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# I U C L I D

## Data Set

**Existing Chemical** : ID: 66346-01-8  
**CAS No.** : 66346-01-8  
**EINECS Name** : 1-(4-Chlorphenyl)-4,4-dimethyl-3-pentanon  
**Molecular Formula** : C13H17OCl

**Producer related part**  
**Company** : Bayer Corporation  
**Creation date** : 15.07.1999

**Substance related part**  
**Company** : Bayer Corporation  
**Creation date** : 15.07.1999

**Status** :  
**Memo** : Bayer CropScience LLC

**Printing date** : 17.12.2003  
**Revision date** :  
**Date of last update** : 17.12.2003

**Number of pages** : 30

**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 66346-01-8  
Date 17.12.2003

## 1.0.1 APPLICANT AND COMPANY INFORMATION

Type : manufacturer  
Name : Bayer Corporation  
Contact person :  
Date :  
Street : 100 Bayer Road, Building #5  
Town : PA 15205-9741 Pittsburgh  
Country : United States  
Phone :  
Telefax :  
Telex :  
Cedex :  
Email :  
Homepage :

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## 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

IUPAC Name : 1-(4-chlorophenyl)-4,4-dimethyl pentanone  
Smiles Code : O=C(C(C)(C)C)CCc1ccc(cc1)Cl  
Molecular formula : C13 H17 Cl O  
Molecular weight : 224.75  
Petrol class :

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### 1.1.1 GENERAL SUBSTANCE INFORMATION

Purity type : other: technical material  
Substance type : organic  
Physical status : liquid  
Purity : ca. 99.8 % v/v  
Colour : yellow  
Odour :

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### 1.1.2 SPECTRA

## 1.2 SYNONYMS AND TRADENAMES

1-(p-Chlorophenyl)-4,4-dimethylpentan-3-one

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HWG Alkylketone

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## 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. General Information

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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. Physico-Chemical Data

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### 2.1 MELTING POINT

**Value** : 18 °C

**Remark** : pour point: ca. 18 degrees C  
solidifying range: 10 - 16 degrees C

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(1)

### 2.2 BOILING POINT

**Value** : 178 °C at .046 hPa

**Decomposition** :

**Method** :

**Year** :

**GLP** : no data

**Test substance** : as prescribed by 1.1 - 1.4

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(1)

### 2.3 DENSITY

**Type** : density

**Value** : ca. 1.049 g/cm<sup>3</sup> at 20 °C

**Method** : other: DIN 51757

**Year** :

**GLP** :

**Test substance** : as prescribed by 1.1 - 1.4

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(1)

#### 2.3.1 GRANULOMETRY

### 2.4 VAPOUR PRESSURE

**Value** : .00066 hPa at 20 °C

**Source** : Bayer AG Leverkusen

09.11.1994

(2)

**Value** : .017 hPa at 50 °C

**Source** : Bayer AG Leverkusen

09.11.1994

(2)

**Value** : .027 hPa at 55 °C

**Source** : Bayer AG Leverkusen

09.11.1994

(2)

### 2.5 PARTITION COEFFICIENT

## 2. Physico-Chemical Data

Id 66346-01-8

Date 17.12.2003

Partition coefficient :  
Log pow : 3.97 at 25 °C  
Method : other (calculated): KOWWIN Program (v1.67)  
Year : 2000  
GLP : no  
Test substance : other TS: molecular structure of 3-Pentanone, 1-(4-chlorophenyl)-4,4-dimethyl- (CAS# 66346-01-8)

Result : Log Kow(version 1.67 estimate): 3.97

SMILES : O=C(C(C)(C)C)CCc1ccc(cc1)Cl  
CHEM : 3-Pentanone, 1-(4-chlorophenyl)-4,4-dimethyl-  
MOL FOR: C13 H17 Cl1 O1  
MOL WT : 224.73

TYPE	NUM	LOGKOW	FRAGMENT DESCRIPTION	COEFF	VALUE
Frag	3		-CH3 [aliphatic carbon]	0.5473	1.6419
Frag	2		-CH2- [aliphatic carbon]	0.4911	0.9822
Frag	6		Aromatic Carbon	0.2940	1.7640
Frag	1		-Cl [chlorine, aromatic attach]	0.6445	0.6445
Frag	1		-C(=O)- [carbonyl, aliphatic attach]	-1.5586	-1.5586
Frag	1		-tert Carbon [3 or more carbon attach]	0.2676	0.2676
Const			Equation Constant		0.2290

Log Kow = 3.9706

Reliability : (2) valid with restrictions  
Accepted calculation method  
Flag : Critical study for SIDS endpoint  
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(3)

### 2.6.1 SOLUBILITY IN DIFFERENT MEDIA

Solubility in : Water  
Value : 20.7 mg/l at 20 °C  
Method : other: Kolbenmethode  
Year : 1993  
GLP : yes  
Test substance :

Source : Bayer AG Leverkusen  
Reliability : (1) valid without restriction  
GLP Guideline study

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(4)

### 2.6.2 SURFACE TENSION

### 2.7 FLASH POINT

Value : 145 °C  
Type :  
Method : other: DIN 51758  
Year :  
GLP :  
Test substance :

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(1)

## 2. Physico-Chemical Data

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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 66346-01-8  
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#### 3.1.1 PHOTODEGRADATION

Type : air  
INDIRECT PHOTOLYSIS  
Sensitizer : OH  
Conc. of sensitizer : 1500000 molecule/cm<sup>3</sup>  
Rate constant : .0000000000077665 cm<sup>3</sup>/(molecule\*sec)  
Degradation : 50 % after 16.5 hour(s)  
Deg. product :  
Method : other (calculated): AOP Program (v1.91)  
Year : 2000  
GLP : no  
Test substance : other TS: molecular structure of 3-Pentanone, 1-(4-chlorophenyl)-4,4-dimethyl- (CAS# 66346-01-8)

Reliability : (2) valid with restrictions  
Accepted calculation method  
Flag : Critical study for SIDS endpoint

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#### 3.1.2 STABILITY IN WATER

Type : abiotic

Remark : Based on similar compounds and experience, this compound is expected to be extremely stable in water (>1 year at pH 5 - 9).

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#### 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 : other: air - water - soil - sediment  
Method : other: Level III Fugacity Model  
Year : 2000

Result : Chem Name: 3-Pentanone,1-(4-chlorophenyl)-4,4-dimethyl-  
Molecular Wt: 224.73  
Henry's LC : 9.21e-006 atm-m<sup>3</sup>/mole (Henrywin program)  
Vapor Press : 0.00049 mm Hg (user-entered)  
Log Kow : 3.97 (Kowwin program)  
Soil Koc : 3.83e+003 (calc by model)

### 3. Environmental Fate and Pathways

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	Mass Amount (%)	Half-Life (hr)	Emissions (kg/hr)		
Air	1.16	33	300		
Water	22.3	1.44e+003	300		
Soil	72.5	1.44e+003	300		
Sediment	3.99	5.76e+003	0		

  

	Fugacity (atm)	Reaction (kg/hr)	Advection (kg/hr)	Reaction (%)	Advection (%)
Air	1.08e-011	210	99.9	23.3	11.1
Water	3.91e-011	92.5	192	10.3	21.4
Soil	1.55e-011	301	0	33.4	0
Sediment	3.8e-011	4.14	0.688	0.46	0.0765

Persistence Time: 958 hr  
Reaction Time: 1.42e+003 hr  
Advection Time: 2.94e+003 hr  
Percent Reacted: 67.5  
Percent Adverted: 32.5

**Remark** : Modeling was performed using equal releases (300 kg/hr) and equal distribution to all compartments.  
**Reliability** : (2) valid with restrictions  
Accepted calculation method  
**Flag** : Critical study for SIDS endpoint  
17.12.2003 (3)

#### 3.3.2 DISTRIBUTION

#### 3.4 MODE OF DEGRADATION IN ACTUAL USE

#### 3.5 BIODEGRADATION

**Result** : other: NOT Readily Degradable  
**Deg. product** :  
**Method** : other: BIOWIN (v4.01)  
**Year** :  
**GLP** : no  
**Test substance** : other TS: molecular structure of 3-Pentanone, 1-(4-chlorophenyl)-4,4-dimethyl- (CAS# 66346-01-8)

**Result** : BIOWIN (v4.01) Program Results:  
=====

```
SMILES : O=C(C(C)(C)C)CCc1ccc(cc1)Cl
CHEM   : 3-Pentanone, 1-(4-chlorophenyl)-4,4-dimethyl-
MOL FOR: C13 H17 Cl1 O1
MOL WT : 224.73
----- BIOWIN v4.01 Results -----
```

Linear Model Prediction : Does Not Biodegrade Fast  
Non-Linear Model Prediction: Does Not Biodegrade Fast  
Ultimate Biodegradation Timeframe: Months  
Primary Biodegradation Timeframe: Weeks  
\*\*\*\*\*

MITI Linear Model Prediction: p=0.2629  
MITI Non-Linear Model Prediction: p=0.1086  
A Probability Less Than 0.5 indicates --> NOT Readily Degradable

**Reliability** : (2) valid with restrictions  
Accepted calculation method

### 3. Environmental Fate and Pathways

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**Flag** : Critical study for SIDS endpoint  
17.12.2003 (3)

**Result** : under test conditions no biodegradation observed  
**Deg. product** :  
**Method** : other: EEC official gazette L 383A, Part C (c.4-D) "Manometric  
Respirometry" (29.12.92)  
**Year** : 1995  
**GLP** : yes  
**Test substance** : as prescribed by 1.1 - 1.4

**Source** : Bayer AG Leverkusen  
**Test substance** : purity = 99.1 %  
**Reliability** : (1) valid without restriction  
GLP Guideline study  
**Flag** : Critical study for SIDS endpoint  
17.12.2003 (4)

#### 3.6 BOD5, COD OR BOD5/COD RATIO

#### 3.7 BIOACCUMULATION

#### 3.8 ADDITIONAL REMARKS

4.1 ACUTE/PROLONGED TOXICITY TO FISH

Type : static  
 Species : Leuciscus idus (Fish, fresh water)  
 Exposure period : 96 hour(s)  
 Unit : mg/l  
 NOEC : 3.16  
 LC50 : ca. 4.9  
 Limit test :  
 Analytical monitoring : yes  
 Method : OECD Guide-line 203 "Fish, Acute Toxicity Test"  
 Year : 1988  
 GLP : yes  
 Test substance : as prescribed by 1.1 - 1.4

Remark : The LC50-values given in this report refer to measured values, because analytical control of the concentrations showed that with the exception of the highest concentration (10.0 mg active ingredient (a.i.)/l) the mean measured values were greater than 80 % of the nominal values in all aquaria.

All other data (NOEC, LLC) refer to nominal concentrations, because in these concentrations over 80% of the respective nominal values were found by analysis.

Result : The 96-hour LC50 of the technical active ingredient (a.i.) was determined to be 4.9 mg a.i./l with a 95 % confidence from 4.0 to 6.6 mg a.i./l. (LITCHFIELD and WILCOXON).  
 The lowest lethal concentration was 5.62 mg a.i./l, and the producing no highest concentration toxic effects (NOEC) was 3.16 mg a.i./l.

Mortality and Symptoms of Intoxication  
 (dead / symptoms / tested)(description of symptoms)

Nominal conc. (mg a.i./l)	48 hours	72 hours	96 hours
Solvent control	0/0/10	0/0/10	0/0/10
1.00	0/0/10	0/0/10	0/0/10
1.80	0/0/10	0/0/10	0/0/10
3.16	0/10/10	0/10/10	0/0/10
	SN	SN	
5.62	1/10/10	2/10/10	3/10/10
	SR	SR	
10.00	--	--	--
<b>LC50 (mg a.i./l)</b>	<b>5.47</b>	<b>5.18</b>	<b>4.92</b>
95%-confidence int.	--	4.18-7.04	3.99-6.57

Abbreviations used to describe the Symptoms of Intoxication

SN: Swimming behaviour slightly irregular (light symptom)

SR: Lying on side / back

Test condition : Reconstituted water, containing the ion concentrations listed below, was continuously produced by addition of saline solutions to demineralized water.

Ca++ 0.384 mMol/l; Mg++ 0.096 mMol/l; Na+ 0.148 mMol/l;

K+ 0.015 mMol/l; HCCT 0.148 mMol/l; Cf3 0.783 mMol/l;

SO4~ 0.096 mMol/l.

The water was continuously ventilated in a 2000 l supply tank.

pH: 7.1-7.3; Oxygen: 7.1 - 9.0 mg/l; Temperature: 22°C;

Ventilation: approx. 200 ml air/min prior to and during the test; Total

hardness: 48 mg CaCos/l (2.7° dH) nominal, 3.2° dH measured;

Illumination: 16 hours light (0500 - 2100 h MEZ)/ 8 hours dark.

The nominal concentrations tested were 1.00, 1.80, 3.16, 5.62 and 10.00

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mg a.i./l as well as a solvent control (0.1 ml acetone/l). All concentrations given refer to mg a.i./l and are corrected for the purity of the technical active ingredient.  
A control without solvent was not tested, because according to our experience acetone in the concentration used does not affect the fish in these kinds of tests.

**Test substance** : Purity = 95.4 %  
**Reliability** : (1) valid without restriction  
 GLP Guideline study  
**Flag** : Critical study for SIDS endpoint  
 09.12.2003 (6)

**Type** : static  
**Species** : Salmo gairdneri (Fish, estuary, fresh water)  
**Exposure period** : 96 hour(s)  
**Unit** : mg/l  
**NOEC** : .89  
**LC50** : ca. 3.74  
**Limit test** :  
**Analytical monitoring** : yes  
**Method** : OECD Guide-line 203 "Fish, Acute Toxicity Test"  
**Year** : 1988  
**GLP** : yes  
**Test substance** : as prescribed by 1.1 - 1.4

**Remark** : The values given in this report refer to nominal values, because analytical control of the concentrations showed that with the exception of the lowest concentration (0.50 mg active ingredient (a.i.)/l) the mean measured values were greater than 80 % of the nominal values in all aquaria.

**Result** : The 96-hour LC50 of the technical active ingredient was determined to be 3.74 mg a.i./l with a 95 % confidence interval from 2.81 to 5.00 mg a.i./l. The confidence interval is derived from two adjacent concentrations spaced by a factor of 1.78, in which 0 and 100 % mortality have been observed. The lowest lethal concentration was 5.00 mg a.i./l, and the no-observed-effect-concentration (NOEC) 0.89 mg a.i./l. In the next higher concentration (1.58 mg a.i./l) only slight changes in the behaviour of the fish was observed.

### Mortality and Symptoms of Intoxication

(dead / symptoms / tested)(description of symptoms)

Nominal conc. (mg a.i./l)	Mortality and Symptoms of Intoxication		
	48 hours	72 hours	96 hours
Solvent Control	0/0/10	0/0/10	0/0/10
0,50	0/0/10	0/0/10	0/0/10
0,89	0/0/10	0/0/10	0/0/10
1,58	0/0/10	0/10/10 SN	0/10/10 SN
2,81	0/10/10 SN, DF	0/10/10 SN, DF	0/10/10 SN, DF
5,00	10/10/10 SN, DF	--	--
<b>LC50</b>	<b>3,74</b>	<b>3,74</b>	<b>3,74</b>
95 %-Vertrauens	2,81-5,00	2,81-5,00	2,81-5,00

DF : Dark coloration

SN : Swimming behaviour slightly irregular (light symptom)

**Test condition** : The nominal concentrations tested were 0.50, 0.89, 1.58, 2.81 and 5.00 mg a.i./l as well as a solvent control (0.1 ml acetone/l). All concentrations given refer to mg a.i./l and are corrected for the purity of the technical active ingredient. A control without solvent was not tested, because according to our experience acetone in the concentration used does not

affect the fish in these kind of tests.  
The analytical results show that the active ingredient was stable over the test duration under the conditions of this study.

Wasser  
Rekonstituiertes Wasser mit der unten genannten Ionen-Zusammensetzung wurde kontinuierlich durch die Zugabe von Salzlösungen zu demineralisiertem Wasser hergestellt: Ca 0.384 mMol/l; Mg<sup>++</sup> 0.096 mMol/l; Na<sup>+</sup> 0.148 mMol/l; K<sup>+</sup> 0.015 mMol/l; HC03<sup>-</sup> 0.148 mMol/l; Cl 0.783 mMol/l; SO<sup>-</sup> 0.096 mMol/l.

Das Wasser wurde in einem 2000 l Vorratsbehälter kontinuierlich belüftet. pH: 7,2 - 7,4; Sauerstoff: 10,7 - 12,0 mg/l,; Belüftung: ca. 200 ml Luft/min vor und während des Tests; Gesamthärte: 48 mg CaCO<sub>3</sub>/l (2,7° dH) nominal 3,2° dH gemessen; Beleuchtung: 16 Stunden Licht (0500 - 2100 Uhr MEZ) / 8 Stunden dunkel.

**Test substance** : Purity = 95.4 %  
**Reliability** : (1) valid without restriction  
GLP Guideline study  
**Flag** : Critical study for SIDS endpoint  
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4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES

**Type** : static  
**Species** : Daphnia magna (Crustacea)  
**Exposure period** : 48 hour(s)  
**Unit** : mg/l  
**NOEC** : .1  
**EC50** : 3.2  
**LOEC** : 1  
**Analytical monitoring** : no  
**Method** : OECD Guide-line 202  
**Year** : 1988  
**GLP** : yes  
**Test substance** : as prescribed by 1.1 - 1.4

**Remark** : The numbers quoted are nominal concentrations, since an analytical check of the test concentrations is not included in the specified Guideline for this 48 hour acute test.

**Result** : The EC50 for Daphnia magna after 24 hours was 5.9 mg a.i./litre (95% confidence limits 3.8 - 14.5 mg/litre), after 48 hours 3.2 mg a.i./litre (95% confidence limits not calculable).  
The 'no-observed-effect-concentration' (NQEC) (48 hours) was 0.1 mg a.i./litre. The 'lowest-observed-effect-concentration' (LOEC) was 1.0 mg a.i./litre.

Concentration (mg a.i./litre)	Number living		% Immobilised (symptoms)	
	24 hours	48 hours	24 hours	48 hours
Control	30	30	0	0
10.0	0 (2,3)	0	100	100
5.6	20 (1,3)	2 (1,3)	33	93
3.2	30 (1,3)	27 (1,3)	0	10
1.8	30 (1,3)	24 (1,3)	0	20
1.0	29 (1,3)	26 (1,3)	3	13

symptoms:  
1) Hardly any movements perceivable.  
2) Animals cling to the water surface.  
3) Animals lie at the bottom.



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Source : direct weight  
15.07.1997 : Bayer AG Leverkusen (4)

### 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** : ca. 4748 mg/kg bw  
**Species** : rat  
**Strain** : Wistar  
**Sex** : male/female  
**Number of animals** :  
**Vehicle** : other: demineralized water using 2% Cremophor EL  
**Doses** :  
**Method** : OECD Guide-line 401 "Acute Oral Toxicity"  
**Year** :  
**GLP** : yes  
**Test substance** : as prescribed by 1.1 - 1.4

**Method** : Before administration, the test article was formulated in demineralized water using 2% Cremophor EL (v/v). The test article was administered in a single dose per os by gavage to fasted (approx. 17 hours  $\pm$  1 hour) male and female rats (5 animals per dose and sex). The volume administered was 10 ml/kg body weight. The animals were allowed to feed two hours after treatment. Appearance and behaviour was recorded several times on the day of treatment, and at least once a day thereafter. The post-treatment observation period was 14 days. The animals were sacrificed at the end of the post-treatment observation period using diethyl ether and subjected to a gross pathology examination, as were any animals which died intercurrently. Where it was possible to calculate the mean (median) lethal dose (LD50) this was done by means of computer (HP 3000) in the manner described by ROSIELLO et al. J. Tox. Environ. Health. 3:797-809 (1977).

**Result** : NOEL = 500 mg/kg bw.  
 LD50 oral (male) : approx. 4748 mg/kg. body weight.

Dose (mg/kg bw)	Results (death/toxic signs/#animals)	Time of death
500	0 /0 /5	-
1000	0 /5 /5	-
2500	0 /5 /5	-
4000	1 /5 /5	3 days
5000	3 /5 /5	1-3 days

LD50 oral (female): >5000 mg/kg. body weight.

Dose (mg/kg bw)	Results (death/toxic signs/#animals)	Time of death
500	0 /0 /5	-
1000	0 /5 /5	-
2500	0 /5 /5	-
5000	2 /5 /5	3 days

1000 mg/kg bw: female rats showed an increase in urine excretion; soft feces, apathy and staggering were

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- additionally observed in the male rats at this dose.  
2500 mg/kg bw onwards: females additionally exhibited signs of apathy, piloerection and soft feces.  
>=2500 mg/kg bw (male rats) and 5000 mg/kg bw (female rats):  
respiration difficulties, reduced motility, muscular spasms, prostration or lying on side, poor or no reflexes and dilated pupils, as well as isolated episodes of spastic gait or staggering, weight reduction and increased motility. Signs were observed shortly after administration, and lasted until day 6 of the post-treatment observation period (except females in the 1000 mg/kg. body weight dose group - here urine excretion increased from day 2 until day 4).
- Test substance** : HWG 1608 - Alkylketone; Purity = 99.0 % (analytical findings, APF of 02.05.88)
- Reliability** : (1) valid without restriction  
GLP Guideline study
- Flag** : Critical study for SIDS endpoint  
01.12.2003 (9)
- Type** : LD50  
**Value** : ca. 3145 mg/kg bw  
**Species** : rat  
**Strain** : Wistar  
**Sex** : male  
**Number of animals** : 5  
**Vehicle** : water  
**Doses** : 500, 1000, 2000, 2500, 3550, 4000, 5000 mg/kg bw  
**Method** : OECD Guide-line 401 "Acute Oral Toxicity"  
**Year** : 1981  
**GLP** : yes  
**Test substance** : as prescribed by 1.1 - 1.4
- Method** : The test compound was emulsified in deionized water using Cremophor EL (2%). A single dose (volume = 10 ml/kg bw) was administered by oral gavage to male and female rats that had been fasted for 16 hours (5 animals /sex/dose). Two hours after administration, feed was again made available to the animals.  
The animals were observed for 14 days, after which the survivors were sacrificed. All animals were subjected to gross pathological examination. The median lethal dose (LD50) was calculated by computer (HP 3000) by the method of AP Rosiello, JM Essigmann, and GN Wogan 1977. J. Tox. and Environ. Health. 3:797-809).
- Remark** : Toxic signs included piloerection, lethargy, reduced activity, hyporeflexia, staggering gait with lateral and sternal recumbency, convulsions, tachypnea, and difficulty breathing, polyuria, and soft feces.
- Gross pathology findings of animals that died during the observation period included ulcer-like foci in forestomach; reddened and mucoid content in glandular stomach and intestinal tract; distended, dark red and mottled lungs; lobular patterned liver; dark spleen; pale and mottled kidneys; urinary bladder filled with red urine.  
Animals sacrificed at end of observation period had no indications of test compound-related gross organ damage.
- Result** : male: LD 50 = 2406-4112 mg/kg
- | Dose (mg/kg bw) | Results (death/toxic signs/#animals) | Time of death  |
|-----------------|--------------------------------------|----------------|
| 500             | 0 /0 /5                              | -              |
| 1000            | 0 /5 /5                              | -              |
| 2000            | 1 /5 /5                              | 2 days         |
| 2500            | 2 /5 /5                              | 280 hr -3 days |
| 3550            | 2 /5 /5                              | 1-2 days       |
| 4000            | 3 /5 /5                              | 1-3 days       |
| 5000            | 5 /5 /5                              | 1-2 days       |

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<b>Reliability</b>	: (1) valid without restriction GLP Guideline study	
<b>Flag</b> 01.12.2003	: Critical study for SIDS endpoint	(10)
<b>Type</b>	: LD50	
<b>Value</b>	: 4823 mg/kg bw	
<b>Species</b>	: rat	
<b>Strain</b>	: Wistar	
<b>Sex</b>	: female	
<b>Number of animals</b>	: 5	
<b>Vehicle</b>	: water	
<b>Doses</b>	:	
<b>Method</b>	: OECD Guide-line 401 "Acute Oral Toxicity"	
<b>Year</b>	: 1981	
<b>GLP</b>	: yes	
<b>Test substance</b>	: as prescribed by 1.1 - 1.4	
<b>Method</b>	: The test compound was emulsified in deionized water using Cremophor EL (2%). A single dose (volume = 10 ml/kg bw) was administered by oral gavage to male and female rats that had been fasted for 16 hours (5 animals /sex/dose). Two hours after administration, feed was again made available to the animals. The animals were observed for 14 days, after which the survivors were sacrificed. All animals were subjected to gross pathological examination. The median lethal dose (LD50) was calculated by computer (HP 3000) by the method of AP Rosiello, JM Essigmann, and GN Wogan 1977. J. Tox. and Environ. Health. 3:797-809).	
<b>Remark</b>	: Toxic signs included piloerection, lethargy, reduced activity, hyporeflexia, staggering gait with lateral and sternal recumbency, convulsions, tachypnea, and difficulty breathing, polyuria, and soft feces.  Gross pathology findings of animals that died during the observation period included ulcer-like foci in forestomach; reddened and mucoid content in glandular stomach and intestinal tract; distended, dark red and mottled lungs; lobular patterned liver; dark spleen; pale and mottled kidneys; urinary bladder filled with red urine. Animals sacrificed at end of observation period had no indications of test compound-related gross organ damage.	
<b>Result</b>	: Female: LD 50 = 3138-7414 mg/kg Dose            Results            Time of death (mg/kg bw) (death/toxic signs/#animals) 500            0 /0 /5            - 1000           0 /5 /5            - 2500           1 /5 /5            4 days 5000           2 /5 /5            1-3 days 7100           4 /5 /5            1-2 days	
<b>Reliability</b>	: (1) valid without restriction GLP Guideline study	
01.12.2003		(10)

### 5.1.2 ACUTE INHALATION TOXICITY

<b>Type</b>	: LC50
<b>Value</b>	: > 2938 mg/m <sup>3</sup>
<b>Species</b>	: rat
<b>Strain</b>	: Wistar
<b>Sex</b>	: male/female
<b>Number of animals</b>	: 10
<b>Vehicle</b>	: other: polyethylene glycol E 400 - ethanol mixture (1:1)

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<b>Doses</b>	: 412, 1437, 2938 mg/m <sup>3</sup> (measured)
<b>Exposure time</b>	: 4 hour(s)
<b>Method</b>	: OECD Guide-line 403 "Acute Inhalation Toxicity"
<b>Year</b>	:
<b>GLP</b>	: yes
<b>Test substance</b>	: as prescribed by 1.1 - 1.4
<b>Method</b>	: Appearance and behaviour were individually assessed several times on the day of exposure. The rats were also assessed during the weekends. The post-treatment observation period lasted 2 weeks. The animals were sacrificed at the end of the post-treatment observation period with sodium hexobarbital [Evipan-Natrium®] (350 mg/kg b.w., i.p. administration) and subjected to a gross pathology examination. All abnormal findings were recorded. Control group: In order to determine exposure-induced effects on body weight gain in acute head-nose only exposed rats using the administration route described, rats are exposed under study conditions once every 3 months to the solvents normally used in inhalation toxicity testing, as follows (1x4 hours head-nose only exposure; 10 males and 10 females per group): air, water/aerosol (nominal 500000 /l/m <sup>3</sup> air), and polyethylene glycol E 400-ethanol (1:1) aerosol (nominal 20000 /l/m <sup>3</sup> air) . If it is possible to calculate the mean (median) lethal concentration (LC50) this is done by computer (HP 3000) according to the A.P. Rosiello et al.,1977 (J. Tox. Environ. Health. 3:797-809), with modifications by Pauluhn, J. 1983 (Bayer AG, Report No. 11835).
<b>Result</b>	: NOEL =2938 mg/m <sup>3</sup> air. The test article aerosol produced no acute inhalation toxicity in the rat up to and including the max. tested concentration of 2938 mg/m <sup>3</sup> air. The exposure was tolerated without clinical signs.
<b>Test condition</b>	: Head/nose only exposure over 4 hours, dynamic exposure conditions, 2 - week post-treatment observation period. The aerosol test atmosphere was generated by nebulizing the test article with a polyethylene glycol E 400 - ethanol mixture (1:1) as a vehicle. During aerosol generation the ethanol present in the vehicle evaporates, thereby promoting the formation of smaller particles. As far as was technically possible, the efficiency of the aerosol generation system was monitored using an aerosol photometer. Sampling was performed continuously in the breathing zone in the immediate vicinity of the rats. 100% of the particles were less than 5 microns in size.
<b>Test substance</b>	: Purity = 99.0%
<b>Reliability</b>	: (1) valid without restriction GLP Guideline study
<b>Flag</b>	: Critical study for SIDS endpoint
01.12.2003	(11)
<b>Type</b>	: LC50
<b>Value</b>	: > 1370 mg/m <sup>3</sup>
<b>Species</b>	: rat
<b>Strain</b>	: Wistar
<b>Sex</b>	: male/female
<b>Number of animals</b>	: 10
<b>Vehicle</b>	:
<b>Doses</b>	: 250, 1000, 500, 5000 mg/m <sup>3</sup> (nominal); 71.6, 280.9, 739.4, 1369.9 mg/m <sup>3</sup> (measured)

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**Exposure time** : 4 hour(s)  
**Method** : OECD Guide-line 403 "Acute Inhalation Toxicity"  
**Year** : 1981  
**GLP** : yes  
**Test substance** : as prescribed by 1.1 - 1.4

**Method** : The test compound was dissolved in a mixture of polyethylene glycol E 400 (Lutrol)/ethanol (1:1) and nebulized as an aerosol into a 40 liter inhalation chamber under dynamic conditions. From historical studies, 90% of aerosol exhibits a mass accessible to the alveoli (MMAD about 2 µm; 90% less than 5 µm).  
Five animals per sex per concentration were exposed nose-only to the aerosol for a period of 4 hours. Air samples were obtained in the breathing zone of the rats and the concentration determined indirectly by oil red analysis (oil red was mixed at 0.05% with the test compound and determined spectrophotometrically at 525 nm).  
The animals were observed for 14 days, after which the survivors were sacrificed. All animals were subjected to gross pathological examination. The median lethal concentration (LC50) was calculated by computer (HP 3000) by the method of AP Rosiello, JM Essigmann, and GN Wogan 1977. J. Tox. Environ. Health. 3:797-809.

**Result** : Concentration Results Time of death  
(mg/m3) (death/toxic signs/#animals)

71.6	0 /0 /10	-
280.9	0 /10/10	-
739.4	0 /10/10	-
1369.9	0 /10/10	-

Toxic signs included reduced activity (only on day of exposure), piloerection and unpreened hair coat.

Gross pathology findings included lobular pattern of the liver; distended lungs with dark red and gelatinous changed zones.

**Reliability** : (1) valid without restriction  
GLP Guideline study

**Flag** : Critical study for SIDS endpoint

(10)

**Type** : other  
**Value** : > 179 - 214 mg/m<sup>3</sup>  
**Species** : rat  
**Strain** : Wistar  
**Sex** : male/female  
**Number of animals** : 10  
**Vehicle** :  
**Doses** :  
**Exposure time** : 7 hour(s)  
**Method** :  
**Year** :  
**GLP** : no data  
**Test substance** : as prescribed by 1.1 - 1.4

**Method** : A constant stream of air was passed via a fritted glass filter of approximately 5 cm diameter through a vessel containing 100 ml of the test compound. The vessel was exchanged every 30 minutes. Five male or female rats were placed in a 10 liter chamber and subjected to whole-body exposure to test substance constituents that were volatile at 20 degree C for 7 hours under dynamic conditions. The test compound concentration was calculated from the weight difference of the vessels before and after the test and from the air flow through the chamber. The animals were observed for 14 days, after which the survivors were sacrificed. All animals were subjected to gross pathological examination.

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Result	Concentration (mg/m3)	Results (death/toxic signs/#animals)	Time of death
Male:	179	0 /0 /5	-
Female:	214	0 /0 /5	-

The exposure was tolerated without toxic signs. Gross pathology showed no indications of test compound-induced gross organ damage.

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(10)

### 5.1.3 ACUTE DERMAL TOXICITY

**Type** : LD50  
**Value** : > 5000 mg/kg bw  
**Species** : rat  
**Strain** : Wistar  
**Sex** : male/female  
**Number of animals** : 10  
**Vehicle** :  
**Doses** : 5000 mg/kg bw  
**Method** : OECD Guide-line 402 "Acute dermal Toxicity"  
**Year** : 1981  
**GLP** : yes  
**Test substance** : as prescribed by 1.1 - 1.4

**Method** : The test article doses were individually weighed out on aluminium foil (6.5 x 6.5 cm) and made into a paste using cellulose powder (400 mg cellulose powder/g test article). The aluminium foil was applied to the intact dorsal skin, shorn on the previous day, of groups of five rats per sex and dose. An occlusive dressing was used for fastening to the skin. The exposure period was 24 hours. After removal of the dressings the treated skin areas were cleaned with soap and water. Appearance and behaviour were recorded several times on the day of application, and at least once a day thereafter. The post-treatment observation period was 14 days.

**Result** : There were no mortalities. The treatment sites of some animals exhibited redness and escharosis from day 2 to day 5 post-treatment. There was no indication of macroscopic damage to organs related to the test article.

**Reliability** : (1) valid without restriction  
GLP Guideline study

**Flag** : Critical study for SIDS endpoint

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**Type** : LD50  
**Value** : > 5000 mg/kg bw  
**Species** : rat  
**Strain** : Wistar  
**Sex** : male/female  
**Number of animals** : 10  
**Vehicle** : other: cellulose powder  
**Doses** : 5000 mg/kg bw  
**Method** : OECD Guide-line 402 "Acute dermal Toxicity"  
**Year** : 1981  
**GLP** : yes  
**Test substance** : as prescribed by 1.1 - 1.4

**Method** : The dose was weighed individually, made into a paste with cellulose powder, and applied on the unabrased back skin that had been shaved the

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previous day. 5 rats per sex per dose were tested. The treated areas were covered with aluminum foil and wrapped by bandage. After a 24 hour exposure period, the bandages and test substance were removed and the skin washed with soap and water.

The animals were observed for 14 days, after which the survivors were sacrificed. All animals were subjected to gross pathological examination. The median lethal dose (LD50) was calculated by computer (HP 3000) by the method of AP Rosiello, JM Essigmann, and GN Wogan 1977. J. Tox. Environ. Health. 3:797-809).

**Result** : The treatment was tolerated without clinical signs or mortality. No local findings were observed on the treated area. Gross pathology found no indications of test compound-induced gross damage to visceral organs.

**Reliability** : (1) valid without restriction  
GLP Guideline study

**Flag** : Critical study for SIDS endpoint  
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### 5.1.4 ACUTE TOXICITY, OTHER ROUTES

#### 5.2.1 SKIN IRRITATION

**Species** : rabbit  
**Concentration** : undiluted  
**Exposure** : Semioclusive  
**Exposure time** : 4 hour(s)  
**Number of animals** : 3  
**Vehicle** :  
**PDII** :  
**Result** : not irritating  
**Classification** : not irritating  
**Method** : OECD Guide-line 404 "Acute Dermal Irritation/Corrosion"  
**Year** :  
**GLP** : yes  
**Test substance** : other TS: HWG 1608 alkylketone; active ingredient = 95.4%

**Result** : Rabbit Irritation Indices  
No. erythema/eschar edema  
1. 0.0 0.0  
2. 0.0 0.0  
3. 1.3 0.0

**Reliability** : (1) valid without restriction  
GLP Guideline study

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(14)

**Species** : rabbit  
**Concentration** : undiluted  
**Exposure** : Occlusive  
**Exposure time** : 4 hour(s)  
**Number of animals** : 3  
**Vehicle** :  
**PDII** : 1.8  
**Result** : slightly irritating  
**Classification** : not irritating  
**Method** : OECD Guide-line 404 "Acute Dermal Irritation/Corrosion"  
**Year** : 1981  
**GLP** : yes  
**Test substance** : as prescribed by 1.1 - 1.4

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**Result** : Rabbit Irritation Indices  
No. erythema/eschar edema  
1. 1.7 0.0  
2. 2.0 0.0  
3. 1.7 0.0

**Reliability** : (1) valid without restriction  
GLP Guideline study

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### 5.2.2 EYE IRRITATION

**Species** : rabbit  
**Concentration** : undiluted  
**Dose** : .1 ml  
**Exposure time** : 24 hour(s)  
**Comment** : rinsed after (see exposure time)  
**Number of animals** : 3  
**Vehicle** :  
**Result** : not irritating  
**Classification** : not irritating  
**Method** : OECD Guide-line 405 "Acute Eye Irritation/Corrosion"  
**Year** :  
**GLP** : yes  
**Test substance** : other TS: HWG 1608 alkylketone; active ingredient = 95.4%

**Result** : All irritation indices (1 hr through 21 days)= 0.0  
**Reliability** : (1) valid without restriction  
GLP Guideline study

01.12.2003 (14)

**Species** : rabbit  
**Concentration** : undiluted  
**Dose** : .1 ml  
**Exposure time** : 24 hour(s)  
**Comment** : rinsed after (see exposure time)  
**Number of animals** : 3  
**Vehicle** :  
**Result** : not irritating  
**Classification** : not irritating  
**Method** : OECD Guide-line 405 "Acute Eye Irritation/Corrosion"  
**Year** : 1981  
**GLP** : yes  
**Test substance** : as prescribed by 1.1 - 1.4

**Reliability** : (1) valid without restriction  
GLP Guideline study

17.11.2003 (10)

### 5.3 SENSITIZATION

### 5.4 REPEATED DOSE TOXICITY

**5.5 GENETIC TOXICITY 'IN VITRO'**

<b>Type</b>	: Ames test
<b>System of testing</b>	: Salmonella typhimurium TA 98, TA 100, TA 1535, TA 1537
<b>Test concentration</b>	: 8, 40, 200, 1000, 5000 µg/plate
<b>Cycotoxic concentr.</b>	: > 25 µg/plate
<b>Metabolic activation</b>	: with and without
<b>Result</b>	: negative
<b>Method</b>	: OECD Guide-line 471
<b>Year</b>	: 1994
<b>GLP</b>	: yes
<b>Test substance</b>	: as prescribed by 1.1 - 1.4
<b>Method</b>	: The original strains were obtained from Prof. Bruce Ames. Due to the substance's toxicity, doses ranging from 12.5 up to 400 µg/plate were chosen for the repeat tests. S9 mix was prepared from the livers of adult male Sprague Dawley rats receiving a single intraperitoneal injection of Aroclor 1254. The positive controls sodium azide (for TA 1535), nitrofurantoin (for TA 100), 4-nitro-1,2-phenylene diamine (for TA 1537 and TA 98) and 2-aminoanthracene (used only with S9 mix) revealed marked mutagenic effects, as indicated by a biologically relevant increase of mutant colony numbers over colony numbers of the negative controls.
<b>Result</b>	: None of the four test strains showed a dose-related and biologically relevant increase of revertant colony numbers after exposure to the test substance over negative control levels. This applied to the tests with and without S9 mix and was confirmed by the results of the repeat test which was performed as a preincubation test
<b>Test substance</b>	: purity = 99.1 %
<b>Conclusion</b>	: There was no evidence for mutagenic effects of Alkylketon with and without S9 mix. A biologically relevant increase of the mutant count over control levels was not observed. Therefore, Alkylketon was considered to be non-mutagenic with and without S9 mix in the Salmonella/microsome test.
<b>Reliability</b>	: (1) valid without restriction GLP Guideline study
<b>Flag</b>	: Critical study for SIDS endpoint
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**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**

**7.1 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

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- (1) Mobay Corporation. Agricultural Chemicals Division. Industrial Hygiene Report. Sept. 26, 1988.
- (2) Safety Data Sheet Bayer AG, 10.08.1992
- (3) EPIWin Modeling Program. (version 3.11) 2000. Developed by the EPA's Office of Pollution Prevention Toxics and Syracuse Research Corporation (SRC). copyright 2000 U.S. Environmental Protection Agency
- (4) Bayer AG data
- (5) Technical correspondence.
- (6) Grau R. 1988. Acute Toxicity of HWG 1608 Alkylketon to Golden Orfe in a Static Test. STUDY-NO. E2820116-0. FINAL REPORT FO-1118. BAYER AG. GB Crop Protection. F-CE Institute for Environmental Biology.
- (7) Grau R. 1988. AKUTE TOXIZITKT VON HWG 1608 ALKYLKETON FOR REGENBOGENFORELLEN (SALMO GAIRDNERI) IM STATISCHEN TEST. STUDIEN-NR. E2800115-7. BAYER AG GB PFLANZENSCHUTZ F-CE INSTITUT FOR UKOBIOLOGIE.
- (8) Heimbach F. 1988. Bayer AG Institute for Ecobiology. Leverkusen, Germany. Report# 98329.
- (9) Krotlinger, F. 1988. Bayer A6, Department of Toxicology, Wuppertal, Germany. Study number: T7029439. Report no. 17185.
- (10) Pauluhn J. 1984. Bayer AG Institute of Toxicology. Wuppertal-Elberfeld, Germany. Report# 96750.
- (11) Pauluhn, J. 1988. Bayer AG, Institute of Toxicology/Agriculture, Department of Toxicology, Wuppertal, Germany. Study no: T1027651. Report no. 17569.
- (12) Krotlinger F. 1988. Bayer AG Institute of Toxicology. Wuppertal-Elberfeld, Germany. Report# 98289.
- (13) Krotlinger F. 1988. Bayer AG Institute of Toxicology. Wuppertal-Elberfeld, Germany. Study number: T9029440. Report no. 16918.
- (14) Maertins, T. 1988. Bayer AG. Institute of Toxicology. Wuppertal, Germany. Study number: T 0027786. Unpublished Report No. 16582.
- (15) Gahlmann, R. 1994. Bayer AG. Institute of Toxicology for Industrial Chemicals, Wuppertal, Germany. Study No: T 4049326. Report No. 22908.

### 10.1 END POINT SUMMARY

### 10.2 HAZARD SUMMARY

### 10.3 RISK ASSESSMENT