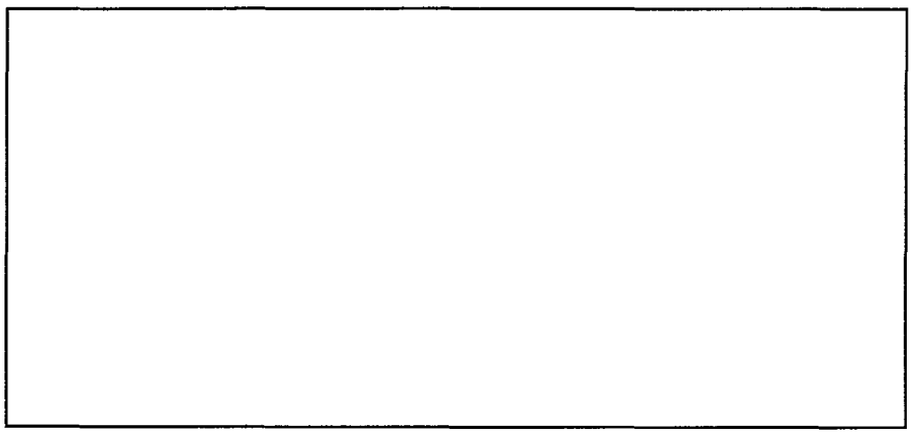


Printing Date 2008-10-07 10:57:17 PDT

Restriction of specific regulatory purposes

US: EPA HPVC

Confidentiality

Name 2-nitro-2-ethyl-1,3-propanediol

Legal entity owner DOW Europe GmbH / Horgen / Switzerland

Substance: 2-nitro-2-ethyl-1,3-propanediol

UUID	IUC5-33e9d5c9-0b7e-46a2-aa20-0876e450e86b
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-03 13:50:03 PDT
Remarks	Renamed endpoint study record 7.2.3 Acute toxicity: dermal

0 Related Information

0.1 Templates

0.2 Categories

0.3 Mixtures

1 General Information

1.1 Identification

Substance identification

Chemical name	2-nitro-2-ethyl-1,3-propanediol
Legal entity	DOW Europe GmbH / Horgen / Switzerland

Reference substance

Reference substance: 2-ethyl-2-nitropropane-1,3-diol / 2-ethyl-2-nitropropane-1,3-diol / 597-09-1

EC number	EC name
209-893-3	2-ethyl-2-nitropropane-1,3-diol

CAS number	CAS name
597-09-1	

IUPAC name

2-ethyl-2-nitropropane-1,3-diol

Type of substance

Composition	multi constituent substance

Contact person

Person flags	**US: EPA HPVC**
Organisation	The Dow Chemical company
Department	Toxicology and Environmental Research & Consulting

Title	Senior Scientist
First name	William
Last name	Stott
Phone	989-636-8203
Fax	989-638-9863
E-mail	WTStott@Dow.com
Address	Building 1803
Postal code	48674
Town	Midland
Region / State	Michigan
Country	United States of America

1.2 Composition

Substance composition

Degree of purity

ca. 98.9— 99.3 % (w/w)

Constituents

Reference substance	2-ethyl-2-nitropropane-1,3-diol / 2-ethyl-2-nitropropane-1,3-diol / 597-09-1

EC number	**EC name**
209-893-3	2-ethyl-2-nitropropane-1,3-diol

CAS number	**CAS name**
597-09-1	

IUPAC name

2-ethyl-2-nitropropane-1,3-diol

1.3 Identifiers

Identifiers

Regulatory programme identifiers

Flags	**US: EPA HPVC**	**Regulatory programme**	other:

1.4 Analytical information

1.5 Joint submission

Overall use and exposure

Uses and exposure

Main use category

(X) Industrial use

( ) Professional use

( ) Consumer use

Specification for industrial and professional use

( ) Used in closed system

( ) Use resulting in inclusion into or onto matrix

( ) Non-dispersive use

( ) Dispersive use

Significant routes of exposure

Human exposure

( ) Oral

( ) Dermal

( ) By inhalation

Environmental exposure

( ) Water

( ) Air

( ) Solid waste

( ) Soil

Pattern of exposure

( ) Accidental / infrequent

( ) Occasional

( ) Continuous / frequent

Identified uses and exposure scenarios

Identified use

Brief description	NEPD is an Intermediate used to make AEPD.

Exposure scenario

3.6 Uses advised against

3.7 Waste from production and use

3.8 Exposure estimates

3.9 Biocidal information

3.10 Application for authorisation of uses

7 Toxicological information

7.2 Acute Toxicity

7.2.1 Acute toxicity: oral

Acute toxicity: oral (Parekh).001

UUID	IUC5-c97ba8a4-3eaa-4fab-9061-3a0aa350f344
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-02 07:06:38 PDT
Remarks	

Administrative Data

Purpose flag	key study ( ) robust study summary ( ) used for classification ( ) used for MSDS

Study result type	experimental result	**Study period**	May 6 - 20, 1980
Reliablility	2 (reliable with restrictions)		

Data source

Reference

Reference type	study report		
Author	Parekh, C.	**Year**	1982
Title	Oral Toxicity Potential of NEPD™ (P-229)		
Bibliographic source			
Testing laboratory	International Minerals & Chemical Corporation	**Report no.**	PLR-243
Owner company	ANGUS Chemical Company		
Company study no.	K-004656-003	**Report date**	1982-06-14

Data access

data submitter is data owner

Data protection claimed

yes

Materials and methods

Test type

standard acute
method

Test guideline

Qualifier	according to
Guideline	EPA OPP 81-1 (Acute Oral Toxicity)
Deviations	no Not specified in report
Qualifier	according to
Guideline	other guideline: U.S. EPA-FIFRA, 40 CFR, Section 158.135
Deviations	no Not specified in report

GLP compliance

no

Test materials

Test material equivalent to submission substance identity

yes

Test material identity

Identifier	CAS number
Identity	597-09-1
Identifier	EC number
Identity	209-893-3
Identifier	IUPAC name
Identity	2-ethyl-2-nitropropane-1,3-diol
Identifier	other:
Identity	2-nitro-2-ethyl-1,3-propanediol

Details on test material

- Name of test material (as cited in study report): NEPD (P-229)
- Lot/batch No.: 42963

Test animals

Species

rat

Strain

other: Cox-SD

Sex

male/female

Details on test animals and environmental conditions

TEST ANIMALS
- Weight at study initiation: 215± 12 grams
- Fasting period before study: Fasted prior to dosing
- Diet: After fast prior to dosing ad libitum diet
- Water: ad libitum

Administration / exposure

Route of administration

oral:
gavage

Vehicle

water

Details on oral exposure

VEHICLE
- NEPD (P-229) was solubilized in water

Doses

0, 500, 910, 1600, and 3000 mg/
kg

No. of animals per sex per dose

10/sex/
dose

Control animals

no

Details on study design

- Duration of observation period following administration: 14 days
- Frequency of observations: Frequently on the day of dosing and daily thereafter for 14 days
- Frequency of weighing: Day 0, 7, and 14
- Necropsy of survivors performed: yes
- Other examinations performed: clinical signs, body weight:

Statistics

The oral LD50 values, the 95% confidence limits, and the slope (± SE) was calculated according to Finney (Probit Analysis, Cambridge university Press 1971) adapted to BASIC computer program.

Results and discussions

Effect levels

Sex	male
Endpoint	LD50
Effect level	1607 — 3252 mg/kg bw
95% CL	
Remarks	LD50 2128 mg/kg bw
Sex	female
Endpoint	LD50

Effect level 1714 — 2991 mg/kg bw

95% CL

Remarks LD50 2205 mg/bg bw

Mortality

Day 1: Four males and two females in the 1600 mg/kg bw group
Day 1: Seven males and eight females in the 3000 mg/kg bw group

Clinical signs

Doses > 910 mg/kg - lacrimation
Doses > 1600 mg/kg - ataxia and prostration after 2 hours after dosing

Gross pathology

Animals found dead showed intestinal hemorrhage
Animals surviving to termination showed that some of the male and female rats, including controls, showed lung infection. The other organs appeared normal.

Applicant's summary and conclusion

Interpretation of results

other: low toxicity

Criteria used for interpretation of results

other: OSHA 1910.1200 states that >500 mg/kg is considered low toxicity

Conclusions

Male LD50 = 2128 mg/kg; Female LD50 = 2205 mg/kg.
NEPD (P-229) was considered low toxicity.

Executive summary

Acute toxicity: oral (Hodge).002

UUID	IUC5-0f213ff2-9150-486b-947f-2ce59fc310a7
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-02 02:15:43 PDT
Remarks	

Administrative Data

Purpose flag	( ) robust study summary ( ) used for classification ( ) used for MSDS
Study result type	experimental result
Reliablility	2 (reliable with restrictions)

Data source

Reference

Reference type			
Author	Hodge	**Year**	1958
Title			
Bibliographic source			
Testing laboratory		**Report no.**	
Owner company			
Company study no.		**Report date**	

Materials and methods

Limit test

no

GLP compliance

no

Test materials

Test material equivalent to submission substance identity

yes

Test material identity

Identifier	CAS number
Identity	597-09-1
Identifier	EC number
Identity	209-893-3
Identifier	IUPAC name
Identity	2-ethyl-2-nitropropane-1,3-diol
Identifier	other:
Identity	2-nitro-2-ethyl-1,3-propanediol

Test animals

Species

mouse

Strain

no data

Sex

no data

Administration / exposure

Route of administration

oral: gavage

Results and discussions

Effect levels

Sex	no data
Endpoint	LD0
Effect level	1500 mg/kg bw
95% CL	
Remarks	
Sex	no data
Endpoint	LD50

Effect level 2800 mg/kg bw

95% CL

Remarks

Sex no data

Endpoint LD100

Effect level 4000 mg/kg bw

95% CL

Remarks

Applicant's summary and conclusion

Conclusions

LD50 = 2800 mg/kg

Acute toxicity: oral (mouse).002

UUID	IUC5-6354f8ff-58a8-4911-9a0e-37c03226f871
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-02 01:34:46 PDT
Remarks	

Administrative Data

Purpose flag	( ) robust study summary ( ) used for classification ( ) used for MSDS		
Study result type	experimental result	**Study period**	1952
Reliablility	4 (not assignable)		

Data source

Reference

Reference type	company data	
Author	**Year**	1952
Title	Acute mouse toxicity	
Bibliographic source		
Testing laboratory	**Report no.**	364225R
Owner company	ANGUS Chemical Company	
Company study no.	**Report date**	

Data access

data submitter is data owner

Materials and methods

Test guideline

Qualifier	no guideline available
Guideline	

Deviations

GLP compliance

no

Test materials

Test material equivalent to submission substance identity

yes

Test material identity

Identifier	CAS number
Identity	597-09-1
Identifier	EC number
Identity	209-893-3
Identifier	IUPAC name
Identity	2-ethyl-2-nitropropane-1,3-diol
Identifier	other:
Identity	2-nitro-2-ethyl-1,3-propanediol

Test animals

Species

mouse

Strain

no data

Sex

male

Details on test animals and environmental conditions

TEST ANIMALS
- Source: no data
- Age at study initiation: no data
- Weight range at study initiation: 18-23 grams

Administration / exposure

Route of administration

oral:
gavage

Vehicle

water

Doses

500 mg/kg; 1000 mg/kg; 1500 mg/kg; 2000 mg/kg; 2500 mg/kg; 3000 mg/kg; 3500 mg/kg; 4000 mg/kg

No. of animals per sex per dose

Five

Control animals

no
data

Results and discussions

Effect levels

Sex	no data
Endpoint	LD50
Effect level	2800 mg/kg bw
95% CL	
Remarks	

Mortality

500 mg/kg dose group the motality ratio was 0/5.
1000 mg/kg dose group the motality ratio was 0/5.
1500 mg/kg dose group the motality ratio was 0/5.
2000 mg/kg dose group the motality ratio was 0/5.
2500 mg/kg dose group the motality ratio was 3/5.
3000 mg/kg dose group the motality ratio was 4/5.
3500 mg/kg dose group the motality ratio was 3/5.
4000 mg/kg dose group the motality ratio was 5/5.

Clinical signs

500 mg/kg dose: excitement - 5/5
1000 mg/kg dose: excitement and ataxia - 5/5
1500 mg/kg dose: excitement, ataxia, hypnosis - 5/5; sedation 3/5
2000 mg/kg dose: excitement, ataxia, hypnosis, sedation - 5/5
2500 mg/kg dose: ataxia, mild convulsion, hypnosis - 5/5
3000 mg/kg dose: ataxia, hypnosis - 5/5
3500 mg/kg dose: ataxia, hypnosis - 5/5 noted in 15 minutes
4000 mg/kg dose: ataxia, hypnosis - 5/5 noted in 15 minutes

Gross pathology

All levels
normal

7.2.3 Acute toxicity: dermal

Acute toxicity: dermal (Parekh).001

UUID	IUC5-5c0819cc-46cc-4fcc-a66f-693cb7660124
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-03 13:54:15 PDT
Remarks	

Administrative Data

Purpose flag	key study ( ) robust study summary ( ) used for classification ( ) used for MSDS		
Study result type	experimental result	**Study period**	November 17, 1980 - December 15, 1980
Reliablility	2 (reliable with restrictions)		

Data source

Reference

Reference type	study report		
Author	Parekh, C.	**Year**	1982
Title	Dermal Toxicity Potential of NEPD (P-229)		
Bibliographic source			
Testing laboratory	International Minerals & Chemicals corporation	**Report no.**	PLR-242
Owner company	ANGUS Chemical Company		
Company study no.	K-004656-005	**Report date**	1982-06-14

Data access

data submitter is data owner

Data protection claimed

yes

Materials and methods

Test type

standard acute method

Limit test

yes

Test guideline

Qualifier according to

Guideline EPA OPP 81-2 (Acute Dermal Toxicity)

Deviations no Not specified in report

Qualifier according to

Guideline other guideline: U.S. EPA-FIFRA, 40 CFR, Section 158.135

Deviations no Not specified in report

GLP compliance

no

Test materials

Test material equivalent to submission substance identity

yes

Test material identity

Identifier CAS number

Identity 597-09-1

Identifier EC number

Identity 209-893-3

Identifier IUPAC name

Identity 2-ethyl-2-nitropropane-1,3-diol

Identifier other:

Identity 2-nitro-2-ethyl-1,3-propanediol

Test animals

Species

rabbit

Strain

New Zealand
White

Sex

male/
female

Details on test animals and environmental conditions

- Source: Kuiper Rabbit Ranch, Gary, Indiana
- Weight at study initiation: 2.1 - 2.5 kg
- Housing: individual cages
- Diet: ad libitum
- Water: ad libitum
- Acclimation period: At least 7 days

Administration / exposure

Type of coverage

occlusive

Vehicle

unchanged (no
vehicle)

Details on dermal exposure

TEST SITE
- Area of exposure: Abdomen- intact and abraded
- Type of wrap if used: The skin was covered with a guaze moistened with saline and a sheet of impervious rubberized cloth to prevent any loss of test material. The trunk was then further enclosed with a flexible stainless steel protective screen held by tape.

REMOVAL OF TEST SUBSTANCE
- Excess test material gently cleaned
- Time after start of exposure: After 24 hours of dermal exposure, the bindings and patches were removed.

TEST MATERIAL
- Amount(s) applied (volume or weight with unit): 2000 mg/kg bw
- Constant volume or concentration used: weighed amount varied based on individual animal weight
- For solids, paste formed: no

VEHICLE
- Material given as supplied.

Duration of exposure

24
hours

Doses

2000 mg/kg
bw

No. of animals per sex per dose

5/sex/
dose

Control animals

no

Details on study design

- Duration of observation period following administration: 14 days
- Frequency of observations: Daily
- Frequency of weighing: Day 0, 7, and 14
- Necropsy of survivors performed: yes
- Other examinations performed: clinical signs, body weight,organ weights, histopathology, other:

Results and discussions

Preliminary study (if fixed dose study)

In the first test two male rabbits were found dead within 48 hours. The gross necropsy revealed that they were suffering from severe diarrhea. The authors state that the death of these animals did not appear treatment-related. The test was repeated with another set of animals; none of these animals died although all developed diarrhea.

Effect levels

Sex	male/female
Endpoint	LD50
Effect level	> 2000 mg/kg bw
95% CL	
Remarks	

Clinical signs

The treated skn sites in all animals showed mild irritation. One of the animals also showed diarrhea.

Body weight

All animals gained
weight.

Gross pathology

The internal organs in all the rabbits appeared normal.

Applicant's summary and conclusion

Conclusions

The dermal LD50 > 2000 mg/kg.

7.2.4 Acute toxicity: other routes

Acute toxicity: other routes (i. v.).001

UUID	IUC5-52e3002f-5017-4b56-ac25-16fc0b886e66
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-02 01:45:15 PDT
Remarks	

Administrative Data

Purpose flag	( ) robust study summary ( ) used for classification ( ) used for MSDS		
Study result type	experimental result	**Study period**	1952
Reliablility	4 (not assignable)		

Data source

Reference

Reference type	company data	
Author	**Year**	1952
Title	Acute mouse toxicity	
Bibliographic source		
Testing laboratory	**Report no.**	364227-28R
Owner company	ANGUS Chemical Company	
Company study no.	**Report date**	

Data access

data submitter is data owner

Materials and methods

Test guideline

Qualifier	no guideline available

Guideline

Deviations

GLP compliance

no

Test materials

Test material equivalent to submission substance identity

yes

Test material identity

Identifier	CAS number
Identity	597-09-1
Identifier	EC number
Identity	209-893-3
Identifier	IUPAC name
Identity	2-ethyl-2-nitropropane-1,3-diol
Identifier	other:
Identity	2-nitro-2-ethyl-1,3-propanediol

Test animals

Species

mouse

Strain

no data

Sex

male

Details on test animals and environmental conditions

TEST ANIMALS
- Source: no data
- Age at study initiation: no data
- Weight range at study initiation: 18 - 23 grams

Administration / exposure

Route of administration

intraveneous

Vehicle

water

Doses

500 mg/kg; 750 mg/kg; 1000 mg/kg; 1250 mg/kg; 1500 mg/kg; 1750 mg/kg; 2000 mg/kg; 2250 mg/kg

No. of animals per sex per dose

Five

Control animals

no
data

Results and discussions

Effect levels

Sex no data

Endpoint LD0

Effect level 1500 mg/kg bw

95% CL

Remarks

Sex no data

Endpoint LD50

Effect level 1850 mg/kg bw

95% CL

Remarks

Sex no data

Endpoint LD100

Effect level 2250 mg/kg bw

95% CL

Remarks

Mortality

500 mg/kg dose group: motality ratio - 0/5.
750 mg/kg dose group: motality ratio - 0/5.
1000 mg/kg dose group: motality ratio - 0/5.
1250 mg/kg dose group: motality ratio - 0/5.
1500 mg/kg dose group: motality ratio - 0/5.
1750 mg/kg dose group: motality ratio - 2/5.
2000 mg/kg dose group: motality ratio - 3/5.
2250 mg/kg dose group: motality ratio - 5/5 died ithin 5 minutes after injection.

Clinical signs

500 mg/kg dose: excitement
750 mg/kg dose: ataxia 5/5; sedation 3/5
1000 mg/kg dose: ataxia, hypnosis 5/5
1250 mg/kg dose: ataxia, mild convulsion, hypnosis 5/5
1500 mg/kg dose: ataxia, hypnosis 5/5
1750 mg/kg dose: ataxia 5/5
2000 mg/kg dose: ataxia, hypnosis 5/5
2250 mg/kg dose: convulsion 5/5; Death occurred within 5 minutes of injection.

Gross pathology

500 mg/kg dose: normal
750 mg/kg dose: normal
1000 mg/kg dose: normal
1250 mg/kg dose: normal
1500 mg/kg dose: normal
1750 mg/kg dose: pulmonary edema 2/5; gross evidence of liver damage (fibrous area) 1/5; blood in urine 2/5
2000 mg/kg dose: pulmonary edema 1/5; blood in urine; gross evidence of liver damage (fibrous area) 1/5
2250 mg/kg dose: Death occurred within 5 minutes of injection.

7.3 Irritation / corrosion

7.3.1 Skin irritation / corrosion

Skin irritation / corrosion (Parekh).001

UUID	IUC5-92aa1f51-f3f5-417f-8617-e17c41555ade
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-03 15:22:28 PDT
Remarks	

Administrative Data

Purpose flag	key study ( ) robust study summary ( ) used for classification ( ) used for MSDS		
Study result type	experimental result	**Study period**	February 10, 1981 - February 13, 1981
Reliablility	2 (reliable with restrictions)		

Data source

Reference

Reference type	study report		
Author	Parekh, C.	**Year**	1982
Title	Skin Irritation Potential of NEPD (P-229)		
Bibliographic source			
Testing laboratory	International Minerals & Chemicals Corporation	**Report no.**	PLR-240
Owner company	ANGUS Chemical Company		
Company study no.	K-004656-004	**Report date**	1982-06-14

Data access

data submitter is data owner

Data protection claimed

yes

Materials and methods

Type of method

in vivo

Test guideline

Qualifier according to

Guideline EPA OPP 81-5 (Acute Dermal Irritation)

Deviations no Not specified in report

Qualifier according to

Guideline other guideline: U.S. EPA-FIFRA, 40 CFR, Section 158.135

Deviations no Not specified in report

GLP compliance

no

Test material equivalent to submission substance identity

yes

Test materials

Test material identity

Identifier CAS number

Identity 597-09-1

Identifier EC number

Identity 209-893-3

Identifier IUPAC name

Identity 2-ethyl-2-nitropropane-1,3-diol

Identifier other:

Identity 2-nitro-2-ethyl-1,3-propanediol

Details on test material

- Lot/batch No.: 42963

Test animals

Species

rabbit

Strain

New Zealand
White

Details on test animals and environmental conditions

TEST ANIMALS
- Source: Kuiper Rabbit Ranch, Gary, Indiana
- Weight at study initiation: 2.8 ± 0.2 kg
- Housing: Individual
- Diet: ad libitum
- Water: ad libitum
- Acclimation period: At least 7 days

Test system

Type of coverage

occlusive

Preparation of test site

other: shaved: intact and abraded area

Vehicle

unchanged (no vehicle)

Amount/ concentration applied

TEST MATERIAL
- Amount(s) applied: 0.5 grams

Duration of treatment / exposure

24 hour exposure

Number of animals

Six

Control animals

no

Details on study design

TEST SITE
- Area of exposure:
The skin from the back area was clipped free of hair. The skin on the left side of the mid-dorsal line was left intact while the skin on the right side was abraded by making minor epidermal incisions in a tic-tac-toe pattern with a blunt hypodermic needle. The abrasions ere minor incisions through the stratum corneum, but not deep enough to disturb the derma or produce bleeding. There were four sites per animal; 2 intact and 2 abraded.

- Type of wrap if used: The test material when applied was covered with a guaze moistened with a saline and a "Dermicel" tape. The entire trunk was then wrapped with a rubberized impervious cloth and a flexible wire screen held in place by tape.

REMOVAL OF TEST SUBSTANCE
- After 24 hours the treated sites were gently cleaned.
- Time after start of exposure: 24 hours

SCORING
- The skin reactions were scored immediately (24 hours) and at the end of 72 hours.

Body Weights: At 0 and 72 hours after application.

Results and discussions

Irritation / corrosion results

Irritation parameter	overall irritation score
Basis	mean
Time point	24 and 72 hour
Score	0
Max. score	
Reversibility	
Remarks	

Other effects

There was a slight loss in the averge body weight at 72 hour.

Applicant's summary and conclusion

Conclusions

NEPD (P-229) was not irritating to the skin of rabbits.

Skin irritation / corrosion (Parekh).002

UUID	IUC5-2e0dc1af-3275-4a58-bfbc-bc73b4891d61
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-03 16:44:01 PDT
Remarks	

Administrative Data

Purpose flag	key study ( ) robust study summary ( ) used for classification ( ) used for MSDS		
Study result type	experimental result	**Study period**	July 15, 1980 - July 17, 1980
Reliablility	2 (reliable with restrictions)		

Data source

Reference

Reference type	study report		
Author	Parekh, C. and Wilbur, S. Z.	**Year**	1982
Title	Skin Corrosion Potential of NEPD (P-229)		
Bibliographic source			
Testing laboratory	International Minerals & Chemical Corporation	**Report no.**	PLR-245
Owner company	ANGUS Chemical Company		
Company study no.	K-004656-008	**Report date**	1982-06-12

Data access

data submitter is data owner

Data protection claimed

yes

Materials and methods

Type of method

in
vivo

Test guideline

Qualifier no guideline available

Guideline

Deviations

GLP compliance

no

Test material equivalent to submission substance identity

yes

Test materials

Test material identity

Identifier CAS number

Identity 597-09-1

Identifier EC number

Identity 209-893-3

Identifier IUPAC name

Identity 2-ethyl-2-nitropropane-1,3-diol

Identifier other:

Identity 2-nitro-2-ethyl-1,3-propanediol

Details on test material

- Name of test material (as cited in study report): NEPD (P-229)
- Lot/batch No.: 42963

Test animals

Species

rabbit

Strain

New Zealand White

Details on test animals and environmental conditions

TEST ANIMALS
- Source: Kelley's Rabbitry, Laconia, Indiana
- Weight at study initiation: 3.4± 0.3 kg
- Housing: Individually caged during and after exposure
- Diet: ad libitum
- Water: ad libitum
- Acclimation period: At least 7 days

Test system

Type of coverage

occlusive

Preparation of test site

shaved

Vehicle

unchanged (no vehicle)

Amount/ concentration applied

TEST MATERIAL
- Amount(s) applied: 0.5 gram

Duration of treatment / exposure

The test material will be left in contact with the skin for four hours.

Observation period

The test sites were observed at 4, 24, and 48 hours.

Number of animals

Six

Control animals

no

Details on study design

TEST SITE
- Area of exposure: The backs were shaved free of hair. The sample was applied on the back of each rabbit and the treated skin site was covered with a moistened guaze and a "Dermicel" cloth tape.

- Type of wrap: The animal trunk was then loosely wrapped with an impervious rubberized cloth and a flexible stinless steel protective screen held in place by tape.

REMOVAL OF TEST SUBSTANCE
- Washing/Time after start of exposure:: Following a 4-hour exposure period, the patches were removed and the treated skin sites were gently cleaned.

SCORING SYSTEM:
The test sites were visually evaluated for erythema, edema, and tissue destruction observed at 4, 24, and 48 hours. The scoring system used was Draize.

Results and discussions

Irritation / corrosion results

Irritation parameter	other: Subjective evaluation
Basis	mean
Time point	4, 24, and 48 hours
Score	0
Max. score	
Reversibility	
Remarks	Noncorrosive

Irritant/ corrosive response data

Non-corrosive

Remarks on results including tables and figures

NEPD (P-229) had no effect on the skin and the treated skin sites showed no erythema or edema in any of the rabbits at 4, 24, or 48 hours. The skin sites were normal and showed no tissue destruction. There was no change in body weights of the treated animals.

Overall remarks, attachments

Overall remarks

Applicant's summary and conclusion

Interpretation of results

other: not irritating/non-corrosive

Conclusions

NEPD (P-229) was non-corrosive to the skin.

7.3.2 Eye irritation

Eye irritation (Parekh).001

UUID	IUC5-4ba0547b-3ae0-4eef-bfb3-4a2ed556dde3
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-03 16:53:14 PDT
Remarks	

Administrative Data

Purpose flag	key study ( ) robust study summary ( ) used for classification ( ) used for MSDS
Study result type	experimental result
Reliablility	2 (reliable with restrictions)

Data source

Reference

Reference type	study report		
Author	Parekh, C.	**Year**	1982
Title	Eye Irritation Potential of NEPD (P-229)		
Bibliographic source			
Testing laboratory	International Minerals & Chemicals Corporation	**Report no.**	PLR-244
Owner company	ANGUS Chemical Company		
Company study no.	K-004656-007	**Report date**	1982-06-14

Data access

data submitter is data owner

Data protection claimed

yes

Materials and methods

Type of method

in
vivo

Test guideline

Qualifier according to

Guideline EPA OPP 81-4 (Acute Eye Irritation)

Deviations no Not specified in the report.

Qualifier according to

Guideline other guideline: U.S. EPA-FIFRA, 40 CFR, Section 158.135

Deviations no Not specified in the report.

GLP compliance

no

Test material equivalent to submission substance identity

yes

Test materials

Test material identity

Identifier CAS number

Identity 597-09-1

Identifier EC number

Identity 209-893-3

Identifier IUPAC name

Identity 2-ethyl-2-nitropropane-1,3-diol

Identifier other:

Identity 2-nitro-2-ethyl-1,3-propanediol

Details on test material

- Name of test material (as cited in study report): NEPD (P-229)
- Lot/batch No.: 42963

Test animals

Species

rabbit

Strain

other:
Albino

Details on test animals and environmental conditions

TEST ANIMALS
- Weight at study initiation: 2.7± 0.3 kg
- Diet: ad libitum
- Water: ad libitum

Test system

Vehicle

unchanged (no vehicle)

Amount/ concentration applied

TEST MATERIAL
- Amount(s) applied: 0.1 gram

Duration of treatment / exposure

The eyelids were held closed for one to two seconds to prevent any loss of material.

The eyes of only three rabbits were irrigated with 50 ml of lukewarm tap water after 20 to 30 seconds exposure to the test material.

Observation period

The eyes were examined at 24, 48, and 72 hours and on day 7, 9, 11, and 14 post-treatment.

Number of animals

Nine

Control animals

other: The right eye served was an untreated control.

Details on study design

APPLICATION
- A 0.1 gram sample of finely ground test material was instilled into the lower conjuctival sac of the left eye. The eyelids were held closed for one to two seconds to prevent any loss of material. The right eye served as an untreated control. Nine rabbits treated in one eye. Six rabbits had no further treatment (unwashed) and three rabbit eyes (washed).

REMOVAL OF TEST SUBSTANCE
- Washing: The eyes of only three rabbits were irrigated with 50 ml of lukewarm tap water after 20 to 30 seconds exposure to the test material (washed).

At 24 hours and on day 14, a drop of sodium fluorescein (0.24%) was placed on the cornea of each treatment eye. The excess fluorescein was flushed with sterile saline (0.85%).

TOOL USED TO ASSESS SCORE: The treated eye was examined under a UV light for corneal lesions.

Results and discussions

Overall irritation / corrosion results

Irritation parameter overall irritation score

Basis mean

Time point 24 hours

13

Max. score

Reversibility

Remarks

Other effects

At 24 hours the eyes of the six animals in the unwashed group and two in the washed group of rabbits showed corneal lesions. The conjuctivae of the unwashed group also showed moderate to severe irritation.

At day 14 all the eyes were normal with the exception of one rabbit in the unwashed group.

The body weight gains of the treated animals were normal.

Applicant's summary and conclusion

Interpretation of results

irritating

Conclusions

NEPD (P-229) was an irritant to the eyes.

Executive summary

Moderate to severe irritation with corneal injury; healing in 8 -21 days.

Eye irritation.001

UUID	IUC5-eb6b9119-babf-4a94-b7c4-1199d3d435b6
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-02 00:45:35 PDT
Remarks	

Administrative Data

Purpose flag	( ) robust study summary ( ) used for classification ( ) used for MSDS		
Study result type	experimental result	**Study period**	1958
Reliablility	4 (not assignable)		

Data source

Reference

Reference type	company data		
Author		**Year**	1958
Title	2-nitro-2-ethyl-1,3-propanediol Eye Irritation		
Bibliographic source			
Testing laboratory		**Report no.**	
Owner company	ANGUS Chemical Company		
Company study no.		**Report date**	

Data access

data submitter is data owner

Materials and methods

Type of method

in vivo

Test guideline

Qualifier no guideline available

Guideline

Deviations

GLP compliance

no

Test material equivalent to submission substance identity

yes

Test materials

Test material identity

Identifier CAS number

Identity 597-09-1

Identifier EC number

Identity 209-893-3

Identifier IUPAC name

Identity 2-ethyl-2-nitropropane-1,3-diol

Identifier other:

Identity 2-nitro-2-ethyl-1,3-propanediol

Test animals

Species

rabbit

Strain

no data

Test system

Vehicle

water

Amount/concentration applied

TEST MATERIAL
- 1% concentration NEPD in water

Control animals

no
data

Details on study design

REMOVAL OF TEST SUBSTANCE
- Washing (if done): yes
- Time after start of exposure: 30 seconds

Results and discussions

Irritant/ corrosive response data

Five timepoints: 1 hour, 4, 24, 48, and 72 hours were noted as normal for the eye.

Applicant's summary and conclusion

Interpretation of results

not
irritating

Criteria used for interpretation of results

not
specified

Conclusions

1% NEPD was not irritating in the rabbit eye.

7.4 Sensitisation

7.4.1 Skin sensitisation

Skin sensitisation (Parekh).001

UUID	IUC5-e1eb933c-e1e1-407a-8fee-de934a8ec9ca
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-03 17:31:32 PDT
Remarks	

Administrative Data

Purpose flag	key study ( ) robust study summary ( ) used for classification ( ) used for MSDS		
Study result type	experimental result	**Study period**	March 10, 1980 - April 16, 1980
Reliablility	2 (reliable with restrictions)		

Data source

Reference

Reference type	study report		
Author	Parekh, C.	**Year**	1982
Title	Sensitization Potential of NEPD (P-229)		
Bibliographic source			
Testing laboratory	International Minerals & Chemicals Corporation	**Report no.**	PLR-241
Owner company	ANGUS Chemical Company		
Company study no.	K-004656-006	**Report date**	1982-06-14

Data access

data submitter is data owner

Data protection claimed

yes

Materials and methods

Type of method

in vivo

Type of study

other: Landsteiner and Jacobs procedure

Test guideline

Qualifier according to

Guideline EPA OPP 81-6 (Skin Sensitization)

Deviations no Not specified in report

Qualifier according to

Guideline other guideline: U.S. EPA-FIFRA, 40 CFR, Section 158.135

Deviations no Not specified in report

GLP compliance

no

Test materials

Test material equivalent to submission substance identity

yes

Test material identity

Identifier CAS number

Identity 597-09-1

Identifier EC number

Identity 209-893-3

Identifier IUPAC name

Identity 2-ethyl-2-nitropropane-1,3-diol

Identifier other:

Identity 2-nitro-2-ethyl-1,3-propanediol

Details on test material

- Lot/batch No.: 42963

Test animals

Species

guinea pig

Strain

no data

Sex

male

Details on test animals and environmental conditions

- Weight at study initiation: 250 - 300 grams

Test system

Traditional sensitisation test

Route of induction exposure

intradermal

Route of challenge exposure

intradermal

Vehicle

physiol. saline

Concentration

- One group was intradermally injected with 0.05 ml of 1% solution of NEPD P-229 in saline.
- The positive control group was injected with 0.05 ml of 0.3% dintrochlorobenzene (DNCB) solution (dissolved in minimum volume of alcohol and made to volume with saline).
- The negative controls were injected with 0.05 ml saline.

No. of animals per dose

10

Details on study design (Traditional tests)

RANGE FINDING TESTS:
The preliminary test solutions used were: 1, 2, and 5%.

MAIN STUDY
A. INDUCTION EXPOSURE
- No. of exposures:
- Exposure period: 24 and 48 hours
- Positive and Negative Control group: Yes
- Site: The backs and flanks were shaved free of hair.
- Frequency and Duration of applications: After 48 hours the intradermal injection procedure was repeated for each group with 0.1 ml of their respective solutions, two or three times a week, until a total of 10 injections have been made.
- Concentrations:

B. CHALLENGE EXPOSURE (after two weeks of resting)
- No. of exposures: one
- Hours(s) of challenge: Twenty hours
- Test groups: Test group and the negative control were challenged with 0.1 ml of 1.0% solution of NEPD P-229.
- Control group: The positive control and negative control were challenged with the 0.03% DNCB solution. Twenty four hours after the challenge, the injection sites were depilated with "Nair".
- Evaluation: Three hrs after depillation and 27 hours after challenge

Challenge controls

The positive control and negative control were challenged with the 0.03% DNCB solution.

Positive control substance (s)

yes 0.3% dintrochlorobenzene (DNCB)

Results and discussion

Traditional sensitisation test

Results of test (except LLNA)

Reading	1st reading
Hours after challenge	
Group	test group
Dose level	
No. with + reactions	0
Total no. in group	10

Clinical observations	
Reading	rechallenge
Hours after challenge	
Group	test group
Dose level	
No. with + reactions	0
Total no. in group	10
Clinical observations	
Reading	1st reading
Hours after challenge	
Group	positive control
Dose level	
No. with + reactions	10
Total no. in group	10
Clinical observations	
Reading	rechallenge
Hours after challenge	
Group	positive control
Dose level	0.03% DNCB
No. with + reactions	10
Total no. in group	10
Clinical observations	
Reading	other: Second reading
Hours after challenge	
Group	
Dose level	0.03% DNCB
No. with + reactions	9

Total no. in group	10
Clinical observations	
Reading	1st reading
Hours after challenge	
Group	negative control
Dose level	
No. with + reactions	0
Total no. in group	10
Clinical observations	
Reading	rechallenge
Hours after challenge	
Group	negative control
Dose level	0.03% DNCB
No. with + reactions	2
Total no. in group	10
Clinical observations	

Overall remarks, attachments

Overall remarks

2 -Nitro-2 -ethyl-1,3 -propanediol (P-229), when injected intradermally, was a nonsensitizer in the guinea pig test.

Applicant's summary and conclusion

Interpretation of results

not sensitising

7.9 Specific investigations

7.9.3 Specific investigations: other studies

Specific investigations: other studies

UUID	IUC5-9bef6809-a2a5-454a-9d5b-959655b21be6
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-02 00:14:05 PDT
Remarks	

Administrative Data

Short description of key information

Anticonvulsant action of NEPD,
1949

7.10 Exposure related observations in humans
7.10.4 Sensitisation data (humans)

Sensitisation data (humans).001

UUID	IUC5-0d431a29-d5aa-4a80-a504-63a96e7d9110
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-02 02:03:47 PDT
Remarks	

Administrative Data

Purpose flag	( ) robust study summary ( ) used for classification ( ) used for MSDS		
Study result type	experimental result	**Study period**	1958
Reliablility	4 (not assignable)		

Data source

Reference

Reference type	study report		
Author	Irwin I. Lubowe	**Year**	1958
Title	0.5% NEPD		
Bibliographic source			
Testing laboratory		**Report no.**	
Owner company			
Company study no.		**Report date**	

Materials and methods

Type of sensitisation studied

skin

Study type

study with volunteers

Test guideline

Qualifier no guideline available

Guideline

Deviations

GLP compliance

no data

Test materials

Test material equivalent to submission substance identity

yes

Test material identity

Identifier CAS number

Identity 597-09-1

Identifier EC number

Identity 209-893-3

Identifier IUPAC name

Identity 2-ethyl-2-nitropropane-1,3-diol

Identifier other:

Identity 2-nitro-2-ethyl-1,3-propanediol

Details on test material

0.5%
NEPD

Method

Type of population

general

Ethical approval

no data

Subjects

- Number of subjects exposed: 100 total
- Sex: male and female
- Age: not available
- Race: Caucasian
- Demographic information: not available

Route of administration

dermal

Details on study design

TYPE OF TEST(S) USED: patch test (epicutaneous test)

The patch tests were performed in the following manner. The upper back was thoroughly cleansed with 70% isopropyl. The material to be tested was then impregnated into a one-half inch square of clean white blotting paper. This was then applied to the previously cleansed skin site and covered with an "Elastopatch"plaster (Duke Lboratories, Stamford, Conn.) and allowed to remain in contact with the skin for 48 hours. Upon removal of the patches, the test areas were observed at once for immediate reaction and again in fifteen minutes for immediate delayed reaction.

The interpretation of the patch test readings was as follows:
Negative = No reaction
Plus-minus (+-) = Minimal reaction
One plus (1+) = Definite Erythema
Two plus (2+) = Erythema with edema
Three plus (3+) = Vesiculation with edema

Results and discussions

Results of examinations

NO. OF PERSONS WITH/OUT REACTIONS COMPARED TO STUDY POPULATION
- Number of subjects with positive reactions: 0
- Number of subjects with negative reactions: 100/100

Applicant's summary and conclusion

Conclusions

The 100 subjects were classified as negative reactors for both the 15 minute and 48 hour observation. There were no primary irritants in 0.5% NEPD.

Sensitisation data (humans).002

UUID	IUC5-93211400-e7e8-4c30-925a-cd5708b64f46
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-10-02 02:13:37 PDT
Remarks	

Administrative Data

Purpose flag	( ) robust study summary ( ) used for classification ( ) used for MSDS		
Study result type	experimental result	**Study period**	1958
Reliablility	4 (not assignable)		

Data source

Reference

Reference type	study report		
Author	Irwin I. Lubowe	**Year**	1958
Title	1.0% NEPD		
Bibliographic source			
Testing laboratory		**Report no.**	
Owner company			
Company study no.		**Report date**	

Materials and methods

Type of sensitisation studied

skin

Study type

study with volunteers

Test guideline

Qualifier no guideline available

Guideline

Deviations

GLP compliance

no

Test materials

Test material equivalent to submission substance identity

yes

Test material identity

Identifier CAS number

Identity 597-09-1

Identifier EC number

Identity 209-893-3

Identifier IUPAC name

Identity 2-ethyl-2-nitropropane-1,3-diol

Identifier other:

Identity 2-nitro-2-ethyl-1,3-propanediol

Details on test material

1.0%
NEPD

Method

Type of population

general

Ethical approval

no data

Subjects

- Number of subjects exposed: 100
- Sex: male and female
- Age: no data
- Race: Caucasian
- Demographic information: no data

Route of administration

dermal

Details on study design

TYPE OF TEST(S) USED: patch test (epicutaneous test)

The patch tests were performed in the following manner. The upper back was thoroughly cleansed with 70% isopropyl. The material to be tested was then impregnated into a one-half inch square of clean white blotting paper. This was then applied to the previously cleansed skin site and covered with an "Elastopatch"plaster (Duke Lboratories, Stamford, Conn.) and allowed to remain in contact with the skin for 48 hours. Upon removal of the patches, the test areas were observed at once for immediate reaction and again in fifteen minutes for immediate delayed reaction.

The interpretation of the patch test readings was as follows:
Negative = No reaction
Plus-minus (+-) = Minimal reaction
One plus (1+) = Definite Erythema
Two plus (2+) = Erythema with edema
Three plus (3+) = Vesiculation with edema

Results and discussions

Results of examinations

NO. OF PERSONS WITH/OUT REACTIONS COMPARED TO STUDY POPULATION
- Number of subjects with minimal reactions: 1. This subject was classified as plus-minus (+-).
- Number of subjects with negative reactions: 99/100

Applicant's summary and conclusion

Conclusions

There were no primary irritants in 1.0%
NEPD.

Reference substance: 2-ethyl-2-nitropropane-1,3-diol

UUID	ECB5-e44e1260-a83a-4038-b69b-2b09d8b4d2ac
Dossier UUID	0
Author	U085213 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-05-27 07:21:03 PDT
Remarks	

General information

Reference substance name	2-ethyl-2-nitropropane-1,3-diol

EC inventory

EC number	209-893-3	**CAS number**	597-09-1
EC name	2-ethyl-2-nitropropane-1,3-diol		
Molecular formula	C5H11NO4		

Reference substance information

CAS information

CAS number	597-09-1

IUPAC name

IUPAC name	2-ethyl-2-nitropropane-1,3-diol

Description

Colorless, crystalline solid

Synonyms

Name	1,3-Propanediol, 2-ethyl-2-nitro-
Name	NEPD (P-229)

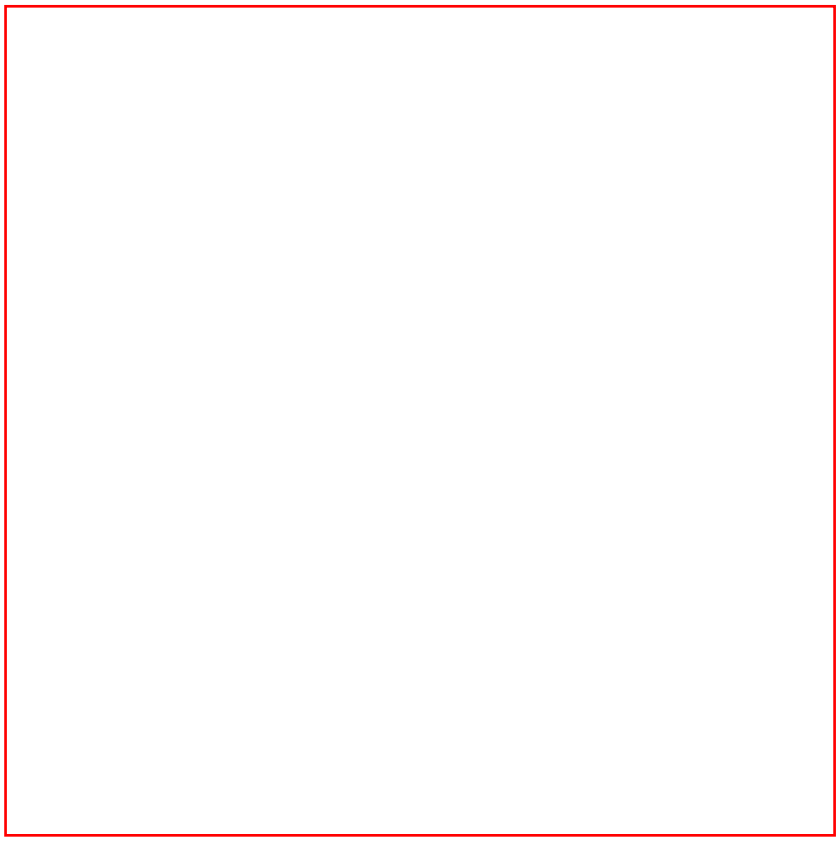
DSL Category: Organics

Molecular and structural information

Molecular formula	C5H11NO4
Molecular weight range	149.1451
SMILES notation	CCC(CO)(CO)[N+](=O)[O-]

InChI InChI=1/C5H11NO4/c1-2-5(3-7,4-8)6(9)10/h7-8H,2-4H2,1H3

Structural formula



Legal entity: DOW Europe GmbH

UUID	IUC4-2c336028-0d7e-3e98-bbd1-53601d0f2a9e
Dossier UUID	0
Author	U764500 / DOW Europe GmbH / Horgen / Switzerland
Date	2008-04-24 02:09:27 PDT
Remarks	

General information

Legal entity name	DOW Europe GmbH
Legal entity type	company

Identifiers

Legal entity identifiers

Identifier type	VAT
ID	CH533551

Other IT system identifiers

IT system	LEO
ID	7262

IT system	IUCLID4
ID	411000156

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Country	Switzerland

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