported. In air steady state mass = 1.57g		
WATER	4.26E-4 mg/L In water steady state mass = 8.52E+6 g		
SOIL	2.04E-5 mg/kg In soil steady state mass = 3.26E+4 g		
SED	9.47E-4 mg/kg In sediment steady state mass = 9.47E+4 g		

General Comments : All above given values are calculated.

References

Primary Reference : **#URMEA***
 Unpublished Report on Exposure Estimation Test conducted by MITI and Environmental Agency, Japan

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

Study

End Point : **CONCENTRATION**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Geographic Area : **JPN**

Species/strain/system : Meat, milk and vegetation

Test Results

FOOD **5.16E-11 mg/L**
In meat and in milk

PLANT **2.15E-4 mg/L**
In vegetation

General Comments : All above given values are calculated.

References

Primary Reference : **#URMEA***
Unpublished Report on Exposure Estimation Test conducted by MITI and
Environmental Agency, Japan

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 : **Trimethylolpropane**
CAS Number : **77-99-6**
Geographic Area : **JPN**

Test Subject

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

AIR -
AQ **FRESH**
FOOD -

Species/strain/system : Air, drinking water, fish, meat, milk and vegetables.

Test Method and Conditions

Test method description : Multi-Phase Non-Steady State Equilibrium Model for Evaluation of Fate of Chemicals in Environment Consisting of Air, Water, Soil and Sediment Phases. Version 1.4.5I also called MNSEM 145I. (Presented by Kikuo Yoshida).

Test Results

Intake *Spec.* *Date*

1.51E-8 mg/d

Through inhalation of air

8.52E-4 mg/d

Through drinking water

2.05E-6 mg/d

Through ingestion of fish

3.83E-12 mg/d

Through ingestion of meat

6.30E-12 mg/d

Through ingestion of milk

8.02E-5 mg/d

Through ingestion of vegetables

9.35E-4 mg/d

Total exposure dose

References

Primary Reference : **#URMEA***
 Unpublished Report on Exposure Estimation Test conducted by MITI and Environmental Agency, Japan

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

Test Subject

Organism Medium Specification

SLUDG

Species/strain/system : Activated study (standard) 30 mg/L as suspended solid.

Test Substance

Purity Grade : **99%**

Test Method and Conditions

Test method description : OECD Guideline 301C. GLP: yes. Sludge samples were mixed by stirring in a single container and then cultured at 25C for 1 month.
Temperature : **25 C**

(An)aerobic : **AEROB**

Exposure

Exposure Period : **14 d**
Dose / Concentration : **100 mg/L**

Test Results

<u>Quantity</u>	<u>Time</u>	<u>Comments on result</u>
2.5 %	AV	Degree of biodegradation from BOD7
2.4 %	AV	Degree of biodegradation from BOD14
4 %	AV	Degree of biodegradation from DOC
3 %	AV	Degree of biodegradation from HPLC
<i>General Comments</i>	:	These results indicate that the chemical should be classified as "not readily biodegradable".

References

Primary Reference : **#MITIT***
 Test conducted by the Ministry of International Trade and Industry (MITI), Japan

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

Study

End Point : **PHOTODEGRADATION**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

Test Method and Conditions

Test method description : Handbook of chemical properties estimation method. W. J. Lyman et al. (McGraw Hill book Co. 1981).

Exposure

Dose / Concentration : **6.7 mg/L**

Test Results

<u>Quantity</u>	<u>Time</u>	<u>Comments on result</u>
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50 %	306 d	Estimated half-life.
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General Comments : No decomposition at room temperature but strong hygroscopic property. Photolysis at photochemical degradation rate = $1.31\text{E-}12$ mol/L/s. Depth in the water body = 500 cm. Conversion constant = $6.023\text{E}+20$. Quantum yield for disappearance of chemical by photolysis under solar irradiation = 0.01.

References

Primary Reference : **#MITIT***
Test conducted by the Ministry of International Trade and Industry (MITI), Japan

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

Study

End Point : **HYDROLYSIS**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**
Geographic Area : **JPN**

Test Substance

Purity Grade : **99.2%**

Test Method and Conditions

Test method description : OECD Guideline 111.
Temperature : **25 C**
pH : **4.0-9.0**

Test Results

<u>Quantity</u>	<u>Time</u>	<u>Comments on result</u>
50 %	>1 y	Half-life in pH 4.0, 7.0 and 9.0.

References

Primary Reference : **#MITIT***
Test conducted by the Ministry of International Trade and Industry (MITI), Japan

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

Study

End Point : **BIOCONCENTRATION**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

Test Substance

Purity Grade : **99%**

Test Method and Conditions

Test method description : OECD Guideline 305C. Flow-through test. GLP: yes

Exposure

Exposure Period : **6 wk**

Test Results

<i>Organ</i>	<i>Bioconcent. Factor</i>	<i>Calc Basis</i>	<i>Time</i>	<i>State</i>	<i>Comments on result</i>
	<1		6 wk		Log BCF, level 1 exposure.
	-1		6 wk		Log BCF, level 2 exposure.

References

Primary Reference : **#MITIT***
Test conducted by the Ministry of International Trade and Industry (MITI), Japan

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 : **Trimethylolpropane**
CAS Number : **77-99-6**

Species/strain/system : Rat, strain not specified
Dose / Concentration : **14100 mg/kg**

Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RAT			ORL	ADULT		LD50	Oral LD50 for rats was established as 14100 mg/kg under the test conditions.

References

Primary Reference : **HYSAAV**
Stankevich, V. V. Hygiene and Sanitation, 32(5), 288-291, (1967)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 16, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

Species/strain/system : Mouse, strain not specified
Dose / Concentration : **13700 mg/kg**

Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
MOUSE			ORL	ADULT		LD50	Oral LD50 for mice was established as 13700 mg/kg under the test conditions.

References

Primary Reference : **HYSAAV**
Stankevich, V. V. Hygiene and Sanitation, 32(5), 288-291, (1967)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 16, (1994)

Study

End Point : MAMMALIAN ACUTE TOXICITY
 Chemical Name : Trimethylolpropane
 CAS Number : 77-99-6

Species/strain/system : Rat, strain not specified
 Dose / Concentration : 2500 mg/kg

Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RAT			ORL	ADULT		LD50	Oral LD50 for rats was established as >2500 mg/kg under the test conditions.

References

Primary Reference : #BATUR*
 Kimmerle. Bayer Institute of Toxicology, Unpublished Report, (1965)

Secondary Reference : !SIDSP*
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 16, (1994)

Study

End Point : MAMMALIAN ACUTE TOXICITY
 Chemical Name : Trimethylolpropane
 CAS Number : 77-99-6

Species/strain/system : Rat, strain not specified
 Dose / Concentration : 5000 mg/kg

Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RAT			ORL	ADULT		LD50	Oral LD50 for rats was established as >5000 mg/kg under the test conditions.

References

Primary Reference : #BATUR*
 Loeser, E. Bayer Institute of Toxicology, Unpublished Report, (1980)

Secondary Reference : !SIDSP*
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 16, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

Species/strain/system : Rat, strain not specified
Exposure Period : **4 h**
Dose / Concentration : **0.85 mg/L**

Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RAT			IHL	ADULT		LD50	Inhalation LD50 for rats was established as >0.85 mg/L/4 h under the test conditions.

References

Primary Reference : **#BATUR***
Kimmerle. Bayer Institute of Toxicology, Unpublished Report, (1965)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 17, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

Species/strain/system : Rat, strain not specified
Exposure Period : **4 h**
Dose / Concentration : **0.29 mg/L**

Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RAT			IHL	ADULT		LD50	Inhalation LD50 for rats was established as >0.29 mg/L/4 h under the test conditions.

References

Primary Reference : **#BATUR***
Kimmerle. Bayer Institute of Toxicology, Unpublished Report, (1965)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 17, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

Species/strain/system : Rabbit, strain not specified
Exposure Period : **4 h**
Dose / Concentration : **0.29 mg/L**

Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RBT			IHL	ADULT		LD50	Inhalation LD50 for rabbits was established as >0.29 mg/L/4h under the test conditions.

References

Primary Reference : **#BATUR***
Kimmerle. Bayer Institute of Toxicology, Unpublished Report, (1965)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 17, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

Species/strain/system : Mouse, strain not specified
Exposure Period : **4 h**
Dose / Concentration : **0.29 mg/L**

Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
MOUSE			IHL	ADULT		LD50	Inhalation LD50 for mice was established as >0.29 mg/L/4 h under the test conditions.

References

Primary Reference : **#BATUR***
Kimmerle. Bayer Institute of Toxicology, Unpublished Report, (1965)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 17, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

Species/strain/system : Guinea pig, strain not specified
Exposure Period : **4 h**
Dose / Concentration : **0.29 mg/L**

Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
GPIG			IHL	ADULT		LD50	Inhalation LD50 for guinea pigs was established as >0.29 mg/L/4 h, under the test conditions.

References

Primary Reference : **#BATUR***
Kimmerle. Bayer Institute of Toxicology, Unpublished Report, (1965)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 17, (1994)

Study

End Point : **MAMMALIAN ACUTE TOXICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

Species/strain/system : Rat, strain not specified
Dose / Concentration : **500 mg/kg**

Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RAT			SKN	ADULT		LD50	Dermal LD50 for rats was established as >500 mg/kg.

References

Primary Reference : **#BATUR***
Kimmerle. Bayer Institute of Toxicology, Unpublished Report, (1965)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 17, (1994)

Study

End Point : MAMMALIAN TOXICITY
 Chemical Name : Trimethylolpropane
 CAS Number : 77-99-6
 Study type : LAB

Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
RAT			ORL	ADULT	M	12/GROUP	12
					F	12/GROUP	12

Species/strain/system : Rat, Slc:SD

Test Substance

Purity Grade : 99.9%
 Vehicle - Solvent : Distilled water

Test Method and Conditions

Test method description : OECD Combined Repeat Dose and Reproductive/Developmental Toxicity Screening Test. GLP: yes

Exposure

Exposure Type : SHORT
 Exposure Period : 42 d
 Frequency : 1 X/d
 Dose / Concentration : 12.5-800 mg/kg
 Exposure comments : Doses of 0, 12.5, 50, 200 and 800 mg/kg/day were applied in oral gavage for 42 days to the males and from 14 days before mating to day 3 of lactation to the females.

Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
BW	DECR				
Body weight of both male and female animals receiving 800 mg/kg were lower than that of the control group during premating period.					
LIVER	SIZE				
Liver weights (absolute and relative) were elevated in male rats and seemed to be elevated in female rats, receiving 800 mg/kg.					
KIDNEY	CELL			F	
Slight tubular basophilic change of tubular epithelial cells was observed in the female rats receiving 50 mg/kg, 2 female rats receiving 200 mg/kg and 5 female rats receiving 800 mg/kg.					
KIDNEY	CELL			M	
Basophilic change of tubular epithelial cells was observed in male rats of all dose groups.					

NOAEL

No observed adverse effect level was established at 200 mg/kg/day.

EDLC

Estimated dose of low concern was calculated as 0.2 mg/kg/day.

General Comments : Necropsy revealed hypertrophy of the liver in 3 male rats receiving 800 mg/kg. However, histopathological examination revealed no evident morphological lesions interpreting hypertrophy of the liver.

References

- Primary Reference* : **#URMHW***
Unpublished Report on Combined Repeated Dose and Reproductive/ Developmental Toxicity Screening Test conducted by the Ministry of Health and Welfare (MHW), Japan
- Secondary Reference* : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 19-20, (1994)

Study

End Point : **MAMMALIAN TOXICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

RAT **IHL** **ADULT**

Species/strain/system : Rat, strain not specified

Test Method and Conditions

Test method description : Repeated dose toxicity screening test.

Exposure

Exposure Type : **SHORT**
Exposure Period : **3.5 mo**
Dose / Concentration : **0.13-1.1 mg/L**

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
PNS	CHNG				
Signs of increased neuromuscular excitability were observed after exposure to 1.1 mg/L beginning with the 8th week of the experimental period and after exposure to 0.13 mg/L beginning with the 12th week.					
ADREN	SIZE				
There was an increase in the relative weight of the adrenal glands in the groups receiving 1.1 mg/L.					
LUNG	CHNG				
There was report of focal emphysema and interstitial pneumonia (concentration not specified).					
KIDNY	CHNG				
There was a moderate parenchymatous degeneration of the kidney (concentration not specified).					
HEART	CHNG				
There was a moderate parenchymatous degeneration of the heart (concentration not specified).					

References

<i>Primary Reference</i>	:	HYSAAV Stankevich, V. V. Hygiene and Sanitation, 32(5), 288-291, (1967)
<i>Secondary Reference</i>	:	!SIDSP* OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 20-21, (1994)

Study

<i>End Point</i>	:	MAMMALIAN TOXICITY
<i>Chemical Name</i>	:	Trimethylolpropane
<i>CAS Number</i>	:	77-99-6
<i>Study type</i>	:	LAB

Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
RAT			ORL	ADULT			
<i>Species/strain/system</i>	:	Rat, Wistar					

Test Substance

<i>Vehicle - Solvent</i>	:	Food
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Test Method and Conditions

<i>Test method description</i>	:	90 days feeding for repeated dose toxicity screening test.
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Exposure

Exposure Type : **SHORT**
Exposure Period : **90 d**
Dose / Concentration : **0.03-1.0 %**
Exposure comments : The test substance was given in food at concentrations : 0, 0.03, 0.1, 0.3 and 1% (=ca. 20, 67, 200, 667 mg/kg/day) for 90 days.

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
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BLOOD CHEM

Decreased activity of SGPT and of serum alkaline phosphatase only in males, was observed at 0.3% dose level, and both sexes at the dose level of 1%.

LIVER SIZE **KIDNY SIZE** **SPLN SIZE**

Increased average relative weights of these organs as well as the enlargement of the spleens were observed.

SPLN CHNG

Treatment related changes: increase in red pulp in the spleen were observed at the exposure to 1% of the test substance in daily feeding.

LIVER CHNG

Treatment related following changes in the liver were observed at 1% level: kupffer cells loaded with pigment (only in females), sinusoids containing normoblasts and an increased number of small lymphocytes.

BLOOD CHNG **CHEM**

Slight decrease in hemoglobin contents and decreased number of red blood cells in the females of 1% dose group.

BLOOD CELL

Cell fragmentation was seen in the blood smears (normoblasts and white blood cell fragments) in the animals receiving 1% dose level.

NOEL

The dose at which no substance related effects were observed was ca. 67 mg/kg/day.

References

Primary Reference : **CIVVR***
 de Knecht-van Eckelen, A. M. et al. Centraal Instituut voor Voldingsonderzoek, Report, R2948, (1969)

Secondary Reference : **!SIDSP***
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 22, (1994)

Study

End Point : MAMMALIAN TOXICITY
 Chemical Name : Trimethylolpropane
 CAS Number : 77-99-6
 Study type : LAB

Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

RAT ORL ADULT

Species/strain/system : Rat, strain not specified

Test Method and Conditions

Test method description : 5-month feeding for repeated dose toxicity screening test.

Exposure

Exposure Type : SHORT
 Exposure Period : 5 mo
 Dose / Concentration : 1500-3000 mg/kg
 Exposure comments : Oral administration of 0, 1500 and 3000 mg/kg/day in food for the period of 5 months.

Test Results

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

In both dose groups no substance related effects were observed under the test conditions.

General Comments : Both dose groups manifested normal weight gain during this 5-month feeding experiment.

References

Secondary Reference : !SIDSP*
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 23, (1994)

Study

End Point : MAMMALIAN TOXICITY
 Chemical Name : Trimethylolpropane
 CAS Number : 77-99-6
 Study type : LAB

Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

RBT SKN ADULT

Species/strain/system : Rabbit, strain not specified

Test Substance

Vehicle - Solvent : Distilled water

Exposure

Exposure Type : **SHORT**

Exposure Period : **3 mo**

Frequency : **1 xd**

Dose / Concentration : **0.5 mL**

Exposure comments : 0.5 mL of 50% aqueous solution/animal/day was applied for a period of 3 months.

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
SKIN	NEF				

No visible effects at the site of application were observed.

NEF

No change in the general condition of the animals was observed under the test conditions.

References

Primary Reference : **HYSAAV**

Stankevich, V. V., Hygiene and Sanitation, 32(5), 288-291, (1967)

Secondary Reference : **!SIDSP***

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 21, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

General Comments : Testing for the mutagenicity potential of the test substance brought negative results under the test conditions.

References

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
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

Test Substance

Vehicle - Solvent : Distilled water

Test Method and Conditions

Test method description : Japanese Guideline for Screening Mutagenicity Testing of Chemicals. GLP: yes

Exposure

Dose / Concentration : **312.5-5000 ug**
Exposure comments : Doses of 0, 312.5, 625, 1250 and 5000 ug/plate were used in 3 plates/test in 2 replicates, with and without metabolic activation. Positive control: -S9; AF-2 for strains TA98 and TA100, 9-aminoacridine for TA1537 strain and sodium azide for TA1535 strain; +S9 cultures received 2-aminoanthracene (all strains).

CELL

Minimum concentration of the test substance at which toxicity to bacteria was observed was >5000 ug/plate with and without metabolic activation.

NEF

All strains of bacteria cultured with and without metabolic activation at all dose levels did not show any mutagenic effect to the test substance.

General Comments : The test material was classified as "negative" under the experimental conditions used.

References

Primary Reference : **#MOMHW***
Chemical Report submitted by the Ministry of Health and Welfare, Japan

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 23-24, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

BACT

VTR

Species/strain/system : Escherichia coli WP2 uvrA

Test Substance

Purity Grade : **99.9%**
Vehicle - Solvent : Distilled water

Test Method and Conditions

Test method description : Japanese Guideline for Screening Mutagenicity Testing of Chemicals. GLP: yes

Exposure

Dose / Concentration : **312.5-5000 ug**
Exposure comments : Doses of 0, 312.5, 625, 1250 and 5000 ug/plate were used in 3 plates/test in 2 replicates, with and without metabolic activation. Positive control: -S9 received AF-2; +S9 received 2-aminoanthracene.

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
CELL					

Minimum concentration of the test substance at which toxicity to bacteria was observed was >5000 ug/plate with and without metabolic activation.

NEF

There was no mutagenic effect observed at all dose levels with or without metabolic activation.

General Comments : The test material was classified as "negative" under the experimental conditions used.

References

- Primary Reference* : **#MOMHW***
Chemical Report submitted by the Ministry of Health and Welfare, Japan
- Secondary Reference* : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 23-24, (1994)
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Study

End Point : **MUTAGENICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
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 and TA1538

Test Method and Conditions

Test method description : No information was provided.

Exposure

Exposure comments : No information on dosage levels used in the testing was provided.

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	NEF				

No mutagenic effects were observed under the test conditions.

References

- Primary Reference* : **JETOC***
JETOC Newsletter, 4, 14-20, (1985)
- Secondary Reference* : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 24, (1994)
-

Study

End Point : **MUTAGENICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

BACT

VTR

Species/strain/system : Escherichia coli WP2 uvrA

Test Method and Conditions

Test method description : No information was provided.

Exposure

Exposure comments : No information on dosage levels used in the testing was provided.

Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
-----	-----	-----	-----	-----	-----
	NEF				

No mutagenic effects were observed under the test conditions.

References

Primary Reference : **JETOC***
JETOC Newsletter, 4, 14-20, (1985)

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High
Production Volume Chemicals Programme, 24, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

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 : No information were provided.

Exposure

Exposure comments : No information on dose levels were provided.

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
NEF					

The test substance did not produce mutagenic effects in the strains TA98, TA100, TA1535 and TA1537 with and without metabolic activation.

References

- Primary Reference* : **#BATUR***
Bayer, A. G. Bayer Institute of Toxicology, Unpublished Report, 18022, (1989)
- Secondary Reference* : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 24-25, (1994)

Study

End Point : **MUTAGENICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
HAMST			VTR				

Species/strain/system : Chinese hamster CHL cells

Test Substance

Purity Grade : **99.9%**
Vehicle - Solvent : Distilled water

Test Method and Conditions

Test method description : Japanese Guideline for Screening Mutagenicity Testing of Chemical. GLP: yes

Exposure

Dose / Concentration : **0.34-1.34 mg/mL**
Exposure comments : Positive control: -S9 mitomycin C, +S9 cyclophosphamide. 2plates/test.
 Doses: 0.034, 0.67, 1.34 mg/mL were used for -S9 and +S9.

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
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CELL

The lowest concentration of test substance producing cell toxicity was >1.5 mg/mL with metabolic activation and 1.5 mg/mL without metabolic activation.

NEF

There was no mutagenic effects observed under the test conditions.

General Comments : The test material was classified as "negative" under the experimental conditions used.

References

Primary Reference : **#MOMHW***
Chemical Report submitted by the Ministry of Health and Welfare, Japan

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High
Production Volume Chemicals Programme, 25, (1994)

Study

End Point : IRRITATION
 Chemical Name : Trimethylolpropane
 CAS Number : 77-99-6
 Study type : LAB

Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

RBT SKN ADULT

Species/strain/system : Rabbit, strain not specified

Exposure

Exposure Type : SHORT
 Exposure Period : 24 h
 Dose / Concentration : 500 mg
 Exposure comments : Single dose of 500 mg/animal was applied to the skin of rabbit's ears using semi-occlusive method. Exposure time of 24 hours was followed by a 7-day observation period.

Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in</u> <u>Exposed - Controls</u>
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SKIN	NEF				

There was no skin irritation under the test conditions.

References

Primary Reference : BADSR*
 Thyssen, J. Bayer AG Data, Short Report, (1979)

Secondary Reference : !SIDSP*
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 17-18, (1994)

Study

End Point : IRRITATION
 Chemical Name : Trimethylolpropane
 CAS Number : 77-99-6
 Study type : LAB

Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

RBT SKN ADULT

Species/strain/system : Rabbit, strain not specified

Exposure

Exposure Type : **SHORT**
Exposure comments : Test substance was applied to the skin of rabbit's ears. Observation period: 7 days.

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
SKIN	NEF				

No skin irritation was observed under the test conditions.

References

Primary Reference : **BADSR***
 Kimmerle. Bayer AG Data, Short Report, (1965)

Secondary Reference : **!SIDSP***
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 17-18, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
RBT			OCU	ADULT			

Species/strain/system : Rabbit, strain not specified

Exposure

Exposure Type : **SHORT**
Dose / Concentration : **50 mg**
Exposure comments : Single dose of 50 mg/animal was applied to rabbit's eyes, followed by a 7-day observation period.

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
EYE	NEF				

No effect of eye irritation was observed under the test conditions.

References

- Primary Reference* : **BADSR***
Thyssen, J. Bayer AG Data, Short Report, (1979)
- Secondary Reference* : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 18, (1994)

Study

End Point : **IRRITATION**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

RBT **OCU** **ADULT**

Species/strain/system : Rabbit, strain not specified

Exposure

Exposure Type : **SHORT**
Exposure comments : No information on test method, substance dose or observation period were provided.

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
EYE	NEF				

No signs of eye irritation was observed under the test conditions.

References

- Primary Reference* : **BADSR***
Thyssen, J. Bayer AG Data, Short Report, (1979)
- Secondary Reference* : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, 18, (1994)

Study

End Point : REPRODUCTION
 Chemical Name : Trimethylolpropane
 CAS Number : 77-99-6
 Study type : LAB

Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
RAT			ORL	ADULT	M	12/GROUP	12
					F	12/GROUP	12

Species/strain/system : Rat, Slc:SD

Test Substance

Purity Grade : 99.9%
 Vehicle - Solvent : Distilled water

Test Method and Conditions

Test method description : OECD Combined Repeat Dose and Reproductive/Developmental Toxicity Screening Test. GLP: yes

Exposure

Exposure Type : SHORT
 Exposure Period : 42 d
 Dose / Concentration : 12.5-800 mg/kg
 Exposure comments : Doses of 0, 12.5, 50, 200, 800 mg/kg/day were given orally (gavage) for 42 days to male rats and from day 14 before mating to day 3 of lactation to female rats.

Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
NOAEL					

No adverse effects level for the parental generation was established as 800 mg/kg.

NEF

No significant toxic effects were observed on fertility, gestation or reproductive organ toxicity.

EDLC

Estimated dose of low concern was calculated as 8 mg/kg/day.

General Comments : There were no effects of test substances on copulation, fertility and estrus cycle of rats. Delivery was normal for all dams. No effects of test substances on dams during the lactation period were observed. External examination of pups revealed no increase in the incidence of abnormal pups. Body weight gain of pups was normal up to day 4 of lactation period. Stillborn, dead pups and pups killed at day 4 of lactation period showed no abnormal gross lesions suggested to be attributable to the treatment with test substance.

References

Primary Reference : **#URMHW***
Unpublished Report on Combined Repeated Dose and Reproductive/
Developmental Toxicity Screening Test conducted by the Ministry of Health
and Welfare (MHW), Japan

Secondary Reference : **!SIDSP***
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High
Production Volume Chemicals Programme, 27, (1994)

Study

End Point : **AQUATIC ACUTE TOXICITY**
Chemical Name : **Trimethylolpropane**
CAS Number : **77-99-6**

Exposure Period : **48 h**
Dose / Concentration : **1000 mg/L**

Test Method and Conditions

Test method description : JIS KO102. Static test. GLP: no

Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
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LC50 LC50 for 48 hours > 1000 mg/L (w/v).
(Results reported as ppm w/v).

References

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 : **Trimethylolpropane**
CAS Number : **77-99-6**

Species/strain/system : Golden orfe (*Leuciscus idus*)
Exposure Period : **48 h**
Dose / Concentration : **1000 mg/L**

Test Method and Conditions

Test method description : Freetext type method.

Test Results

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

- Primary Reference* : **#BATUR***
Bayer, A. G. Bayer Institute of Toxicology, Unpublished Report
- 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 : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

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 : OECD Guideline. GLP: no

Exposure

Exposure Type : **ACUTE**
Exposure Period : **72 h**

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	EC50				

EC50 for 72 hours > 1000 mg/L (w/v). (Reported as EbC50 > 1000 ppm (w/v)).

References

Primary Reference : **#URTEA***
EA. Unpublished Toxicity Test conducted by the Environmental Agency, (EA), Japan

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 : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

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 : OECD Guideline. GLP: no. Probit method used to calculate values.

Exposure

Exposure Type : **ACUTE**
Exposure Period : **24 h**
Dose / Concentration : **1000 mg/L**

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

EC0

EC0 for 24 hours > 1000 mg/L (w/v). Reported as ppm (w/v).

EC50

EC50 for 24 hours > 1000 mg/L (w/v). Reported as ppm (w/v).

References

Primary Reference : **#URTEA***
 EA. Unpublished Toxicity Test conducted by the Environmental Agency, (EA), Japan

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 : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

CRUS **AQ** **ESTUA**

Species/strain/system : Harpacticoid (Nitocra spinipes)

Exposure

Exposure Type : **ACUTE**
Exposure Period : **96 h**
Dose / Concentration : **1000 mg/L**

Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in</u> <u>Exposed - Controls</u>
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EC50

EC50 for 96 hours > 1000 mg/L.

References

Primary Reference : **MPNBAZ**
 Bengtsson, B. E. and Tarkpea, M. Marine Pollution Bulletin, 14(6), 213-214, (1983)

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 : **Trimethylolpropane**
CAS Number : **77-99-6**
Study type : **LAB**

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**
 Dose / Concentration : **13000 mg/L**

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
EC50					
EC50 for 48 hours = 13000 mg/L.					

References

Primary Reference : **WJTFA***
 Walton, J. R. and Davis, E. M. Toxicology and Fate of Selected Industrial Chemicals in Aquatic Ecosystems. Final Report, 91, (1980)

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

Study

End Point : **AQUATIC TOXICITY**
 Chemical Name : **Trimethylolpropane**
 CAS Number : **77-99-6**
 Study type : **LAB**

Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
CRUS	AQ	FRESH					
Species/strain/system : Water flea (Daphnia magna)							

Test Method and Conditions

Test method description : OECD Guideline. Static test. GLP: no

Exposure

Exposure Type : **LONG**
 Exposure Period : **21 d**
 Dose / Concentration : **1000 mg/L**

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
NOEL					
No observed effect concentration (maximum) for 21 days > 1000 mg/L (w/v). (Reported as ppm (w/v)).					

References

<i>Primary Reference</i>	:	#URTEA* Unpublished Toxicity Test conducted by the Environmental Agency, (EA), Japan
<i>Secondary Reference</i>	:	!SIDSP* OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

<i>End Point</i>	:	AQUATIC TOXICITY
<i>Chemical Name</i>	:	Trimethylolpropane
<i>CAS Number</i>	:	77-99-6
<i>Study type</i>	:	LAB

Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

FISH **AQ** **FRESH**

Species/strain/system : Orange-red Killifish (*Oryzias latipes*)

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : OECD Guideline, semi-static test. GLP: no

Exposure

Exposure Type : **ACUTE**
Exposure Period : **24-96 h**
Exposure comments : Doses were also tested for 48 and 72 hours.

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
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LC0

LC0 for 24, 48, 72 and 96 hours = 1000 mg/L (w/v). (Results reported as ppm).

LC50

LC50 for 24, 48, 72 and 96 hours > 1000 mg/L.

References

<i>Primary Reference</i>	:	#URTEA* Unpublished Toxicity Test conducted by the Environmental Agency, (EA), Japan
<i>Secondary Reference</i>	:	!SIDSP* OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

<i>End Point</i>	:	AQUATIC TOXICITY
<i>Chemical Name</i>	:	Trimethylolpropane
<i>CAS Number</i>	:	77-99-6
<i>Study type</i>	:	LAB

Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

FISH **AQ** **MARIN**

Species/strain/system : Sea lamprey (*Petromyzon marinus*)

Test Method and Conditions

Test method description : Freetext type method.

Exposure

Exposure Type : **ACUTE**
Exposure Period : **24 h**
Dose / Concentration : **5 mg/L**

Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
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	LC0				
LC0 for 24 hours >= 5 mg/L.					

References

<i>Primary Reference</i>	:	ASSRF* Applegate, V. C. et al. Special Scientific Report-Fisheries, 207, (1957)
<i>Secondary Reference</i>	:	!SIDSP* OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Substance

Chemical Name : 1,3-PROPANEDIOL,2-ETHYL-2-(HYDROXYMETHYL)-
 Reported Name : TRIMETHYLOL PROPANE
 CAS Number : 77-99-6

Area Type Subject Spec. Description Level / Summary Information :

GBR	REG	TRANSP AQ	MARIN EMI	RQR RSTR RSTR	CATEGORY D SUBSTANCE: DISCHARGE INTO THE SEA IS PROHIBITED; DISCHARGE OF RESIDUAL MIXTURES IS SUBJECT TO RESTRICTIONS. <u>Title :</u> THE MERCHANT SHIPPING (CONTROL OF POLLUTION BY NOXIOUS LIQUID SUBSTANCES IN BULK) REGULATIONS 1987, SCHEDULE 1
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<u>Reference</u> :	GBRSI*, 551, 15, 1987 STATUTORY INSTRUMENTS	<u>Effective Date</u> :	06APR1987
<u>Last Amendment</u> :	GBRSI*, 2604, 2, 1990 STATUTORY INSTRUMENTS	<u>Entry / Update</u> :	1992

Substance

Chemical Name : 1,3-PROPANEDIOL,2-ETHYL-2-(HYDROXYMETHYL)-
 Reported Name : TRIMETHYLOLPROPANE
 CAS Number : 77-99-6

Area Type Subject Spec. Description Level / Summary Information :

RUS	REG	AIR	OCC	MAC CLASS	CLV: 50.0MG/M3 (VAPOUR) HAZARD CLASS: IV <u>Title :</u>
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<u>Reference</u> :		<u>Effective Date</u> :	01JAN1989
<u>Last Amendment</u> :	GOSTS*, 12.1.005, 1988 GOSUDARSTVENNYI STANDART SSSR (STATE STANDARD OF USSR)	<u>Entry / Update</u> :	MAY1990

Substance

Chemical Name : 1,3-PROPANEDIOL,2-ETHYL-2-(HYDROXYMETHYL)-
 Reported Name : TRIMETHYLOL PROPANE
 CAS Number : 77-99-6

Area Type Subject Spec. Description Level / Summary Information :

USA	REG	FOOD TRANS STORE PACK	ADDIT	RSTR RSTR RSTR RSTR	; Summary - THIS SUBSTANCE IS INCLUDED ON A LIST OF SUBSTANCES USED TO PREPARE ADHESIVES WHICH MAY BE SAFELY USED AS COMPONENTS OF ARTICLES INTENDED FOR USE IN PACKAGING, TRANSPORTATION, OR HOLDING FOOD IN ACCORDANCE WITH THE FOLLOWING PRESCRIBED CONDITIONS: SUBSTANCE MUST BE SEPARATED FROM THE FOOD BY A FUNCTIONAL BARRIER, MUST NOT EXCEED LIMITS OF GOOD MANUFACTURING PRACTICE USED WITH DRY FOODS, OR NOT EXCEED TRACE AMOUNTS AT SEAMS AND EDGE EXPOSURES WHEN USED WITH FATTY AND AQUEOUS FOODS. ALSO REGULATED BY SEA M INTEGRITY, LABELING STANDARDS, AND ANY PROVISION UNDER 21 CFR 175 <u>Title :</u> SUBSTANCES FOR USE ONLY AS COMPONENTS OF ADHESIVES
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<u>Reference</u> :	FEREAC, 42, 14534, 1977 Federal Register	<u>Effective Date</u> :	1977
<u>Last Amendment</u> :	CFRUS*, 21, 175, 105, 1988 Code of Federal Regulations	<u>Entry / Update</u> :	NOV1991

