

201-10334B

RECEIVED
OPPT CBIC

2006 AUG 29 AM 8:05

I U C L I D

Data Set

Existing Chemical : ID: 68609-97-2
CAS No. : 68609-97-2
EINECS Name : Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.
EC No. : 271-846-8

Producer related part
Company : Huntsman (Europe) BVBA (ehemals ICI Polyurethanes)
Creation date : 07.06.2006

Substance related part
Company : Huntsman (Europe) BVBA (ehemals ICI Polyurethanes)
Creation date : 07.06.2006

Status :
Memo : SPI HPV chemical

Printing date : 09.08.2006
Revision date :
Date of last update : 09.08.2006

Number of pages : 18

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. General Information

Id 68609-97-2
Date 19.06.2006

1.0.1 APPLICANT AND COMPANY INFORMATION

Type : other: lead organization
Name : Epoxy Resin Systems Task Group of The Society of the Plastics Industry, Inc.,
Contact person : Marie Martinko
Date :
Street : 1667 K Street, NW, Suite 1000
Town : 20006 Washington, DC
Country : United States
Phone : 202-974-5200
Telefax : 202-296-7005
Telex :
Cedex :
Email : mmartink@socplas.org
Homepage :

07.06.2006

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

1.1.2 SPECTRA

1.2 SYNONYMS AND TRADENAMES

1.3 IMPURITIES

1.4 ADDITIVES

1.5 TOTAL QUANTITY

1.6.1 LABELLING

1. General Information

Id 68609-97-2
Date 19.06.2006

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. General Information

Id 68609-97-2
Date 19.06.2006

1.13 REVIEWS

2. Physico-Chemical Data

Id 68609-97-2

Date 19.06.2006

2.1 MELTING POINT

2.2 BOILING POINT

2.3 DENSITY

2.3.1 GRANULOMETRY

2.4 VAPOUR PRESSURE

2.5 PARTITION COEFFICIENT

Partition coefficient : octanol-water
Log pow : = 3.77 at 20 °C
pH value :
Method : OECD Guide-line 107 "Partition Coefficient (n-octanol/water), Flask-shaking Method"

Year :
GLP : yes
Test substance : other TS: Epoxide 8 (Distilled C12-C14 Glycidyl Ether), 94% active

Method : This study was conducted in accordance with OECD Guideline 107 using the methods described in the approved protocol and STILLMEADOW, Inc. SOPs. There were no deviations from the protocol that affected the quality or outcome of the study.
Approximately 0.1 g of Alkyl glycidyl ether was dissolved in equilibrated n-octanol. The test substance n-octanol solution was distributed to six 50 mL centrifuge tubes and filled with 48 mL, 46 mL and 42 mL of equilibrated HPLC water. The tubes were inverted 100 times manually, equilibrated to 20°C for one hour, and then centrifuged at 3000 rpm for approximately 10 minutes. The n-octanol layers were removed by Pasteur pipet and placed in 6 mL LSC vials. Twenty milliliters aliquots of the aqueous phase were extracted using methylene chloride. Standards A, B, C and D were made from the following dilutions: 2:5 (82 mg/L), 1:5 (41mg/L), 0.5:5 (20.5 mg/L), 0.5:2 (10.25 mg/L), respectively. Both phases were then analyzed by GC-FID.

Result : The partition coefficient is the ratio of the concentrations of the test substance in the n-octanol phase and aqueous phase.
This study estimated the n-octanol/water partition coefficient (Log Pow) of the test substance, Alkyl (C12-C14) glycidyl ether; CAS RN 68609-97-2, by gas chromatography (GC-FID). The partition coefficient for Alkyl glycidyl ether was determined to be 6974.46, which corresponded to a Log Pow of 3.77.

Reliability : (1) valid without restriction
GLP guideline study

Flag : Critical study for SIDS endpoint

07.06.2006

(1)

2. Physico-Chemical Data

Id 68609-97-2
Date 19.06.2006

2.6.1 SOLUBILITY IN DIFFERENT MEDIA

Solubility in : Water
Value : = 0.483 at 20 °C
pH value :
concentration :
Temperature effects :
Examine different pol. :
pKa : at 25 °C
Description :
Stable :
Deg. product :
Method : OECD Guide-line 105
Year :
GLP : yes
Test substance : other TS: Epoxide 8 (Distilled C12-C14 Glycidyl Ether), 94% active

Method : This study was conducted in accordance with OECD Guideline 105, using the methods described in the approved protocol and STILLMEADOW, Inc. SOPs. There were no deviations from the protocol that affected the quality or outcome of the study.
Approximately 0.02 g of the test substance was added to 500 mL of distilled water (27°C) and stirred for ten minutes. 40 mL were removed and stored at 20°C, this was the Day 1 sample. The 1L flask was then placed in an incubator on a stir plate, where it was stored until Day 2 and 5 samples were removed. The other samples were taken in the same way as Day 1 samples. The sample tubes were centrifuged twice for ~10 minutes at 10000 rpm to separate the solvent from the undissolved test substance. Tubes for Day 1 and Day 2 were centrifuged again for 20 minutes. The Day 5 tubes were centrifuged for 30 minutes at 10000 rpm. 20 mL aliquots of water were taken from each tube using separating funnels and extracted twice with 5 mL portions of methylene chloride. The extracts were collected in 20 mL LSC vials and left to evaporate in the hood.

The remains of the methylene chloride extractions were taken up using isopropyl alcohol, ~0.2 mL were added by pipette to each vial and a drop was added as a rinse. The samples were then analyzed by GC-FID. Standard A was prepared by diluting the stock solution (1323 mg/L) using methylene chloride to 2:25. The rest of the stock solutions were prepared by diluting Standard A to 3:5, 1:5 and 0.5:5 (Std B, Std C and Std D respectively)..

Result : The test substance, Alkyl (C12-C14) glycidyl ether; CAS RN 68609-97-2, was assessed for its solubility in water. In the first trial the difference between the replicates was greater than 15%, therefore a second trial was conducted. The deviation remained greater than 15% in the second trial, beyond what is recommended. The average solubility was calculated based on the results of the second trial - Day 1 average (0.8656 mg/L), Day 2 (0.3313 mg/l) and Day 5 (0.2531 mg/l) values. Alkyl (C12-C14) glycidyl ether was determined to have a water solubility of 0.483 mg/L (S.D. = 0.3334).

Remark : In the first trial the difference between the replicates was greater than 15%, therefore a second trial was conducted. The deviation remained greater than 15% in the second trial, beyond what is recommended. This test was conducted in accordance with OECD Guideline 105, and the variability was investigated.

Reliability : (1) valid without restriction
GLP guideline study

Flag : Critical study for SIDS endpoint

09.08.2006

(2)

2. Physico-Chemical Data

Id 68609-97-2
Date 19.06.2006

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. Environmental Fate and Pathways

Id 68609-97-2
Date 19.06.2006

3.1.1 PHOTODEGRADATION

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

3.3.2 DISTRIBUTION

3.4 MODE OF DEGRADATION IN ACTUAL USE

3.5 BIODEGRADATION

Type : aerobic
Inoculum : other: Brazos River Water; Bacteriological analysis was not performed
Concentration : 0.6 mg/l related to Test substance

Contact time :
Degradation : = 34.7 (±) % after 28 day(s)
Result : other: not readily biodegradable
Kinetic of testsubst. : 7 day(s) = 10 %
14 day(s) = 10.5 %
21 day(s) = 21.7 %
28 day(s) = 34.7 %

Control substance : Acetic acid, sodium salt
Kinetic : 7 day(s) = 59.6 %
14 day(s) = 88.2 %

Deg. product :
Method : OECD Guide-line 301 D "Ready Biodegradability: Closed Bottle Test"
Year :
GLP : yes
Test substance : other TS: Epoxide 8 (Distilled C12-C14 Glycidyl Ether), 94% active

Method : This study was conducted in accordance with the OECD Guideline For Testing of Chemicals, Section 301-D and STILLMEADOW, Inc. SOPs. There were no deviations from the protocol that affected the quality or the outcome of the study.
15 mL of river water (Brazos River, Texas, USA) was added to 15L of mineral medium. The mineral medium was prepared by adding BOD nutrients (Na₂HPO₄, KH₂PO₄, K₂HPO₄, NH₄Cl, CaCl₂, MgSO₄, FeCl₃) in deionized water and aerated for about 20 hours.

3. Environmental Fate and Pathways

Id 68609-97-2

Date 19.06.2006

Since the test substance was determined to be only slightly soluble, 0.60 mg of the test substance was weighed on a piece of aluminum foil and added directly to the test flask. Sodium acetate (0.0133 g), used as a reference standard, was added to 6.5 L of test medium and homogenized for about 50 minutes.

Each solution was siphoned from the lowest quarter of prepared solution container and transferred to labeled 300 mL BOD bottles resulting in 10 bottles for each of the solutions. The Day 0 samples were examined for dissolved oxygen and the remaining bottles were stored in the dark and incubated at $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

Two BOD bottles for each solution were removed at each sampling interval (0, 7, 14, 21 and 28 days). The oxygen in each duplicate set of solutions was measured using an YSI Model 57 Dissolved Oxygen Meter and recorded at each interval.

The Biological Oxygen Demand (BOD) was calculated and then divided by the Chemical Oxygen Demand (2.09 mg O₂/mg for the test material) or Theoretical Oxygen Demand (0.4703 mg O₂/mg for sodium acetate) and multiplied by 100% to calculate the percent degradation.

- Result** : A test substance is considered readily biodegradable if a value of >60% is obtained within 28 days. For test substance Alkyl glycidyl ether, a maximum of 34.7% biodegradation was obtained on Day 28 of the study. Therefore the test substance is not considered readily biodegradable.
- Remark** : The Chemical Oxygen Demand was determined experimentally to be 2.09 mg O₂/mg test material for Alkyl glycidyl ether by Galbraith Laboratories, Inc. (Knoxville, TN). The theoretical Oxygen Demand of sodium acetate was calculated to be 0.4703 mg of O₂/mg.
- Reliability** : (1) valid without restriction
GLP guideline study
- Flag** : Critical study for SIDS endpoint
- 07.06.2006 (3)

3.6 BOD₅, COD OR BOD₅/COD RATIO

3.7 BIOACCUMULATION

3.8 ADDITIONAL REMARKS

4. Ecotoxicity

Id 68609-97-2

Date 19.06.2006

4.1 ACUTE/PROLONGED TOXICITY TO FISH

Type	: static
Species	: Oncorhynchus mykiss (Fish, fresh water)
Exposure period	: 96 hour(s)
Unit	: mg/l
NOEC	: < 5000
LC50	: > 5000
Limit test	: yes
Analytical monitoring	: yes
Method	: OECD Guide-line 203 "Fish, Acute Toxicity Test"
Year	:
GLP	: yes
Test substance	: other TS: Epoxide 8 (Distilled C12-C14 Glycidyl Ether), 94% active
Method	: A range-finding test was conducted using five concentrations (10, 100, 500, 1,000, and 5,000 mg/L) of the test substance, Alkyl glycidyl ether. Samples of each test group were saved for dose verification analysis by HPLC. Results from these analyses indicated that very little detectable material dissolved into the solution, likely due to the test material's low solubility. The method indicated little difference in actual concentration among all of the test groups. Overall, the test demonstrated a good dose-response; therefore, the nominal test concentrations were used in data analysis. A limit test was conducted at the 5,000 mg/L concentration of Alkyl glycidyl ether, in three replicates of the test concentration, with ten organisms per replicate. Test parameters, including dissolved oxygen, temperature, conductivity, and pH, of all test containers were recorded daily during limit testing.
Remark	: Although the D.O. in one of the replicates fell below the protocol levels in the 5000 mg/L concentration at 72 and 96 hours, it did not fall low enough to be considered hazardous to fish (<4.0 mg/L). The lowest dissolved oxygen (D.O.) measurement in the test was 4.8 mg/L. This protocol deviation of the D.O. being < 5.2 is not thought to have an adverse effect on the study outcome. However since this parameter was not measured in each replicate it is possible that the 100% mortality seen in one of the replicates may have been attributable to the D.O. being out of the protocol range.
Result	: A 100% survival rate was observed in control fish. A 67% survival rate was observed in fish treated with 5,000 mg/L of the test substance two replicates had 100% survival and one replicate had 0% survival at 96 hours (see remark). Since the water solubility of the substance was determined to be 0.483 mg/l, the LC50 is > solubility concentration.
Test condition	: temperature = 11-13 degree C pH = 6.9 7.7 dissolved O2 = 4.8-10 mg/L Conductivity = 240-275 µmhos/cm
Reliability	: (1) valid without restriction GLP guideline study
Flag	: Critical study for SIDS endpoint
07.06.2006	

(4)

4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES

Type	: static
Species	: Daphnia magna (Crustacea)
Exposure period	: 48 hour(s)

4. Ecotoxicity

Id 68609-97-2

Date 19.06.2006

Unit : mg/l
NOEC : < 10
EC50 : < 10
EC50 : 6.07 calculated
Limit Test : no
Method : OECD Guide-line 202
Year :
GLP : yes
Test substance : other TS: Epoxide 8 (Distilled C12-C14 Glycidyl Ether), 94% active

Method : Test concentrations were determined by preliminary range-finding test. Samples of each test group were saved for dose verification analysis by HPLC. Results from these analyses indicated that very little detectable material dissolved into the solution, likely due to the test material's low solubility. Therefore, the nominal test concentrations were used in data analysis. The test substance concentrations chosen for the definitive test (10, 20, 40, 80, and 160 mg/L) were administered to the test system, *Daphnia magna*, in moderately hard synthetic fresh water.

Result : A mobility rate of 95% was observed in the organisms of the control group. Mobility rates of 30%, 10%, and 5% were observed in organisms dosed at 10 mg/L, 20 mg/L, and 40 mg/L, respectively. A 0% mobility rate was observed in organisms dosed at 80 and 160 mg/L. The NOEC (No Observed Effect Concentration) was determined to be <10 mg/L, and the EC50 (Median Effective Concentration) for mobility was determined to be less than 10 mg/L. The statistical program ToxCalc V5.0.23 extrapolated the EC50 to be 6.07 mg/L with 95% confidence limits of 0.56-10.46 mg/L. Since the water solubility of the substance was determined to be 0.483 mg/l, the EC50 is > solubility concentration.

Test condition : Temperature Range of 20 ±1°C
16-hours light / 8-hours dark cycle
Dissolved oxygen concentration of 60-105% saturation at dosing. Daphnids were not fed during the test.

Reliability : (1) valid without restriction
GLP guideline study

Flag : Critical study for SIDS endpoint
07.06.2006 (5)

4.3 TOXICITY TO AQUATIC PLANTS E.G. ALGAE

Species : *Selenastrum capricornutum* (Algae)
Endpoint : growth rate
Exposure period : 72 hour(s)
Unit : mg/l
NOEC : = 500
EC50 : = 843.75
Limit test : no
Analytical monitoring : yes
Method : OECD Guide-line 201 "Algae, Growth Inhibition Test"
Year :
GLP : yes
Test substance : other TS: Epoxide 8 (Distilled C12-C14 Glycidyl Ether), 94% active

Method : Samples of each preliminary test group were saved for dose verification analysis by HPLC. Results from these analyses indicated that very little detectable material dissolved into the solution, likely due to the test material's low solubility. The test substance concentrations of 500, 1000, 2000, 4000, and 8000 mg/L (based on a preliminary range-finding test) were administered in the definitive test to the test system, *Selenastrum capricornutum*, in sterile medium. For each test concentration, three test containers containing the freshwater algae (initial cell density of 10,000

4. Ecotoxicity

Id 68609-97-2

Date 19.06.2006

cells/mL) were treated with the appropriate concentration of the test substance. A control group consisted of six test containers containing sterile medium and the test culture only. A positive control group consisted of three replicates treated with 10 mg/L potassium dichromate. The cell density in each test and control container was measured daily using a hemacytometer. The pH of each test and control container was determined at test termination. The test was terminated after 72 ± 2 hours of exposure.

Result : The mean cell counts of the test concentration containers were compared to the control counts. The test concentration that resulted in 50% inhibition (IC50) was determined to be 843.75 mg/L with 95% confidence limits of 582.44-1097.71 mg/L. The NOEC (No Observed Effect Concentration) was determined to be 500 mg/L. Since the water solubility of the substance was determined to be 0.483 mg/l, the EC50 is > solubility concentration.

Test condition : Temperature of $21-25 \pm 2^\circ\text{C}$
Continuous lighting

Reliability : (1) valid without restriction
GLP guideline study

Flag : Critical study for SIDS endpoint
07.06.2006 (6)

4.4 TOXICITY TO MICROORGANISMS E.G. BACTERIA

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. Toxicity

Id 68609-97-2
Date 19.06.2006

5.0 TOXICOKINETICS, METABOLISM AND DISTRIBUTION

5.1.1 ACUTE ORAL TOXICITY

5.1.2 ACUTE INHALATION TOXICITY

5.1.3 ACUTE DERMAL TOXICITY

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

5.5 GENETIC TOXICITY 'IN VITRO'

5.6 GENETIC TOXICITY 'IN VIVO'

5.7 CARCINOGENICITY

5.8.1 TOXICITY TO FERTILITY

5.8.2 DEVELOPMENTAL TOXICITY/TERATOGENICITY

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. Eff. Against Target Org. and Intended Uses

Id 68609-97-2

Date 19.06.2006

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

9. References

Id 68609-97-2
Date 19.06.2006

- (1) Stillmeadow, Ltd. Sugarland, Texas. Study no. 9068-05, January, 2006
- (2) Stillmeadow, Ltd. Sugarland, Texas. Study no. 9069-05, May, 2006
- (3) Stillmeadow, Ltd. Sugarland, Texas. Study no. 9360-05, May, 2006
- (4) Stillmeadow, Ltd. Sugarland, Texas. Study no. 9071-05, May, 2006
- (5) Stillmeadow, Ltd. Sugarland, Texas. Study no. 9072-05, May, 2006
- (6) Stillmeadow, Ltd. Sugarland, Texas. Study no. 9073-05, May, 2006

10. Summary and Evaluation

Id 68609-97-2
Date 19.06.2006

10.1 END POINT SUMMARY

10.2 HAZARD SUMMARY

10.3 RISK ASSESSMENT