

201-15259B

I U C L I D

Data Set

RECEIVED
OFFICE
04 MAY 11 PM 12:41

Existing Chemical : ID: 10254-57-6
CAS No. : 10254-57-6
EINECS Name : 4,4'-methylene bis(dibutyldithiocarbamate)
EC No. : 233-593-1
Molecular Formula : C19H38N2S4

Producer related part
Company : Epona Associates, LLC
Creation date : 30.01.2004

Substance related part
Company : Epona Associates, LLC
Creation date : 30.01.2004

Status :
Memo : RT Vanderbilt

Printing date : 30.03.2004
Revision date :
Date of last update : 30.03.2004

Number of pages : 29

Chapter (profile) : Chapter: 1, 2, 3, 4, 5, 6, 7, 8, 10
Reliability (profile) : Reliability: without reliability, 1, 2, 3, 4
Flags (profile) : Flags: without flag, confidential, non confidential, WGK (DE), TA-Luft (DE),
Material Safety Dataset, Risk Assessment, Directive 67/548/EEC, SIDS

1.0.1 APPLICANT AND COMPANY INFORMATION

1.0.2 LOCATION OF PRODUCTION SITE, IMPORTER OR FORMULATOR

1.0.3 IDENTITY OF RECIPIENTS

1.0.4 DETAILS ON CATEGORY/TEMPLATE

1.1.0 SUBSTANCE IDENTIFICATION

1.1.1 GENERAL SUBSTANCE INFORMATION

Purity type : typical for marketed substance
Substance type : organic
Physical status : liquid
Purity : = 100 % w/w
Colour : amber
Odour : not available

Source : Epona Associates, LLC
Reliability : (2) valid with restrictions
25.02.2004

(3)

1.1.2 SPECTRA

1.2 SYNONYMS AND TRADENAMES

Vanlube (R) 7723

Source : Epona Associates, LLC
Reliability : (1) valid without restriction
25.02.2004

(3)

1.3 IMPURITIES

1.4 ADDITIVES

1.5 TOTAL QUANTITY

1.6.1 LABELLING

1.6.2 CLASSIFICATION

1.6.3 PACKAGING

1.7 USE PATTERN

1.7.1 DETAILED USE PATTERN

1.7.2 METHODS OF MANUFACTURE

1.8 REGULATORY MEASURES

1.8.1 OCCUPATIONAL EXPOSURE LIMIT VALUES

1.8.2 ACCEPTABLE RESIDUES LEVELS

1.8.3 WATER POLLUTION

1.8.4 MAJOR ACCIDENT HAZARDS

1.8.5 AIR POLLUTION

1.8.6 LISTINGS E.G. CHEMICAL INVENTORIES

1.9.1 DEGRADATION/TRANSFORMATION PRODUCTS

1.9.2 COMPONENTS

1.10 SOURCE OF EXPOSURE

1.11 ADDITIONAL REMARKS

1.12 LAST LITERATURE SEARCH

1.13 REVIEWS

2.1 MELTING POINT

Value	:	= 202.6 °C	
Sublimation	:		
Method	:	other: estimated with EPIWIN	
Year	:	2004	
GLP	:	no	
Test substance	:	as prescribed by 1.1 - 1.4	
Result	:	Melting Pt (deg C): 202.55 (Mean or Weighted MP)	
Source	:	Epona Associates, LLC	
Test condition	:	MPBPWIN v1.41	
Test substance	:	SMILES : N(C(=S)SCSC(N(CCCC)CCCC)=S)(CCCC)CCCC CHEM : Carbamodithioic acid, dibutyl -, methylene ester CAS NUM: 010254-57-6 MOL FOR: C19 H38 N2 S4 MOL WT : 422.77	
Reliability	:	(2) valid with restrictions	
Flag	:	Critical study for SIDS endpoint	(1)
25.02.2004			

2.2 BOILING POINT

Value	:	= 490.4 °C at 1013 hPa	
Decomposition	:		
Method	:	other: estimated with EPIWIN	
Year	:	2004	
GLP	:	no	
Test substance	:	as prescribed by 1.1 - 1.4	
Result	:	Boiling Pt (deg C): 490.44 (Adapted Stein & Brown method)	
Source	:	Epona Associates, LLC	
Test condition	:	MPBPWIN v1.41	
Test substance	:	SMILES : N(C(=S)SCSC(N(CCCC)CCCC)=S)(CCCC)CCCC CHEM : Carbamodithioic acid, dibutyl -, methylene ester CAS NUM: 010254-57-6 MOL FOR: C19 H38 N2 S4 MOL WT : 422.77	
Reliability	:	(2) valid with restrictions	
Flag	:	Critical study for SIDS endpoint	(1)
25.02.2004			

2.3 DENSITY

2.3.1 GRANULOMETRY

2.4 VAPOUR PRESSURE

Value	:	< 0 at 25 °C	
Decomposition	:		
Method	:	other (calculated)	
Year	:	2004	
GLP	:	no	

2. Physico-Chemical Data

Id 10254-57-6
Date 30.03.2004

Test substance : as prescribed by 1.1 - 1.4

Result : VP(mm Hg,25 deg C): 6.37E-010 (Modified Grain method)

Source : Epona Associates, LLC

Test condition : MPBPWIN v1.41

Test substance : SMILES : N(C(=S)SCSC(N(CCCC)CCCC)=S)(CCCC)CCCC
CHEM : Carbamodithioic acid, dibutyl -, methylene ester
CAS NUM: 010254-57-6
MOL FOR: C19 H38 N2 S4
MOL WT : 422.77

Reliability : (2) valid with restrictions

Flag : Critical study for SIDS endpoint

25.02.2004 (1)

2.5 PARTITION COEFFICIENT

Partition coefficient : octanol-water

Log pow : = 6.73 at °C

pH value :

Method : other (calculated)

Year : 2004

GLP : no

Test substance : as prescribed by 1.1 - 1.4

Result : Log Kow (KOWWIN v1.67 estimate) = 6.73

Source : Epona Associates, LLC

Test condition : KOWWIN v1.67 estimate

Test substance : SMILES : N(C(=S)SCSC(N(CCCC)CCCC)=S)(CCCC)CCCC
CHEM : Carbamodithioic acid, dibutyl -, methylene ester
CAS NUM: 010254-57-6
MOL FOR: C19 H38 N2 S4
MOL WT : 422.77

Reliability : (2) valid with restrictions

Flag : Critical study for SIDS endpoint

25.02.2004 (1)

2.6.1 SOLUBILITY IN DIFFERENT MEDIA

Solubility in : Water

Value : = .243 mg/l at °C

pH value :

concentration : at °C

Temperature effects :

Examine different pol. :

pKa : at 25 °C

Description :

Stable :

Deg. product :

Method : other

Year : 2004

GLP : yes

Test substance : as prescribed by 1.1 - 1.4

Source : Epona Associates, LLC

Test substance : Vanlube® 7723

Reliability : (1) valid without restriction

Flag : Critical study for SIDS endpoint

25.02.2004 (7)

2. Physico-Chemical Data

Id 10254-57-6
Date 30.03.2004

Solubility in : Water
Value : at °C
pH value :
concentration : at °C
Temperature effects :
Examine different pol. :
pKa : at 25 °C
Description :
Stable :
Deg. product :
Method :
Year : 2003
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Result : Insoluble in cold water
Source : Epona Associates, LLC
Reliability : (2) valid with restrictions
25.02.2004

(3)

Solubility in : Water
Value : = .04035 mg/l at 25 °C
pH value :
concentration : at °C
Temperature effects :
Examine different pol. :
pKa : at 25 °C
Description :
Stable :
Deg. product :
Method : other: estimated using EPIWIN
Year : 2004
GLP : no
Test substance : as prescribed by 1.1 - 1.4

Result : Water Solubility at 25 deg C (mg/L): 0.04035
log Kow used: 6.73 (estimated)
no-melting pt equation used

Source : Epona Associates, LLC
Test condition : Water Solubility Estimate from Log Kow (WSKOW v1.41)
Test substance : SMILES : N(C(=S)SCSC(N(CCCC)CCCC)=S)(CCCC)CCCC
CHEM : Carbamodithioic acid, dibutyl -, methylene ester
CAS NUM: 010254-57-6
MOL FOR: C19 H38 N2 S4
MOL WT : 422.77

Reliability : (2) valid with restrictions
Flag : Critical study for SIDS endpoint
25.02.2004

(1)

Solubility in : Water
Value : = 21.833 mg/l at °C
pH value :
concentration : at °C
Temperature effects :
Examine different pol. :
pKa : at 25 °C
Description :
Stable :
Deg. product :
Method : other: estimated using EPIWIN
Year : 2004

2. Physico-Chemical Data

Id 10254-57-6
Date 30.03.2004

GLP : no
Test substance :
Result : Water Sol Estimate from Fragments:
Wat Sol (v1.01 est) = 21.833 mg/L
Source : Epona Associates, LLC
Test condition : v1.01 est
Test substance : SMILES : N(C(=S)SCSC(N(CCCC)CCCC)=S)(CCCC)CCCC
CHEM : Carbamodithioic acid, dibutyl -, methylene ester
CAS NUM: 010254-57-6
MOL FOR: C19 H38 N2 S4
MOL WT : 422.77
Reliability : (2) valid with restrictions
25.02.2004 (1)

2.6.2 SURFACE TENSION

2.7 FLASH POINT

2.8 AUTO FLAMMABILITY

2.9 FLAMMABILITY

2.10 EXPLOSIVE PROPERTIES

2.11 OXIDIZING PROPERTIES

2.12 DISSOCIATION CONSTANT

2.13 VISCOSITY

2.14 ADDITIONAL REMARKS

3.1.1 PHOTODEGRADATION

DIRECT PHOTOLYSIS

Half-life t_{1/2} : = .5 hour(s)
 Degradation : % after
 Quantum yield :

INDIRECT PHOTOLYSIS

Sensitizer : OH
 Conc. of sensitizer :
 Rate constant : ca. .00000000245 cm³/(molecule*sec)
 Degradation : % after
 Deg. product :
 Method : other (calculated)
 Year : 2004
 GLP : no
 Test substance : as prescribed by 1.1 - 1.4

Result : Hydroxyl Radicals Reaction:
 OVERALL OH Rate Constant = 245.8773 E-12 cm³/molecule-sec
 Half-Life = 0.044 Days (12-hr day; 1.5E6 OH/cm³)
 Half-Life = 0.522 Hrs

Ozone Reaction:
 No Ozone Reaction Estimation

Source : Epona Associates, LLC
 Test condition : Atmospheric Oxidation (25 deg C) [AopWin v1.91]
 Test substance : SMILES : N(C(=S)SCSC(N(CCCC)CCCC)=S)(CCCC)CCCC
 CHEM : Carbamodithioic acid, dibutyl -, methylene ester
 CAS NUM: 010254-57-6
 MOL FOR: C19 H38 N2 S4
 MOL WT : 422.77

Reliability : (2) valid with restrictions
 25.02.2004

(1)

3.1.2 STABILITY IN WATER

3.1.3 STABILITY IN SOIL

3.2.1 MONITORING DATA

3.2.2 FIELD STUDIES

3.3.1 TRANSPORT BETWEEN ENVIRONMENTAL COMPARTMENTS

Type : fugacity model level III
 Media :
 Air : % (Fugacity Model Level I)
 Water : % (Fugacity Model Level I)
 Soil : % (Fugacity Model Level I)
 Biota : % (Fugacity Model Level II/III)
 Soil : % (Fugacity Model Level II/III)

3. Environmental Fate and Pathways

Id 10254-57-6
Date 30.03.2004

	sodium benzoate, together with a toxicity control were used for validation purposes.	
Reliability Flag	: (1) valid without restriction	
30.03.2004	: Critical study for SIDS endpoint	(4)
Deg. product	:	
Method	: other: estimated using EPIWIN	
Year	: 2004	
GLP	: no	
Test substance	:	
Result	: Probability of Rapid Biodegradation (BIOWIN v4.01): Linear Model: 1.1391 Non-Linear Model: 0.9983	
	Expert Survey Biodegradation Results: Ultimate Survey Model: 3.3648 (days-weeks) Primary Survey Model: 4.7013 (hours-days)	
Source	: Epona Associates, LLC	
Test condition	: BIOWIN v4.01	
Test substance	: SMILES : N(C(=S)SCSC(N(CCCC)CCCC)=S)(CCCC)CCCC CHEM : Carbamodithioic acid, dibutyl -, methylene ester CAS NUM: 010254-57-6 MOL FOR: C19 H38 N2 S4 MOL WT : 422.77	
Reliability	: (2) valid with restrictions	(1)
25.02.2004		
Deg. product	:	
Method	: other: estimated using EPIWIN	
Year	: 2004	
GLP	: no	
Test substance	:	
Result	: Readily Biodegradable Probability (MITI Model): Linear Model: 0.0115 Non-Linear Model: 0.0399	
Source	: Epona Associates, LLC	
Test condition	: MITI model	
Test substance	: SMILES : N(C(=S)SCSC(N(CCCC)CCCC)=S)(CCCC)CCCC CHEM : Carbamodithioic acid, dibutyl -, methylene ester CAS NUM: 010254-57-6 MOL FOR: C19 H38 N2 S4 MOL WT : 422.77	
Reliability	: (2) valid with restrictions	(1)
25.02.2004		

3.6 BOD5, COD OR BOD5/COD RATIO

3.7 BIOACCUMULATION

3.8 ADDITIONAL REMARKS

4.1 ACUTE/PROLONGED TOXICITY TO FISH

Type : semistatic
Species : Oncorhynchus mykiss (Fish, fresh water)
Exposure period : 96 hour(s)
Unit : mg/l
NOEC : = .06 measured/nominal
LC50 : > .06 measured/nominal
Limit test : no
Analytical monitoring : yes
Method : OECD Guide-line 203 "Fish, Acute Toxicity Test"
Year : 2004
GLP : yes
Test substance : as prescribed by 1.1 - 1.4

Result : The results of the media preparation trials indicated that at a test concentration of 0.243 mg/l prepared using a preliminary solution in auxiliary solvent to spike test medium a significant proportion of undissolved/dispersed test material would be present. Samples taken from the test preparations throughout the test were therefore analysed untreated and after centrifugation (40000 g, 30 minutes) in order to give an indication of the dissolved and hence bioavailable test material concentration.

Chemical analysis of the untreated test samples showed measured test concentrations to range from 104% to 129% of the nominal test concentration with a mean measured value of 118%, indicating that the test system was correctly dosed during the test.

In the centrifuged test samples the measured test concentration were shown to range from 11% to 42% of the nominal test concentration, indicating the amount of dissolved and hence bioavailable test material in the test system. No significant decline was shown in the measured test concentrations over each 24-hour dosing period during the test, indicating that the dissolved test material was stable during testing.

Given there was no significant decline in the measured test concentrations over each 24-hour dosing period, it was considered justifiable to base the results on the mean measured test concentrations of the centrifuged test media to give a "worst case" analysis of the data.

Source : Epona Associates, LLC
Test condition : The maximum concentration employed in the study was 0.243 mg/l, which is the water solubility value of the test material. In order to enable the accurate and consistent preparation of this test concentration, it was determined that using a preliminary solution in auxiliary solvent (dimethylformamide) to spike the test medium was the most suitable method of test media preparation.

A semistatic test regime was employed in the test involving a daily renewal of the test preparations to ensure that the concentrations of the test material remained near nominal and to prevent the build up of nitrogenous waste products.

Following a preliminary range-findings test, fish were exposed in two groups of 10 to an aqueous dispersion of the test material at a single concentration of 0.243 mg/l for a period of 96 hours at a temperature of approximately 14 deg C under semi-static conditions. The number of mortalities and any sub-lethal effects of exposure in each test and control vessel were determined 3 and 6 hours after the start of exposure and then daily throughout the test until termination after 96 hours.

Test substance : Vanlube® 7723

Conclusion : The 96-hour LC50 based on the mean measured test concentrations of the centrifuged test media was greater than 0.060 mg/l and correspondingly the No Observed Effect Concentration was 0.060 mg/l.

Reliability : (1) valid without restriction

Flag : Critical study for SIDS endpoint

25.02.2004 (8)

4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES

Type : semistatic

Species : Daphnia magna (Crustacea)

Exposure period : 48 hour(s)

Unit : mg/l

NOEC : = .052 measured/nominal

EC50 : > .052 measured/nominal

Limit Test : no

Analytical monitoring : yes

Method : OECD Guide-line 202

Year : 2004

GLP : yes

Test substance : as prescribed by 1.1 - 1.4

Result : The results of the media preparation trials indicated that at a test concentration of 0.243 mg/l prepared using a preliminary solution in auxiliary solvent to spike test medium a significant proportion of undissolved/dispersed test material would be present. Samples taken from the test preparations at 0 (fresh test media), 24 (old or expired and fresh test media) and 48 hours (old or expired test media) were therefore analysed untreated and after centrifugation (40000 g, 30 minutes) in order to give an indication of the dissolved and hence bioavailable test material concentration.

Chemical analysis of the untreated test samples taken at 0 (fresh media), 24 (old and fresh media) and 48 hours (old media) showed the measured test concentrations to be 80% to 106% of the nominal value with the exception of replicates R3-R4 at 24 hours (fresh media) and replicates R1-R2 and R3-R4 at 48 hours, which showed measured values of 150%, 135% and 134% of the nominal value, respectively. However, analysis of frozen duplicate samples taken during the test showed measured test concentrations of 124%, 113%, and 110% of nominal, respectively, for these test samples, indicating that the initial results from analysis did not reflect the true dosed test concentrations and that the test system was correctly dosed.

In the centrifuged samples the measured concentrations were

shown to range from 15% to 32% of the nominal test concentration. No significant decline in the measured test concentrations was observed over each dosing period indicating that the dissolved test material was stable in the test medium during testing.

Given that no significant losses of test material were shown over each dosing period, it was considered justifiable to base the results on the mean measured test concentrations of the centrifuged test media in order to give a "worst case" analysis of the data.

Source : Epona Associates, LLC
Test condition : The maximum concentration employed in the study was 0.243 mg/l, which is the water solubility value of the test material. In order to enable the accurate and consistent preparation of this test concentration, it was determined that using a preliminary solution in auxiliary solvent (dimethylformamide) to spike the test medium was the most suitable method of test media preparation.

A semi-static test regime was employed in the test in an effort to maintain near nominal test concentrations. For the test media renewal at 24 hours, the test concentrations were freshly prepared and the daphnids transferred by wide bore pipette from the 24-hour old test media into the fresh test media.

Following a preliminary range-finding test, forty daphnids (4 replicated of 10 animals) were exposed to an aqueous dispersion of the test material at a concentration of 0.243 mg/l for 48 hours at a temperature of approximately 21 deg C under semi-static conditions in the dark. Immobilization and any adverse reactions to exposure were recorded after 24 and 48 hours.

Test substance : Vanlube® 7723
Conclusion : The 48-hour EC50 based on the mean measured test concentrations of the centrifuged test media was greater than 0.052 mg/l and correspondingly the No Observed Effect Concentration was 0.052 ml/L.

Reliability : (1) valid without restriction
Flag : Critical study for SIDS endpoint
25.02.2004

(7)

4.3 TOXICITY TO AQUATIC PLANTS E.G. ALGAE

Species : Scenedesmus subspicatus (Algae)
Endpoint : growth rate
Exposure period : 72 hour(s)
Unit : mg/l
NOEC : = .0325 measured/nominal
EC50 : > .0325 measured/nominal
Limit test : no
Analytical monitoring : yes
Method : OECD Guide-line 201 "Algae, Growth Inhibition Test"
Year : 2004
GLP : yes
Test substance : as prescribed by 1.1 - 1.4

Result : The results of the media preparation trials indicated that at a test concentration of 0.243 mg/l prepared using a

preliminary solution in auxiliary solvent to spike test medium a significant proportion of undissolved/dispersed test material would be present. Samples taken from the test preparations at 0 and 72 hours were therefore analysed untreated and after centrifugation (40000 g, 30 minutes) in order to give an indication of the dissolved and hence bioavailable test material concentration.

Chemical analysis of the untreated test samples at 0 hours showed the measured test concentrations to be 90% and 96% of the nominal value (Replicates R1-R3 and R4-R6 pooled, respectively). After 72 hours there was a marked decline in the measured concentrations in the untreated test samples to 52% and 39% of nominal.

In the centrifuged samples the measured concentrations at 0 hours were 24% and 23% of the nominal value and a decline in measured test concentration was also observed after 72 hours to 9% and 7% of the nominal value.

The test material was shown to be stable in the culture medium over a 72-hour period and hence the decline in test concentrations observed in the definitive test was considered to be due to adsorption to algal cells.

Given this decline in measured test concentrations it was considered justifiable to base the results on the mean measured test concentration of the centrifuged test media in order to give a "worst case" analysis of the data.

Source
Test condition

- : Epona Associates, LLC
- : The maximum concentration employed in the study was 0.243 mg/l, which is the water solubility value of the test material. To enable the accurate and consistent preparation of this test concentration, it was determined that using a preliminary solution in auxiliary solvent (dimethylformamide) to spike the test medium was the most suitable method of test media preparation.

Following a preliminary range-finding test, *Scenedesmus subspicatus* was exposed to an aqueous dispersion of the test material at a concentration of 0.243 mg/l (six replicate flasks) for 72 hours under constant illumination and shaking at a temperature of 24 +/- 1 deg C.

Test substance
Conclusion

- : Vanlube® 7723
- : The EC50 values based on the geometric mean measured test concentrations of the centrifuged test media were greater than 0.0325 mg/l and correspondingly the No Observed Effect Concentration was 0.0325 mg/l.

Reliability
Flag
25.02.2004

- : (1) valid without restriction
- : Critical study for SIDS endpoint

(2)

4.4 TOXICITY TO MICROORGANISMS E.G. BACTERIA

4. Ecotoxicity

Id 10254-57-6
Date 30.03.2004

4.5.1 CHRONIC TOXICITY TO FISH

4.5.2 CHRONIC TOXICITY TO AQUATIC INVERTEBRATES

4.6.1 TOXICITY TO SEDIMENT DWELLING ORGANISMS

4.6.2 TOXICITY TO TERRESTRIAL PLANTS

4.6.3 TOXICITY TO SOIL DWELLING ORGANISMS

4.6.4 TOX. TO OTHER NON MAMM. TERR. SPECIES

4.7 BIOLOGICAL EFFECTS MONITORING

4.8 BIOTRANSFORMATION AND KINETICS

4.9 ADDITIONAL REMARKS

5.0 TOXICOKINETICS, METABOLISM AND DISTRIBUTION

5.1.1 ACUTE ORAL TOXICITY

Type : LD50
Value : = 16000 mg/kg bw
Species : rat
Strain :
Sex :
Number of animals :
Vehicle :
Doses :
Method :
Year : 2003
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Source : Epona Associates, LLC
Reliability : (2) valid with restrictions
Flag : Critical study for SIDS endpoint
25.02.2004 (3)

5.1.2 ACUTE INHALATION TOXICITY

5.1.3 ACUTE DERMAL TOXICITY

Type : LD50
Value : > 2000 mg/kg bw
Species : rabbit
Strain :
Sex :
Number of animals :
Vehicle :
Doses :
Method :
Year : 2003
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Source : Epona Associates, LLC
Reliability : (2) valid with restrictions
25.02.2004 (3)

5.1.4 ACUTE TOXICITY, OTHER ROUTES

5.2.1 SKIN IRRITATION

5.2.2 EYE IRRITATION

5.3 SENSITIZATION

5.4 REPEATED DOSE TOXICITY

Type	: Sub-acute
Species	: rat
Sex	: male/female
Strain	: Sprague-Dawley
Route of admin.	: oral feed
Exposure period	: For two weeks prior to mating, during mating, gestation, and up to Day 5 of lactation
Frequency of treatm.	: daily
Post exposure period	:
Doses	: 1000, 5000 and 20000 ppm; reduced to 900, 4500 and 18000 ppm on Day 29 to account for the anticipated increase in female food consumption during late gestation
Control group	: yes, concurrent no treatment
NOAEL	: = 1000 ppm
Method	: other: OECD 422
Year	: 2004
GLP	: yes
Test substance	: as prescribed by 1.1 - 1.4

Result : At 20000 ppm there were no mortalities and no clinical signs of toxicity. The behavioural evaluations showed no evidence of toxicity. There were inconsistent differences in bodyweight gain for males throughout, and females prior to pairing compared to controls. Female bodyweight gain during gestation was lower than controls resulting in significant bodyweight differences during the final week of gestation and early lactation. There were no significant effects upon food consumption except for a significant difference in female food consumption during the final week of gestation. Laboratory investigations showed a significant increase in both Activated Partial Thromboplastin Time and Clotting time for males only when compared to control values. There were no significant blood chemistry changes. Post mortem macroscopic examination showed an increase in absolute and relative liver weight for females only when compared to controls. There were no significant macroscopic abnormalities. Histopathology showed a reduction in the severity grades for splenic extramedullary haemopoiesis for both males and females compared to controls but this is of questionable toxicological relevance.

At 5000 ppm there were no mortalities or clinical signs of toxicity. A similar pattern of reduction in bodyweight gain during gestation for females was observed but no significant effect upon female food consumption. There were no significant effect seen for blood chemistry and haematological analysis. Significant post mortem changes were limited to an increase in liver weight for females only and lower severity grades of splenic extramedullary haemopoiesis for males only.

At 1000 ppm there were no mortalities or effects on adults seen during the in-life phase of the study. There were no significant effects on blood chemistry or haematology. Post mortem findings were limited to lower severity grades of

Source	: splenic extramedullary haemopoiesis for males only.
Test condition	: Epona Associates, LLC : The test material was administered orally, by dietary inclusion, to groups of ten male and ten female rats throughout maturation, mating, gestation and up to Day 5 of lactation. The dose levels were 1000, 5000 and 20000 ppm of Vanlube 7723 in the diet. These dose levels were reduced to 900, 4500 and 18000 ppm respectively on study Day 29 to account for the anticipated increase in female food consumption during late gestation.
	Following two weeks of dosing, male and female rats were paired within their dose groups to produce litters. At Day 5 post partum, all surviving females and offspring together with all adult males were killed and examined macroscopically.
	Parental animals were observed daily for clinical signs of toxicity. Bodyweights and food consumption were recorded weekly during the maturation phase which was continued for males after the mating phase. Neurotoxicological assessments were performed at specific time points during the study. Mated females were weighed and food consumption recorded on specific days post coitum and post partum up to Day 5 of lactation.
	Blood sampling for haematology and clinical chemistry was performed on five selected males and five selected females per dos group one day prior to pairing.
	The offspring were observed daily for clinical signs. The offspring clinical signs and individual pup bodyweights were recorded on specific days post partum up to Day 5 of lactation.
	Post mortem macroscopic examinations were performed on all adults and offspring, including decedents. Selected reproductive organs were weighed and/or preserved together with any significant abnormalities from all parental animals were preserved in fixative. In addition an extended list of organs/tissues were weighed and/or preserved in fixative for selected males and females. Histopathology was carried out on specific organs from selected parental animals. Histopathology was also performed on the extended list of tissues preserved from selected males and females.
Test substance	: Vanlube® 7723
Conclusion	: At dose levels of 5000 ppm Vanlube 7723 and above there was evidence of treatment-related effects upon the adult. At a dose level of 1000 ppm and above the only significant finding was lower grades of severity splenic extramedullary haemopoiesis which is considered not to be an adverse finding. The "No Observed Adverse Effect Level" for effects upon adults was 1000 ppm.
Reliability Flag	: (1) valid without restriction : Critical study for SIDS endpoint
25.02.2004	(5)

5.5 GENETIC TOXICITY 'IN VITRO'

Type : Bacterial reverse mutation assay

5. Toxicity

Id 10254-57-6
Date 30.03.2004

System of testing : Salmonella typhimurium strains TA1535, TA1537, TA102, TA98 and TA100
Test concentration : 50, 150, 500, 1500 and 5000 ug/plate
Cycotoxic concentr. : > 5000 ug/plate
Metabolic activation : with and without
Result : negative
Method : OECD Guide-line 471
Year : 2003
GLP : yes
Test substance : as prescribed by 1.1 - 1.4

Result : The test material caused no visible reduction in the growth of the bacterial background lawn at any dose level. The test material was, therefore, tested up to the maximum recommended dose level of 5000 ug/plate. An oily precipitate was observed at and above 1500 ug/plate; this did not prevent the scoring of revertant colonies.

No significant increases in the frequency of revertant colonies were recorded for any of the bacterial strains, with any dose of the test material, either with or without metabolic activation.

The vehicle control plates gave counts of revertant colonies within the normal range. All of the positive control chemicals used in the test induced marked increases in the frequency of revertant colonies, both with and without metabolic activation. Thus, the sensitivity of the assay and the efficacy of the S9-mix were validated.

Source : Epona Associates, LLC
Test condition : Salmonella typhimurium strains TA1535, TA1537, TA102, TA98 and TA100 were treated with the test material using the Ames plate incorporation method at five dose levels, in triplicate, both with and without the addition of a rat liver homogenate metabolising system (10% liver S9 in standard co-factors). The dose range was determined in a preliminary toxicity assay and was 50 to 5000 ug/plate in the first experiment. The experiment was repeated on a separate day using the same dose range as Experiment 1. The vehicle was dimethyl sulphoxide.

Test substance : Vanlube® 7723
Conclusion : The test material was considered to be non-mutagenic under the conditions of this test.

Reliability : (1) valid without restriction
Flag : Critical study for SIDS endpoint
25.02.2004

(6)

5.6 GENETIC TOXICITY 'IN VIVO'

5.7 CARCINOGENICITY

5.8.1 TOXICITY TO FERTILITY

Type : One generation study
Species : rat
Sex : male/female
Strain : Sprague-Dawley
Route of admin. : oral feed

5. Toxicity

Id 10254-57-6

Date 30.03.2004

Exposure period	:	For two weeks prior to mating, during mating, gestation, and up to Day 5 of lactation
Frequency of treatm.	:	daily
Premating exposure period	:	
Male	:	14 days
Female	:	14 days
Duration of test	:	up to Day 5 of lactation
No. of generation studies	:	2
Doses	:	1000, 5000 and 20000 ppm; reduced to 900, 4500 and 18000 ppm on Day 29 to account for the anticipated increase in female food consumption during late gestation
Control group	:	yes, concurrent no treatment
NOAEL parental	:	= 1000 ppm
NOAEL F1 offspring	:	> 20000 ppm
Result	:	The "No Observed Adverse Effect Level" for effects upon adults was 1000 ppm and for reproductive performance and offspring viability was in excess of 20000 ppm.
Method	:	OECD combined repeated dose and reproductive/developmental toxicity screening test
Year	:	2004
GLP	:	yes
Test substance	:	as prescribed by 1.1 - 1.4
Result	:	<p>At 20000 ppm there were no mortalities and no clinical signs of toxicity. The behavioural evaluations showed no evidence of toxicity. There were inconsistent differences in bodyweight gain for males throughout, and females prior to pairing compared to controls. Female bodyweight gain during gestation was lower than controls resulting in significant bodyweight differences during the final week of gestation and early lactation. There were no significant effects upon food consumption except for a significant difference in female food consumption during the final week of gestation. Laboratory investigations showed a significant increase in both Activated Partial Thromboplastin Time and Clotting time for males only when compared to control values. There were no significant blood chemistry changes. Post mortem macroscopic examination showed an increase in absolute and relative liver weight for females only when compared to controls. There were no significant macroscopic abnormalities. Histopathology showed a reduction in the severity grades for splenic extramedullary haemopoiesis for both males and females compared to controls but this is of questionable toxicological relevance. There were no significant effects upon fertility or reproductive performance and no effect upon offspring development in utero and up to Day 5 of lactation.</p> <p>At 5000 ppm there were no mortalities or clinical signs of toxicity. A similar pattern of reduction in bodyweight gain during gestation for females was observed but no significant effect upon female food consumption. There were no significant effect seen for blood chemistry and haematological analysis. Significant post mortem changes were limited to an increase in liver weight for females only and lower severity grades of splenic extramedullary haemopoiesis for males only. There were no treatment-related effects upon fertility, reproductive performance or offspring viability, growth and development up to early lactation.</p>

Source
Test condition

At 1000 ppm there were no mortalities or effects on adults seen during the in-life phase of the study. There were no significant effects on blood chemistry or haematology. Post mortem findings were limited to lower severity grades of splenic extramedullary haemopoiesis for males only. There were no effects on fertility or reproductive performance. Offspring viability, growth and development up to Day 5 of lactation were comparable to controls.

: Epona Associates, LLC

: The test material was administered orally, by dietary inclusion, to groups of ten male and ten female rats throughout maturation, mating, gestation and up to Day 5 of lactation. The dose levels were 1000, 5000 and 20000 ppm of Vanlube 7723 in the diet. These dose levels were reduced to 900, 4500 and 18000 ppm respectively on study Day 29 to account for the anticipated increase in female food consumption during late gestation.

Following two weeks of dosing, male and female rats were paired within their dose groups to produce litters. At Day 5 post partum, all surviving females and offspring together with all adult males were killed and examined macroscopically.

Parental animals were observed daily for clinical signs of toxicity. Bodyweights and food consumption were recorded weekly during the maturation phase which was continued for males after the mating phase. Neurotoxicological assessments were performed at specific time points during the study. Mated females were weighed and food consumption recorded on specific days post coitum and post partum up to Day 5 of lactation.

Blood sampling for haematology and clinical chemistry was performed on five selected males and five selected females per dose group one day prior to pairing.

The offspring were observed daily for clinical signs. The offspring clinical signs and individual pup bodyweights were recorded on specific days post partum up to Day 5 of lactation.

Post mortem macroscopic examinations were performed on all adults and offspring, including decedents. Selected reproductive organs were weighed and/or preserved together with any significant abnormalities from all parental animals were preserved in fixative. In addition an extended list of organs/tissues were weighed and/or preserved in fixative for selected males and females. Histopathology was carried out on specific organs from selected parental animals. Histopathology was also performed on the extended list of tissues preserved from selected males and females.

Test substance
Conclusion

: Vanlube® 7723

: There was no evidence of effects upon reproductive performance or subsequent offspring viability in utero and early lactation. The "No Observed Adverse Effect Level" for reproductive performance and offspring viability was in excess of 20000 ppm.

Reliability
Flag

: (1) valid without restriction

: Critical study for SIDS endpoint

25.02.2004

(5)

5.8.2 DEVELOPMENTAL TOXICITY/TERATOGENICITY

Species : rat
Sex : male/female
Strain : Sprague-Dawley
Route of admin. : oral feed
Exposure period : For two weeks prior to mating, during mating, gestation, and up to Day 5 of lactation
Frequency of treatm. : daily
Duration of test :
Doses : 1000, 5000 and 20000 ppm; reduced to 900, 4500 and 18000 ppm on Day 29 to account for the anticipated increase in female food consumption during late gestation
Control group : yes, concurrent no treatment
NOAEL maternal tox. : = 1000 ppm
NOAEL teratogen. : > 20000 - ppm
Method : other: OECD 422
Year : 2004
GLP : yes
Test substance : as prescribed by 1.1 - 1.4

Result : At 20000 ppm there were no significant effects upon fertility or reproductive performance and no effect upon offspring development in utero and up to Day 5 of lactation.

At 5000 ppm there were no treatment-related effects upon fertility, reproductive performance or offspring viability, growth and development up to early lactation.

At 1000 ppm there were no effects on fertility or reproductive performance. Offspring viability, growth and development up to Day 5 of lactation were comparable to controls

Source : Epona Associates, LLC
Test condition : The test material was administered orally, by dietary inclusion, to groups of ten male and ten female rats throughout maturation, mating, gestation and up to Day 5 of lactation. The dose levels were 1000, 5000 and 20000 ppm of Vanlube 7723 in the diet. These dose levels were reduced to 900, 4500 and 18000 ppm respectively on study Day 29 to account for the anticipated increase in female food consumption during late gestation.

Following two weeks of dosing, male and female rats were paired within their dose groups to produce litters. At Day 5 post partum, all surviving females and offspring together with all adult males were killed and examined macroscopically.

Parental animals were observed daily for clinical signs of toxicity. Bodyweights and food consumption were recorded weekly during the maturation phase which was continued for males after the mating phase. Neurotoxicological assessments were performed at specific time points during the study. Mated females were weighed and food consumption recorded on specific days post coitum and post partum up to Day 5 of lactation.

Blood sampling for haematology and clinical chemistry was performed on five selected males and five selected females per dos group one day prior to pairing.

The offspring were observed daily for clinical signs. The offspring clinical signs and individual pup bodyweights were recorded on specific days post partum up to Day 5 of lactation.

Post mortem macroscopic examinations were performed on all adults and offspring, including decedents. Selected reproductive organs were weighed and/or preserved together with any significant abnormalities from all parental animals were preserved in fixative. In addition an extended list of organs/tissues were weighed and/or preserved in fixative for selected males and females. Histopathology was carried out on specific organs from selected parental animals. Histopathology was also performed on the extended list of tissues preserved from selected males and females.

Test substance : Vanlube® 7723
Conclusion : There was no evidence of effects upon reproductive performance or subsequent offspring viability in utero and early lactation. Offspring development was comparable to control values. The "No Observed Adverse Effect Level" for reproductive performance and offspring viability was in excess of 20000 ppm.
Reliability : (1) valid without restriction
Flag : Critical study for SIDS endpoint
25.02.2004

(5)

5.8.3 TOXICITY TO REPRODUCTION, OTHER STUDIES

5.9 SPECIFIC INVESTIGATIONS

5.10 EXPOSURE EXPERIENCE

5.11 ADDITIONAL REMARKS

6.1 ANALYTICAL METHODS

6.2 DETECTION AND IDENTIFICATION

7.1 FUNCTION

7.2 EFFECTS ON ORGANISMS TO BE CONTROLLED

7.3 ORGANISMS TO BE PROTECTED

7.4 USER

7.5 RESISTANCE

8.1 METHODS HANDLING AND STORING

8.2 FIRE GUIDANCE

8.3 EMERGENCY MEASURES

8.4 POSSIB. OF RENDERING SUBST. HARMLESS

8.5 WASTE MANAGEMENT

8.6 SIDE-EFFECTS DETECTION

8.7 SUBSTANCE REGISTERED AS DANGEROUS FOR GROUND WATER

8.8 REACTIVITY TOWARDS CONTAINER MATERIAL

- (1) EPIWIN SUMMARY (v3.11)
- (2) Mead, C. and McKenzie, J. (2004) Vanlube® 7723: Algal Inhibition Test. SafePharm Laboratories Limited, SPL Project Number: 860/087.
- (3) R.T. Vanderbilt Company, Inc (2003) Material Safety Data Sheet Vanlube (R) 7723. 4/14/2003
- (4) SafePharm Laboratories (2004) Vanlube (R) 7723: Assessment of Ready Biodegradability; CO2 Evolution Test. SPL Project Number: 860/088.
- (5) Summary: Vanlube® 7723: Dietary Combined Repeat Dose Toxicity Study with Reproductive/Developmental Screening Test in the Rat. SafePharm Laboratories Limited, SPL Project Number: 860/083.
- (6) Thompson, P.W. (2003) Vanlube® 7723: Reverse Mutation Assay "Ames Test" Using Salmonella Typhimurium. SafePharm Laboratories Limited, SPL Project Number: 860/084, February 13, 2003.
- (7) Wetton, P.M. and McKenzie, J. (2004) Vanlube® 7723: Acute Toxicity to Daphnia magna. SafePharm Laboratories Limited, SPL Project Number: 860/086.
- (8) Wetton, P.M. and McKenzie, J. (2004) Vanlube® 7723: Acute Toxicity to Rainbow Trout (Oncorhynchus mykiss). SafePharm Laboratories Limited, SPL Project Number: 860/085.

10. Summary and Evaluation

Id 10254-57-6
Date 30.03.2004

10.1 END POINT SUMMARY

10.2 HAZARD SUMMARY

10.3 RISK ASSESSMENT