

I U C L I D

D a t a s e t

Existing Chemical Substance ID: 75-79-6
CAS No. 75-79-6
EINECS Name trichloro(methyl)silane
EINECS No. 200-902-6
Molecular Formula CH3Cl3Si

Dataset created by: EUROPEAN COMMISSION - European Chemicals Bureau

This dossier is a compilation based on data reported by the European Chemicals Industry following 'Council Regulation (EEC) No. 793/93 on the Evaluation and Control of the Risks of Existing Substances'. All (non-confidential) information from the single datasets, submitted in the IUCLID/HEDSET format by individual companies, was integrated to create this document.

The data have not undergone any evaluation by the European Commission.

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European Chemicals Bureau

1.0.1 OECD and Company Information

Name: Bayer AG
Town: 51368 Leverkusen
Country: Germany

Name: Chemiewerk Nuenchritz GmbH
Street: Meissner Strasse 59
Town: 01612 Nuenchritz
Country: Germany
Phone: 0352/652-0
Telefax: 0352/652-291
Telex: cwn 25483

Name: DOW Corning Europe
Street: Rue Charles de Gaulle 62
Town: 1310 La Hulpe
Country: Belgium

Name: Rhone-Poulenc Chimie
Street: 25, Quai Paul Doumer
Town: 92408 Courbevoie Cedex
Country: France

Name: Wacker - Chemie GmbH
Street: Postfach 1260, Johannes-Hess-Strasse 24
Town: 84480 Burghausen
Country: Germany
Phone: 08677/83 4888
Telefax: 08677/83 5590

1.0.2 Location of Production Site

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1.0.3 Identity of Recipients

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1.1 General Substance Information

Substance type: organic
Physical status: liquid

Substance type: organometallic
Physical status: liquid

1.1.1 Spectra

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1.2 Synonyms

Methyl trichlorosilane

Source: DOW Corning Europe La Hulpe
Rhône-Poulenc Chimie Courbevoie Cedex

Methyl Trichlorosilane

Source: Bayer AG Leverkusen

methyltrichlorosilane

Source: Chemiewerk Nuenchritz GmbH Nuenchritz

Methyltrichlorosilane

Source: Wacker - Chemie GmbH Burghausen

Silane methyltrichloro

Source: Rhône-Poulenc Chimie Courbevoie Cedex

Silane Methyltrichloro

Source: Bayer AG Leverkusen

Silane trichloromethyl

Source: DOW Corning Europe La Hulpe
Rhône-Poulenc Chimie Courbevoie Cedex

Silane Trichloromethyl

Source: Bayer AG Leverkusen

Silane, trichloromethyl-

Source: Chemiewerk Nuenchritz GmbH Nuenchritz
Wacker - Chemie GmbH Burghausen

trichloro(methyl)silane

Source: Chemiewerk Nuenchritz GmbH Nuenchritz

trichloromethylsilane

Source: DOW Corning Europe La Hulpe

1.3 Impurities

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1.4 Additives

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1.5 Quantity

Quantity 10 000 - 50 000 tonnes

1.6.1 Labelling

Labelling: as in Directive 67/548/EEC
Symbols: F
Xi
E
Specific limits: yes
R-Phrases: (11) Highly flammable
(14) Reacts violently with water
(36/37/38) Irritating to eyes, respiratory system and skin
S-Phrases: (2) Keep out of reach of children
(26) In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
(39) Wear eye/face protection

1.6.2 Classification

Classification: as in Directive 67/548/EEC
Class of danger: highly flammable
R-Phrases: (11) Highly flammable

Classification: as in Directive 67/548/EEC
Class of danger: irritating
R-Phrases: (36/37/38) Irritating to eyes, respiratory system and skin

Classification: as in Directive 67/548/EEC
Class of danger:
R-Phrases: (14) Reacts violently with water

1.7 Use Pattern

Type: type
Category: Non dispersive use

Type: type
Category: Use in closed system

Type: industrial
Category: Chemical industry: used in synthesis

Type: use
Category: Intermediates

Type: use
Category: other: manufacture of organosilicic derivates

Type: use
Category: other: manufacture of organosilicon derivates

1.7.1 Technology Production/Use

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1.8 Occupational Exposure Limit Values

Type of limit: MAK (DE)
Limit value: 7 mg/m³
Short term expos.
Limit value: 14 mg/m³
Schedule: 5 minute(s)
Remark: type of limit MAK (DE) for hydrolysis product HCl.
short exposure maximal limit for hydrolysis product HCl.
Source: DOW Corning Europe La Hulpe

Type of limit: MAK (DE)
Limit value: 7 mg/m³
Short term expos.
Limit value: 14 mg/m³
Schedule: 5 minute(s)
Remark: Type of limit MAK (DE) for hydrolysis product HCl.
Short exposure maximal limit for hydrolysis product HCl.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

Type of limit: MAK (DE)
Limit value:
Remark: Limit value 7 mg/m³
MAK value for hydrolysis product HCl
Source: Bayer AG Leverkusen

Type of limit: MAK (DE)
Limit value: 5 ml/m³
Short term expos.
Limit value: 5 ml/m³
Country: Germany
Remark: Data for hydrogen chloride (CAS No. 7647-01-0) is applied.
Source: Chemiewerk Nuenchritz GmbH Nuenchritz

Type of limit: MAK (DE)
Limit value: 7 mg/m³
Short term expos.
Limit value: 7 mg/m³
Country: Germany
Remark: Data for hydrogen chloride (CAS No. 7647-01-0) is applied.
Source: Chemiewerk Nuenchritz GmbH Nuenchritz

Type of limit:
Limit value:
Remark: Wegen der Hydrolisierbarkeit wird in der Praxis der
HCl-Grenzwert überwacht.
Source: Wacker - Chemie GmbH Burghausen

1.9 Source of Exposure

- Remark:** due to the physical and chemical properties this product is handled in closed system, therefore no exposure is anticipated.
All accidental discharge of the chlorosilane into the environment is followed by a rapid hydrolysis of the product in the atmospheric moisture with hydrogen chloride formation (73 g of HCl/100 g of chlorosilane) which masks the eventual Si-O-Si bonding products action.
- Source:** DOW Corning Europe La Hulpe
- Remark:** Due to the physical and chemical properties this product is handled in closed system, therefore no exposure is anticipated.
All accidental discharge of the chlorosilane into the environment is followed by a rapid hydrolysis of the product in the atmospheric moisture with hydrogen chloride formation (73g of HCl/100g of chlorosilane) wich masks the eventual Si-O-Si bonding products action.
- Source:** Rhone-Poulenc Chimie Courbevoie Cedex
- Remark:** Due to the physical and chemical properties this product is handled in closed system, therefore no exposure is anticipated.
All accidental discharge of the chlorosilane into the environment is followed by a rapid hydrolysis of the product in the atmospheric moisture with hydrochloric acid formation (73 g of HCl/100 g of chlorosilane).
- Source:** Bayer AG Leverkusen
- Remark:** Wegen der physikalischen und chemischen Eigenschaften des Produktes wird es ausschließlich im geschlossenen System verarbeitet. Deshalb ist keine Exposition zu erwarten. Bei unbeabsichtigter Freisetzung von Chlorsilan in die Umwelt erfolgt durch die Luftfeuchtigkeit eine schnelle Hydrolyse, unter Bildung von Chlorwasserstoff (73,2 g HCl/100 g Chlorsilan) und organischen Silicumverbindungen. Die Wirkung entspricht weitgehend der Wirkung des gebildeten Chlorwasserstoffs.
- Source:** Wacker - Chemie GmbH Burghausen

1.10.1 Recommendations/Precautionary Measures

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1.10.2 Emergency Measures

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1.11 Packaging

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1.12 Possib. of Rendering Subst. Harmless

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1.13 Statements Concerning Waste

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1.14.1 Water Pollution

Classified by: KBWS (DE)
Labelled by:
Class of danger: 1 (weakly water polluting)
Source: Bayer AG Leverkusen

Classified by: KBWS (DE)
Labelled by: KBWS (DE)
Class of danger: 1 (weakly water polluting)
Country: Germany
Remark: Katalog-Nr.: 557
Source: Huels AG Marl
Chemiewerk Nuenchritz GmbH Nuenchritz

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1.14.2 Major Accident Hazards

Legislation: Stoerfallverordnung (DE)
Substance listed:
Remark: Stoerfallstoff Nr. 2
Highly flammable liquid
Source: Bayer AG Leverkusen

Legislation: Stoerfallverordnung (DE)
Substance listed: yes
Country: Germany
Remark: im Anhang IV genannt (Kat. 6; leichtentzuendliche
Fluessigkeiten)
Source: Chemiewerk Nuenchritz GmbH Nuenchritz

(2) (3)

Legislation: other: Directive 82/502/EEC
Substance listed: no
No. in Directive: no
Source: Bayer AG Leverkusen

1.14.3 Air Pollution

Classified by: TA-Luft (DE)
Labelled by:
Number: 3.1.6 (gaseous inorganic substances)
Class of danger: III
Remark: provisional classification like HCl
Source: Bayer AG Leverkusen

1.15 Additional Remarks

Remark: Rapid hydrolysis precludes many methods involving contact with water. Also reacts violently with alcohols, amines and bases.

Source: DOW Corning Europe La Hulpe

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Remark: WATER POLLUTION:
Classification : WGK
Labelling : WGK
Risk category : 1
Due to handling of the product in closed system there is normally no pollution.

MAJOR ACCIDENT HAZARDS
Legislation: Directive 82/501/EEC
Substance listed: No
N° in Seveso directive: No
The main accidental risk is due to hydrogen chloride formation by hydrolysis.

AIR POLLUTION
not classified

No additional remarks
Source: Rhone-Poulenc Chimie Courbevoie Cedex

1.16 Last Literature Search

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1.17 Reviews

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1.18 Listings e.g. Chemical Inventories

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2.1 Melting Point

Value: = -90 degree C
Source: Rhone-Poulenc Chimie Courbevoie Cedex

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2.2 Boiling Point

Value: = 66.4 degree C
Remark: Handbook of Chemistry and Physics - 69th ed. BOCA - RATON,
Florida : CRC Press Inc, 1988-1989.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

2.3 Density

Type: relative density
Value: = 1.273
Source: Rhone-Poulenc Chimie Courbevoie Cedex

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2.3.1 Granulometry

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2.4 Vapour Pressure

Value: = 190 hPa at 20 degree C
Source: Rhone-Poulenc Chimie Courbevoie Cedex

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2.5 Partition Coefficient

log Pow:
Method:
Year:
Remark: Not applicable
Source: Rhone-Poulenc Chimie Courbevoie Cedex

2.6.1 Water Solubility

Remark: Not stable in water, rapid hydrolysis (see 3.1.2)
Source: Rhone-Poulenc Chimie Courbevoie Cedex

2.6.2 Surface Tension

-

2.7 Flash Point

Value: = -15 degree C
Type: closed cup
Method:
Year:
Source: Rhone-Poulenc Chimie Courbevoie Cedex
Test condition: DIN 51 755 (8)

Value: = 1 degree C
Type: closed cup
Method:
Year:
Source: Rhone-Poulenc Chimie Courbevoie Cedex
Test condition: DIN 51 755 (9)

Value: = 3 degree C
Type: closed cup
Method:
Year:
Source: Rhone-Poulenc Chimie Courbevoie Cedex
Test condition: AFNOR T 460103 (10)

2.8 Auto Flammability

Value: > 500 degree C
Method: other
Source: Rhone-Poulenc Chimie Courbevoie Cedex
Test condition: DIN 51 794

2.9 Flammability

Result: extremely flammable
Source: Rhone-Poulenc Chimie Courbevoie Cedex

2.10 Explosive Properties

Result:
Remark: No data
Source: Rhone-Poulenc Chimie Courbevoie Cedex

2.11 Oxidizing Properties

Result:
Remark: Not applicable
Source: Rhone-Poulenc Chimie Courbevoie Cedex

2.12 Additional Remarks

Remark: No additional remarks

Source: Rhone-Poulenc Chimie Courbevoie Cedex

3.1.1 Photodegradation

Type:
Method:
Year: GLP:
Test substance:
Remark: No data
Source: Rhone-Poulenc Chimie Courbevoie Cedex

3.1.2 Stability in Water

Type:
Method:
Year: GLP:
Test substance:
Remark: Not stable (HCl). In case of an accidental release into the environment, hydrolysis due to the moisture cause the formation of HCl (73g of HCl/100g of chlorosilane).
Data for 1% solution :
At pH=4 : >93% hydrolysis after 5 min.
At pH=7 : >95% hydrolysis after 5 min.
At pH=9 : >92% hydrolysis after 5 min.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

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3.1.3 Stability in Soil

Type: Radiolabel:
Concentration:
Cation exch.
capac.
Microbial
biomass:
Method:
Year: GLP:
Test substance:
Remark: Not stable. Rapidly hydrolysed with moisture of soil.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

3.2 Monitoring Data (Environment)

Type of
measurement:
Medium:
Remark: No data (HCl - rapid hydrolysis)
Source: Rhone-Poulenc Chimie Courbevoie Cedex

3.3.1 Transport between Environmental Compartments

Type:

Media:

Method:

Year:

Remark: No data (HCl - rapid hydrolysis)

Source: Rhone-Poulenc Chimie Courbevoie Cedex

3.3.2 Distribution

Media:

Method:

Year:

Remark: No data (HCl - rapid hydrolysis)

Source: Rhone-Poulenc Chimie Courbevoie Cedex

3.4 Mode of Degradation in Actual Use

Remark: Rapid hydrolysis (HCl)

Source: Rhone-Poulenc Chimie Courbevoie Cedex

3.5 Biodegradation

Type:

Inoculum:

Method:

Year:

GLP:

Test substance:

Remark: Not applicable (hydrolysis - HCl)

Source: Rhone-Poulenc Chimie Courbevoie Cedex

3.6 BOD5, COD or BOD5/COD Ratio

Remark: Not applicable - Hydrolysis (HCl)

Source: Rhone-Poulenc Chimie Courbevoie Cedex

3.7 Bioaccumulation

Species:

Exposure period:

Concentration:

BCF:

Elimination:

Method:

Year:

GLP:

Test substance:

Remark: Not applicable (Hydrolysis - HCl)

Source: Rhone-Poulenc Chimie Courbevoie Cedex

3.8 Additional Remarks

Remark: No additional remarks

Source: Rhone-Poulenc Chimie Courbevoie Cedex

AQUATIC ORGANISMS**4.1 Acute/Prolonged Toxicity to Fish**

Type:
Species:
Exposure period:
Unit: Analytical monitoring:
Method: GLP:
Year:
Test substance:
Remark: Rapid hydrolysis precludes measurements. Possible toxic effects may be due to formation of hydrochloric acid.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

4.2 Acute Toxicity to Aquatic Invertebrates

Species:
Exposure period:
Unit: Analytical monitoring:
Method: GLP:
Year:
Test substance:
Remark: Rapid hydrolysis precludes measurements. Possible toxic effects may be due to formation of hydrochloric acid.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

4.3 Toxicity to Aquatic Plants e.g. Algae

Species:
Endpoint:
Exposure period:
Unit: Analytical monitoring:
Method: GLP:
Year:
Test substance:
Remark: Rapid hydrolysis precludes measurements. Possible toxic effects may be due to formation of hydrochloric acid.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

4.4 Toxicity to Microorganisms e.g. Bacteria

Type:
Species:
Exposure period:
Unit: Analytical monitoring:
Method: GLP:
Year:
Test substance:
Remark: Rapid hydrolysis precludes measurements. Possible toxic effects may be due to formation of hydrochloric acid.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

4.5 Chronic Toxicity to Aquatic Organisms

4.5.1 Chronic Toxicity to Fish

Species:
Endpoint:
Exposure period:
Unit: **Analytical monitoring:**
Method:
Year: **GLP:**
Test substance:
Remark: Rapid hydrolysis precludes measurements. Possible toxic effects may be due to formation of hydrochloric acid.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

4.5.2 Chronic Toxicity to Aquatic Invertebrates

Species:
Endpoint:
Exposure period:
Unit: **Analytical monitoring:**
Method:
Year: **GLP:**
Test substance:
Remark: Rapid hydrolysis precludes measurements. Possible toxic effects may be due to formation of hydrochloric acid.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

TERRESTRIAL ORGANISMS

4.6.1 Toxicity to Soil Dwelling Organisms

Type:
Species:
Endpoint:
Exposure period:
Unit:
Method:
Year: **GLP:**
Test substance:
Remark: Rapid hydrolysis precludes measurements. Possible toxic effects may be due to formation of hydrochloric acid.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

4.6.2 Toxicity to Terrestrial Plants**Species:****Endpoint:****Expos. period:****Unit:****Method:****Year:****GLP:****Test substance:****Remark:** Rapid hydrolysis precludes measurements. Possible toxic effects may be due to formation of hydrochloric acid.**Source:** Rhone-Poulenc Chimie Courbevoie Cedex**4.6.3 Toxicity to other Non-Mamm. Terrestrial Species****Species:****Endpoint:****Expos. period:****Unit:****Method:****Year:****GLP:****Test substance:****Remark:** Rapid hydrolysis precludes measurements. Possible toxic effects may be due to formation of hydrochloric acid.**Source:** Rhone-Poulenc Chimie Courbevoie Cedex**4.7 Biological Effects Monitoring****Remark:** Rapid hydrolysis precludes measurements (HCl).**Source:** Rhone-Poulenc Chimie Courbevoie Cedex**4.8 Biotransformation and Kinetics****Type:****Remark:** Rapid hydrolysis precludes measurements (HCl).**Source:** Rhone-Poulenc Chimie Courbevoie Cedex**4.9 Additional Remarks****Remark:** No additional remarks**Source:** Rhone-Poulenc Chimie Courbevoie Cedex

5.1 Acute Toxicity

5.1.1 Acute Oral Toxicity

Type:

Species:

Sex:

Number of

Animals:

Vehicle:

Value:

Method:

Year:

GLP:

Test substance:

Remark: Not concerned (HCl)

Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.1.2 Acute Inhalation Toxicity

Type:

Species:

Sex:

Number of

Animals:

Vehicle:

Exposure time:

Value:

Method:

Year:

GLP:

Test substance:

Remark: Not concerned (HCl), see 5.4

Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.1.3 Acute Dermal Toxicity

Type:

Species:

Sex:

Number of

Animals:

Vehicle:

Value:

Method:

Year:

GLP:

Test substance:

Remark: Not concerned (HCl), see 5.4

Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.1.4 Acute Toxicity, other Routes

Type:
Species:
Sex:
Number of
Animals:
Vehicle:
Route of admin.:
Value:
Method:
Year: GLP:
Test substance:
Remark: Not concerned (HCl), see 5.4
Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.2 Corrosiveness and Irritation

5.2.1 Skin Irritation

Species: rabbit
Concentration:

Exposure:
Exposure Time:
Number of
Animals:
PDII:
Result: corrosive
EC classificat.: corrosive (causes burns)
Method:
Year: GLP:
Test substance:
Remark: EC Classification
Source: Rhone-Poulenc Chimie Courbevoie Cedex

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5.2.2 Eye Irritation

Species:
Concentration:
Dose:
Exposure Time:
Comment:
Number of
Animals:
Result:
EC classificat.:
Method:
Year: GLP:
Test substance:
Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.3 Sensitization

Type:
Species:
Number of
Animals:
Vehicle:
Result:
Classification:
Method:
Year: GLP:
Test substance:
Remark: Not concerned (HCl), see 5.4
Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.4 Repeated Dose Toxicity

Species: Sex:
Strain:
Route of admin.: inhalation
Exposure period:
Frequency of
treatment:
Post. obs.
period:
Doses: 30 - 12 ppm
Control Group:
Method:
Year: GLP:
Test substance:
Remark: In a repeated single dose inhalation study against a positive control group exposed to hydrogen chloride, no clinical signs of toxicity were noted which were considered treatment related. The conclusion of the study showed no difference between gaseous hydrogen chloride and trichloromethylsilane at the level used (30 and 12 ppm respectively).
Source: Rhone-Poulenc Chimie Courbevoie Cedex

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5.5 Genetic Toxicity 'in Vitro'

Type:
System of
testing:
Concentration:
Metabolic
activation:
Result:
Method:
Year: GLP:
Test substance:
Remark: Rapid hydrolysis in test system precludes measurement (HCl)
Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.6 Genetic Toxicity 'in Vivo'

Type:
Species: Sex:
Strain:
Route of admin.:
Exposure period:
Doses:
Result:
Method:
Year: GLP:
Test substance:
Remark: No data (HCl)
Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.7 Carcinogenicity

Species: Sex:
Strain:
Route of admin.:
Exposure period:
Frequency of
treatment:
Post. obs.
period:
Doses:
Result:
Control Group:
Method:
Year: GLP:
Test substance:
Remark: No data (HCl)
Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.8 Toxicity to Reproduction

Type:
Species: Sex:
Strain:
Route of admin.:
Exposure Period:
Frequency of
treatment:
Duration of test:
Doses:
Control Group:
Method:
Year: GLP:
Test substance:
Remark: No data (HCl) - see 5.1.2
Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.9 Developmental Toxicity/Teratogenicity

Species: **Sex:**
Strain:
Route of admin.:
Exposure period:
Frequency of treatment:
Duration of test:
Doses:
Control Group:
Method: **GLP:**
Year:
Test substance:
Remark: No data (HCl) - see 5.1.2
Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.10 Other Relevant Information

Type:
Remark: No additional remarks
Source: Rhone-Poulenc Chimie Courbevoie Cedex

5.11 Experience with Human Exposure

Remark: No mutagenic, teratogenic or carcinogenic effect related to exposure to hydrogen chloride have been reported in humans.
Source: Rhone-Poulenc Chimie Courbevoie Cedex

- (1) Bundesminister des Innern (1990): Gemeinsames Ministerialblatt Nr. 8 (23.03.1990)
- (2) Huels AG: Sicherheitsdatenblatt "Methyltrichlorsilan MTS", Version 06, 17 Feb. 1997
- (3) Stoerfallverordnung vom 20.09.1991
- (4) Silicones Health Council (USA) Chemical Safety Data Booklet: Properties and essential information for handling and use of chlorosilanes, 1987. Dow Corning Corporation: 'Essential information for handling and use of chlorosilanes', 1992.
- (5) CLAYTON G.D. and F.E. CLAYTON (eds) Patty's Industrial Hygiene and Toxicology - vol. 2A, 2B, 2C Toxicology - 3 rd ed. New-York : JOHN WILLEY SONS. 1981-1987. p. 2396-2397.
- (6) Safety - The Sigma Aldrich library of chemical Safety data - Edition II - 1988.
- (7) Handbook of Chemistry and Physics - 69th Ed. BOCA - RATON, Florida : CRC Press Inc - 1988-1989.
- (8) Safety - The Sigma Aldrich Library of Chemical Safety Data - Edition II - 1988.
- (9) BAYER
- (10) RHONE-POULENC
- (11) Bayer AG, 1990
- (12) Registry of Toxic Effects of Chemical Substances
- (13) DOW CORNING TECHNICAL REPORT (1993) 38257, Siddiqui W. et al.

7.1 Risk Assessment

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