I U C L I D

Data Set

Existing Chemical	:	ID: 68611-44-9
CAS No.	:	68611-44-9
EINECS Name	:	Silane, dichlorodimethyl-, reaction products with silica
EC No.	:	271-893-4
TSCA Name	:	Silane, dichlorodimethyl-, reaction products with silica

Producer related part

Company	:	Notox
Creation date	:	04.10.2001

Substance related part

Company	:	Notox
Creation date	:	04.10.2001
Status	:	
Memo	:	
Printing date	:	
Revision date	:	Revised by Consortia 04.10.2003
Date of last update	:	
Number of pages	:	60
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

1.7.1 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	:	> 520 °C
Decomposition	:	no, at °C
Sublimation	:	
Method	:	Directive 92/69/EEC, A.1
Year	:	2000
GLP	:	yes
Method	:	DSC method with Al2O3 as reference.
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity >99.8%.
Conclusion	:	Melting point > 800 K (= > 520 °C). Only study available.
Reliability	:	(1) valid without restriction
Remark	:	Confined report: DSC diagrams are included. Accuracy: ± 0.5 K (up to 600 K) ± 2.0 K (up to 1273 K)
Flag	:	Critical study for SIDS endpoint

14.03.2002 (1)

2.2 BOILING POINT

Value	:	> 520 °C at 972 hPa
Decomposition	:	no
Method	:	Directive 92/69/EEC, A.2
Year	:	2000
GLP	:	yes
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity >99.8%.
Conclusion	:	Boiling point > 800 K (= > 520 °C). Only study available.
Reliability	:	(1) valid without restriction
Remark	:	Confined report: DSC diagrams are included. Accuracy: ± 0.5 K (up to 600 K) ± 2.0 K (up to 1273 K)
Flag	:	Critical study for SIDS endpoint

14.03.2002 (1)

2.3 DENSITY

Type	:	
Value	:	ca. 2 g/cm³ at 20 °C
Remark	:	Apparent density: ca. 50 kg/m3, according to DIN/ISO 787/11
Conclusion	:	Most reliable data at ambient temperature.
Reliability	:	(4) not assignable
Flag	:	Critical study for SIDS endpoint

24.07.2002 (2) (3)

Type	:	density
Value	:	2.2 g/cm³ at °C
Reliability	:	(4) not assignable

14.03.2002 (4)

2.3.1 GRANULOMETRY

Type of distribution	:	other
Precentile	:	
Method	:	other
Year	:	2001
GLP	:	no
Remark	:	Particles of non-monodisperse, non-spherical, highly agglomerated particles like this treated silica cannot be measured by convential techniques. Several techniques were investigated to define the particle size as present in the product marketed, handled or used. RESULTS Laser Diffraction with airjet injection, the Time-of-Flight method and the Cascade Impactor are destructive to the agglomerates. Particle Image Velocimetry cannot measure particles with aerodynamic diameter <30 um. Dry sieving and laser diffraction with a 45 degrees sedimentation shaft gave reproducible and non-destructive results. Dry sieving: 0.83% <125 um; 0% <90 um Laser diffraction: MMAD= 188 um Thoracic and alveolar fraction of the whole size range according to EN/DIN481 have been calculated for the silica analyzed: both <1vol%=wt%.
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity >= 99%.
Reliability	:	(2) valid with restrictions

30.08.2002 (5)

2.4 VAPOUR PRESSURE

Value	:	< .00001 hPa at °C
Remark	:	Only the following statement is included: "in the hydrophobic silica the dimethylsilane group is chemically bound to the surface of the amorphous silica and it can be deduced that the vapour pressure will be below 10e-3 Pa". The deduction is not specified..
Conclusion	:	Only value available.
Reliability	:	(4) not assignable
Remark	:	Not applicable, because it is a solid substance partly inorganic, partly organic, with a very high molecular weight.
Flag	:	Critical study for SIDS endpoint

14.03.2002 (2)

Remark	:	Not applicable (inorganic, solid subtance)

14.03.2002 (1)

2.5 PARTITION COEFFICIENT

Method	:	
Year	:	2000
GLP	:	
Remark	:	Not applicable (test substance does not dissolve in either solvent).

14.03.2002 (1)

2.6.1 SOLUBILITY IN DIFFERENT MEDIA

Solubility in	:	Water
Value	:	at °C
pH value	:	
concentration	:	at °C
Temperature effects	:	
Examine different pol.	:	
pKa	:	at 25 °C
Description	:	not soluble
Stable	:	
Deg. product	:	
Method	:	
Year	:	1988
GLP	:	
Remark	:	A pH value of 3-4.3 was measured in a suspension of 40 g/l in water/methanol or acetone 1:1.
Conclusion	:	Most appropriate and reliable information available.
Reliability	:	(4) not assignable
Flag	:	Critical study for SIDS endpoint

14.03.2002 (3)

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	:	2000
GLP	:	
Remark	:	Only a minor amount as colloidal form dissolves in water.
Reliability	:	(4) not assignable

14.03.2002 (1)

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	:	1999
GLP	:	
Remark	:	Concerning water solubility the following statement is included: "The water solublity is much lower than of the untreated amorphous silica (below 10e-6 g/L). This hydrophobic character is the reason why important parameters like water solubility cannot be measured analytically in water."

Reliability	:	(4) not assignable
14.03.2002		(2)

Solubility in	:	
Value	:	at °C
pH value	:	>= 4
concentration	:	at °C
Temperature effects	:	
Examine different pol.	:	
pKa	:	at 25 °C
Description	:	
Stable	:	
Deg. product	:	
Method	:	
Year	:	1999
GLP	:	
Remark	:	This value was measured in a 4% slurry in 4:1 v/v isopropanol/water.
Reliability	:	(4) not assignable
14.03.2002		(4)

2.6.2 SURFACE TENSION

2.7 FLASH POINT

Method	:	
Year	:	2000
GLP	:	
Test substance	:	
Remark	:	Not applicable (solid substance)
14.03.2002		(1)

2.8 AUTO FLAMMABILITY

Method	:	
Year	:	2000
GLP	:	
Test substance	:	
Remark	:	The substance does not catch fire.
14.03.2002		(1)

2.9 FLAMMABILITY

2.10 EXPLOSIVE PROPERTIES

Method	:	
Year	:	2000
GLP	:	
Test substance	:	
Remark	:	The substance is non-dust explosible.
14.03.2002		(1)

2.11 OXIDIZING PROPERTIES

Result	:	no oxidizing properties
Method	:	other: EPA OPPTS 830.6314
Year	:	2002
GLP	:	no
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), carbon content 0.85%, purity not indicated.
Conclusion	:	Reaction products of dichlorodimethyl silane with silica have been shown to have no chemical incompatibility with water, ammonium phophate, powdered zinc or potassium permanganate, which cover the range of oxidizing and reducing agents recommended in the EPA Guidelines. All temperature increases were less than 5 degrees C over a 24 h period, and no other signs of chemical reaction were observed.
Reliability	:	(2) valid with restrictions
Remark	:	Non-GLP study.
Flag	:	Critical study for SIDS endpoint

14.03.2002 (6)

2.12 DISSOCIATION CONSTANT

2.13 VISCOSITY

2.14 ADDITIONAL REMARKS

Memo	:	pH
Remark	:	A pH value of 3.8-4.8 was measured in a 4% suspension of the test substance in water/methanol (1:1). The method used was DIN EN ISO 787-9.

21.11.2001 (7)

3.1.1 PHOTODEGRADATION

Deg. product	:	
Method	:	
Year	:	2000
GLP	:	
Test substance	:	
Remark	:	Not applicable, test substance does not absorb light above 270 nm.
Conclusion	:	Only information available.
Flag	:	Critical study for SIDS endpoint

14.03.2002 (1)

3.1.2 STABILITY IN WATER

Type	:	abiotic
t1/2 pH4	:	at °C
t1/2 pH7	:	at °C
t1/2 pH9	:	at °C
Deg. product	:	
Method	:	other
Year	:	1998
GLP	:	no
Remark	:	Silica is slowly hydrolysed in 0.01 M NaCl at 40 degrees C to orthosilicic acid and oligosilicates. At basic pH the hydrolysis is a lot faster than at acidic or neutral pH. An intrinsic dissociation constant pK(S,2) = 6.0-6.65 has been determined. For treated silica the hydrolysis was measured according to Vogelsberger with a wetting agent and yielded similar hydrolysis rates as untreated silica (personal communication M. Heinemann, Wacker-Chemie GmbH).
Test substance	:	Monospher 250 amorphous silica (Merck).
Reliability	:	(2) valid with restrictions

26.07.2002 (8)

Deg. product	:	
Method	:	
Year	:	1999
GLP	:	
Test substance	:	
Remark	:	It is stated that the methylated hydrophobic test substance 'is stable against hydrolysis, even when boiled in water'.
Reliability	:	(4) not assignable

14.03.2002 (2)

Deg. product	:	
Method	:	
Year	:	2000
GLP	:	
Test substance	:	
Remark	:	It is stated that 'in water hydrolysis occurs'.
Reliability	:	(4) not assignable

26.07.2002 (1)

Deg. product	:	
Method	:	
Year	:	1999
GLP	:	
Result	:	The test substance was mechanically shaken for 15 min in water containing different percentages of methanol. The test substance hydrolyses for less than 3% when mechanically shaken for 15 min in pure water. The hydrolysability increases with increasing concentration of methanol.
Test substance	:	68611-44-9 (dichlorodimethylsilane, reaction product with amorphous silica), purity not indicated.
Reliability	:	(2) valid with restrictions

14.03.2002 (9)

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

Media	:	other: water-air-soil/sediment
Method	:	
Year	:	
Remark	:	The following statement is given: "Based on the insolubility and very low vapour pressure it is expected that the test substance wil not occur in air or water in relevant amounts. Also a distribution via water or air, respectively, can be neglected. The deposition on soil or sediments is therefore the most relevant compartment of the fate of the substance in the environment."
Reliability	:	(4) not assignable
Flag	:	Critical study for SIDS endpoint

04.01.2002 (2)

3.4 MODE OF DEGRADATION IN ACTUAL USE

3.5 BIODEGRADATION

Deg. product	:	
Method	:	
Year	:	1999
GLP	:	
Test substance	:	
Remark	:	The following statement is included: The test substance is partly an inorganic substance with the amorphous siliconoxide structure of sand. The general acceptable guidelines for the examination of the biodegradability of substances (i.e. OECD-, EEC-guidelines) can be used only for organic substances. Therefore a biodegradation study with the test substance can be omitted.
Reliability	:	(4) not assignable
Flag	:	Critical study for SIDS endpoint

14.03.2002 (2)

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	:	Brachydanio rerio (Fish, fresh water)
Exposure period	:	96 hour(s)
Unit	:	mg/l
Limit test	:	yes
Analytical monitoring	:	no
Method	:	OECD Guide-line 203 "Fish, Acute Toxicity Test"
Year	:	1992
GLP	:	yes
Method	:	TEST ORGANISMS - Species: Brachydanio rerio - Supplier: M.B. Ruysbroek B.V., Maassluis, The Netherlands - Size/weight/loading: 2.5±0.1 cm/0.13±0.02 g/~0.9 g/L - Feeding (pretreatment): not indicated - Feeding during test: none STOCK AND TEST SOLUTION AND THEIR PREPARATION - Dispersion: 1000 and 10,000 mg/L of test substance was stirred for 20 hours in dilution water and then allowed to stand for 4 hours before adding the fish DILUTION WATER - Source: Synthetic medium prepared from groundwater from near Linschoten (The Netherlands) - Chemistry: Hardness = 204 mg CaCO3/L; TOC = 1.7 mg/L; pH = 8.0-8.2; Ca + Mg = 2.0 mmol/L; Ca/Mg ratio = 1.8; Na/K ratio = 6 TEST SYSTEM - Test type: static - Concentrations: 1000 and 10000 mg/L - Exposure vessel type: 2 L glass beaker containing 1.5 L medium - Number of fish: 10 per replicate, 2 replicates/treatment and control - Photoperiod: 16 h light - 8 h dark PHYSICAL MEASUREMENTS - Measuring times: 0, 24, 48, 72 and 96 h for pH, oxygen and temperature - Test temperature: 25.4-25.8 C - Dissolved oxygen: 88-110% - pH: 7.9-8.3 - Aerated: yes DURATION OF THE TEST: 96 hours TEST PARAMETER: mortality and symptoms OBSERVATION TIMES: 24, 48, 72 and 96 hours
Result	:	RESULTS: - Nominal concentrations (mg/L): 1000 and 10000 mg/L - Mortality: none - Symptoms: none - Effect concentration vs. test substance solubility: concentrations used were above solubility limit; in all test vessels undissolved test substance was observed on the bottom/surface of the suspension and a turbid solution was present

Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity ~100% (contains constitutionally 1% carbon).
Conclusion	:	The test substance was not acutely toxic to Brachydanio rerio within its aqueous solubility
Reliability	:	(1) valid without restriction
Flag	:	Critical study for SIDS endpoint

24.07.2002 (10)

4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES

Type	:	static
Species	:	Daphnia magna (Crustacea)
Exposure period	:	24 hour(s)
Unit	:	mg/l
Analytical monitoring	:	no
Method	:	OECD Guide-line 202
Year	:	1992
GLP	:	yes
Method	:	TEST ORGANISMS - Species: Daphnia magna - Age: <24 h - Feeding (pretreatment): not indicated - Feeding during test: none STOCK AND TEST SOLUTION AND THEIR PREPARATION - Dispersion: 1000 and 10,000 mg/L of test substance was stirred for 20 hours in dilution water and then allowed to stand for 4 hours before adding the daphnias DILUTION WATER - Source: synthetic medium prepared from ground water from near Linschoten (The Netherlands) - Chemistry: Hardness = 204 mg CaCO3/L; TOC = 1.5 mg/L Ca/Mg ratio = 1.8; Na/K ratio = 5.5; pH = 8.0-8.2; Ca + Mg = 2.0 mmol/L TEST SYSTEM - Test type: static - Concentrations: 1000 and 10000 mg/L - Exposure vessel type: 150 ml glass beakers containing 100 ml medium - Number of individuals: 5 per replicate, 8 replicates/treatment - Photoperiod: 16 h light - 8 h dark PHYSICAL MEASUREMENTS - Measuring times: temperature (in one control vessel), pH and oxygen concentration at beginning and end of the test in all vessels and control - Test temperature: 19.5-19.8 C - Dissolved oxygen: 71-96% - pH: 7.6-8.2 DURATION OF THE TEST: 24 hours TEST PARAMETER: immobility and symptoms OBSERVATION TIMES: 24 hours
Result	:	RESULTS: - Immobility: 0/40 (1000 mg/L and unfiltered + filtered 10,000 mg/L) - Effect concentration vs. test substance solubility: concentrations used are

- Effect concentration vs. test substance solubility: concentrations used are above solubility limit; turbid suspension + undissolved test substance on bottom and surface; filtered: turbid suspension + undissolved material on surface

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity ~100% (contains constitutionally 1% carbon).
Conclusion : The test substance was not acutely toxic to Daphnia magna within its aqueous solubility
Reliability : (1) valid without restriction
Remark : 1. The daphnias at 10,000 mg/L were not visible at the end of the test. Therefore, a second test with 10,000 mg/L was performed, in which the test substance + dilution water was filtered before use, so that the daphnias were visible.
Flag : Critical study for SIDS endpoint
24.07.2002 (11)

4.3 TOXICITY TO AQUATIC PLANTS E.G. ALGAE

Species : Scenedesmus subspicatus (Algae)
Endpoint : biomass
Exposure period : 72 hour(s)
Unit : mg/l
EC50 : > 10000
Limit test :
Analytical monitoring : no
Method : OECD Guide-line 201 "Algae, Growth Inhibition Test"
Year : 1999
GLP : yes
Method : TEST ORGANISMS
- Species: Scenedesmus subspicatus CHODAT
- Source/supplier: Sammlung von Algenkulturen, Pflanzen-physiologisches Institut der Universität Göttingen [SAG], Strain no. 86.81
- Laboratory culture: yes
- Method of cultivation: strictly aseptic conditions in accordance with standard laboratory procedures
- Pretreatment: 3 d before test preculture (25 C, ~8000 lux)
- Initial cell concentration: 6.5E4 cells/ml

STOCK AND TEST SOLUTION AND THEIR PREPARATION
- Other procedures: 63, 630 and 6250 mg in 500 ml of ultrapure water; shaken for 24 hours (room temp.) and filtered. Final nominal concentrations (based on unfiltrated solutions) were: 100.8, 1008, 10,000 mg/L.

DILUTION WATER
- Ultrapure water (Millipore)

GROWTH/TEST MEDIUM CHEMISTRY
- Test medium was in accordance with OECD 201, except for the sodium bicarbonate concentration, which was 100 mg/L instead of 50 mg/L.
- pH: 8.06
- Dissolved oxygen: not required

TEST SYSTEM
- Test type: static
- Concentrations: 101, 1008 and 10000 mg/L
- Exposure vessel type: 50 ml glass, covered cylinder containing 50 ml of test solution (stirred for 15 min/h)

test solution (stirred for 15 min/h)
- Number of replicates:
- medium only: 3
- controls (medium + inoculum): 7
- test vessels (medium + inoculum + test substance): 5/ test concentration
- blanks (medium + test subtance); 3/test concentration
- Photoperiod (intensity): constantly (~8000 lux)

PHYSICAL MEASUREMENTS
- Measuring times: temperature daily; pH at 0 and 72 hours
- Test temperature: 24-25 C
- pH: 7.3-8.5 (0 h); 10.7-10.8 (72 h)

DURATION OF TEST: 72 hours

TEST PARAMETER: cell density (spectrophotometrically)
OBSERVATION TIMES: 0, 24, 48 and 72 hours

Result : RESULTS:
- Nominal concentrations (mg/L): 100.8, 1008, 10000~~- Cell density data: see attachment~~
- Inhibition growth rate (% of control): -1, -2, -6
- Inhibition biomass (AUC) (% of control): 2, -1, -7

GROWTH FACTOR CONTROL: 53 after 72 h

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity 99.9%.

Conclusion : Under the conditions being tested no toxic effect could be determined.

Reliability : (1) valid without restriction

Remark : 1. The concentrations were not measured; the substance was stated to be sufficiently stable in water (5000 hours).
2. The aqueous extracts of the test substance were used because of the poor solubility of the test substance.

Flag : Critical study for SIDS endpoint

24.07.2002 (12)

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

5.0 TOXICOKINETICS, METABOLISM AND DISTRIBUTION

5.1.1 ACUTE ORAL TOXICITY

Type	:	LD50
Value	:	> 5000 mg/kg bw
Species	:	rat
Strain	:	Sprague-Dawley
Sex	:	male/female
Number of animals	:	10
Vehicle	:	
Doses	:	5000 mg/kg bw
Method	:	EPA OPP 81-1
Year	:	1995
GLP	:	yes
Method	:	TEST ORGANISMS: - Source: Hilltop Lab Animals, Scottdale, PA - Age: young adult - Number: 5/sex - Weight at study initiation: males 208-232 g; females 199-225 g ADMINISTRATION: - Doses: 5000 mg/kg bw - Concentration: 10% w/w in diet (carrier: corn oil) - Pretest fasting: 21 hours - Doses per time period: all animals consumed their diet within 19 hours - Post dose observation period: 14 days EXAMINATIONS: body weight on day 0, 7 and 14; clinical signs and mortality at 1, 2, 4, and 19.5 h post-dosing and daily thereafter for 14 days; necropsy on day 14
Result	:	MORTALITY: - Number of deaths: none BODY WEIGHT: one female lost 6 gms (2.4%) weight between day 7 and 14, but all animals gained weight over the entire 14-day observation period CLINICAL SIGNS: none NECROPSY FINDINGS: lung attached to thoracic peritoneum in one male animal and uterine horns distended in one female animal
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity >99%; Lot #6C264.
Conclusion	:	Most reliable study available.
Reliability	:	(1) valid without restriction
Remark	:	The test substance was administered in the diet, which is not according to OECD401. However, oral gavage was not possible, because the test substance could not be solubilized or suspended in amounts needed for this limit test. Therefore, the reliability was not lowered.
Flag	:	Critical study for SIDS endpoint

14.03.2002 (13)

Type	:	LD50
Value	:	> 5000 mg/kg bw
Species	:	rat
Strain	:	Sprague-Dawley
Sex	:	male/female
Number of animals	:	20
Vehicle	:	peanut oil
Doses	:	2500 and 5000 mg/kg bw
Method	:	other: not indicated
Year	:	1977
GLP	:	no
Method	:	TEST ORGANISMS: - Source: S. Ivanovas GmbH & Co, med. Versuchstierzuchten KG, Kisslegg/Allgäu - Age: males 38 d and females 42 d - Number: 10/sex/treatment - Weight at study initiation: 100-105 g ADMINISTRATION: - Doses: 2500 and 5000 mg/kg bw - Doses per time period: single - Volume administered or concentration: maximal possible volume - Post dose observation period: 4 weeks EXAMINATIONS: body weight and food intake on day 1, 2 and 14; clinical signs (schedule not indicated); mortality at 24 h and on day 14; necropsy on day 28
Result	:	MORTALITY: - Number of deaths at each dose: none BODY WEIGHT: very slight decrease in body weight gain accompanied by decreased food intake CLINICAL SIGNS: none NECROPSY FINDINGS: no treatment-related effects
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.
Reliability	:	(2) valid with restrictions
Remark	:	The reliability is lowered, because no individual data were reported and it is not clear whether clinical observations were performed each day.

14.03.2002 (14)

Type	:	LD50
Value	:	> 7900 mg/kg bw
Species	:	rat
Strain	:	Sprague-Dawley
Sex	:	male/female
Number of animals	:	10
Vehicle	:	other: olive oil
Doses	:	5040, 6350 and 7900 mg/kg bw
Method	:	other: not indicated
Year	:	1977
GLP	:	no

Method	:	TEST ORGANISMS: - Source: S. Ivanovas GmbH & Co, med. Versuchstierzuchten KG, Kisslegg/Allgäu - Age: males 38 d and females 42 d - Number: 5/sex/treatment - Weight at study initiation: 100-105 g ADMINISTRATION: - Doses: 5040, 6350 and 7900 mg/kg bw - Doses per time period: single - Volume administered or concentration: 50 ml/kg bw - Post dose observation period: 4 weeks EXAMINATIONS: body weight and food intake on day 1, 2 and 7; clinical signs (schedule not indicated); mortality at 24 h and on day 7; necropsy on day 28
Result	:	MORTALITY: - Number of deaths at each dose: none BODY WEIGHT: very slight decrease in body weight gain at the two highest doses accompanied by decreased food intake CLINICAL SIGNS: none NECROPSY FINDINGS: no treatment-related effects
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.
Reliability	:	(2) valid with restrictions
Remark	:	The information in the report is limited to the above.

14.03.2002 (15)

5.1.2 ACUTE INHALATION TOXICITY

Type	:	LC50
Value	:	= 450 mg/m³
Species	:	rat
Strain	:	Wistar
Sex	:	male/female
Number of animals	:	10
Vehicle	:	
Doses	:	210, 540 and 2100 mg/m³
Exposure time	:	4 hour(s)
Method	:	EPA OPP 81-3
Year	:	1994
GLP	:	yes
Method	:	TEST ORGANISMS: - Source: Ace Animals, Boyertown, PA - Age: not indicated - Weight at study initiation: 241-278 g (males); 228-273 g (females) - Number of animals: 5/sex/treatment ADMINISTRATION: - Type of exposure: whole body - Exposure duration: 4 hours - Concentrations(measured): 210, 540 and 2100 mg/m3

- Concentrations(measured): 210, 540 and 2100 mg/m3
- Particle size: MMAD = 1.24 µm (GSD 3.03)
- Type or preparation of particles: dust generation
- Air changes: 42-46/hour

EXAMINATIONS: body weight on day 0, 7, 14 for 540 mg/m3, additional day 16 and 22 for 210 mg/m3; clinical signs at 1 hour intervals during exposure and 1 hour post exposure and once daily thereafter for 14 days; mortality twice daily, necropsy on day 14

ANALYSES:
- Method: gravimetrically
- Sampling times: 5-6 times in 4 hours of exposure

STATISTICAL METHOD: Litchfield and Wilcoxon

Result : MORTALITY:
- Number of deaths at each dose: 0/10 (210 mg/m3); 7/10 (540 mg/m3); 10/10 (2100 mg/m3)
- Time of death: within 1 day

BODY WEIGHT GAIN:
No treatment-related effects (initial weight loss with recovery)

CLINICAL SIGNS:
During Exposure: closed eyes, labored breathing, respiratory distress and hunched posture.
After Exposure: at 210 mg/m3 few feces and labored breathing; at 540 mg/m3 lethargy, dyspnea, ptosis, piloerection, few feces, crusting/lacramating eyes, opaque eyes, red-stained nose/mouth area, wet anogenital area and unkempt appearance.

NECROPSY FINDINGS: discoloured lungs at all concentrations; at 540 mg/m3 and 2100 mg/m3 additionally, opaque eyes and white material in nasal turbinates.

POTENTIAL TARGET ORGANS: lungs

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), solid composition 99.2%.

Reliability : (2) valid with restrictions

Remark : 1. The substance tested consists of much smaller particles (MMAD = 1.24 µm) and only represents a minor portion of the substance marketed, which is < 1% respirable (<10µm) and 99% >90 µm (reference: Wacker-Chemie GmbH, Particle analysis of pyrogenic (fumed) silicas at technical concentrations and under technical handling conditions, 2001). Therefore, the study is not relevant for hazard definition of the substance.
2. The number of air changes (calculated from exposure chamber volume and the air flow) is higher than required according to OECD 403 (12-15); this is probably required to prevent massive precipitation.
3. The oxygen content of the test room was not measured.

24.07.2002 (16)

Type : LC50

Value : 520 - 1120 mg/m³

Species : rat

Strain : other: Crl:[WI]WU BR

Sex	:	male/female
Number of animals	:	10
Vehicle	:	
Doses	:	520, 1120 and 2790 mg/m³
Exposure time	:	4 hour(s)
Method	:	OECD Guide-line 403 "Acute Inhalation Toxicity"
Year	:	2000
GLP	:	yes
Method	:	TEST ORGANISMS: - Source: Charles River Deutschland, Sulzfeld, Germany - Age: 7-10 weeks - Weight at study initiation: 216-271 g (males); 148-201 g (females) - Number of animals: 5/sex/treatment, except for 1120 mg/m3 7/sex/treatment ADMINISTRATION: - Type of exposure: nose-only - Exposure duration: 4 hours - Concentrations (nominal/measured): 560/520, 1690/1120 and 4000/2790 mg/m3 - Particle size: MMAD = 0.8-0.9 µm with GSD of 1.8 - Type or preparation of particles: dust feeder coupled to an eductor operating with humidified pressurized air (aerosol) - Air changes: 32/hour EXAMINATIONS: body weights on day 0, 7 and 14; mortality and clinical signs during exposure with 15 min to 1 hour intervals, shortly after exposure and once daily thereafter during 14 days; necropsy at day 14; histopathology of the nose (4 levels), larynx, trachea and lungs of 4 animals of the 1120 mg/m3 dose group. ANALYSES: - Method: gravimetrically - Sampling times: 4 times with 1 hour intervals during exposure
Result	:	MORTALITY: - Number of deaths at each dose: 0/10 (520 mg/m3); 14/14 (1120 mg/m3); 10/10 (2790 mg/m3) - Time of death: all deaths occurred during exposure, except for 1 female at 1120 mg/m3 (killed after exposure) BODY WEIGHT GAIN: at 520 mg/m3 within normal ranges CLINICAL SIGNS: During Exposure: at all doses decreased, irregular and laboured breathing After Exposure: at 520 mg/m3 increased breathing rate, laboured breathing and blepharospasm (all symptoms disappeared within 4 days). NECROPSY FINDINGS: lungs filled with foam and sparsely haired fur (head or abdomen) at 520 mg/m3; haemorrhagic and reduced elastic lungs, soiled fur and white powder in nasal cavity at 1120 mg/m3; petechiae on the lungs, blocking lumps of white particles and slime in the nose, haemorrhagic nasopharynx at 2790 mg/m3 HISTOPATHOLOGY: Lungs: erythrocytes and oedema in alveoli, epithelial lining interrupted or flattened, scarce goblet cells; lumina of nasopharynx, larynx and bronchi/bronchioli contained large quantities of pale-eosinophilic material mixed with nucleated cells and erythrocytes; in the smaller

material mixed with nucleated cells and erythrocytes; in the smaller bronchioli the material filled the entire lumen.

POTENTIAL TARGET ORGANS: respiratory tract and lungs

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity 99-100%.
Reliability : (2) valid with restrictions
Remark : 1. The substance tested consists of much smaller particles (MMAD = 0.8-0.9 µm) and only represents a minor portion of the substance marketed, which is < 1% respirable (< 10µm) and 99% >90 µm (reference: Wacker-Chemie GmbH, Particle analysis of pyrogenic (fumed) silicas at technical concentrations and under technical handling conditions, 2001). Therefore, the study is not relevant for hazard definition of the substance.
2. The number of air changes (calculated from exposure chamber volume and the air flow) is higher than required according to OECD 403 (12-15); this is probably required to prevent massive precipitation.
3. Obstruction may be related to the large volume of the particles.

24.07.2002 (17)

Type : LC50
Value : > 2280 mg/m³
Species : rat
Strain : other:CRL:CD (SD)BR
Sex : male/female
Number of animals : 10
Vehicle :
Doses : 0 and 2280 mg/m³
Exposure time : 1 hour(s)
Method : other: not indicated
Year : 1982
GLP : yes
Method : TEST ORGANISMS:
- Source: Charles River Breeding Laboratories, Portage, MI
- Age: young adult
- Weight at study initiation: 274-298 g (males); 211-255 g (females)
- Number of animals: 5/sex/treatment
- Controls: untreated

ADMINISTRATION:
- Type of exposure: whole body
- Exposure duration: 1 hour
- Concentrations(nominal/measured): 13700/2280 mg/m³
- Particle size: MMAD = 0.15 µm (GSD 2.67)
- Type or preparation of particles: airstream through test material
- Air changes: ~26-29/hour

EXAMINATIONS: mortality and clinical signs every 15 minutes during exposure and twice daily thereafter until 14 days; body weight at days 0, 7 and 14; necropsy at day 14

ANALYSES:
- Method: gravimetrically
- Sampling times: 4 samples (sampling time not indicated)

Result : MORTALITY:
- Number of deaths: none
CLINICAL SIGNS:

CLINICAL SIGNS:
Treated animals during and after exposure: irregular breathing
Treated animals after exposure: irregular breathing, poor coat quality and alopecia (females)

NECROPSY FINDINGS: slight lung effects in treated animals.

POTENTIAL TARGET ORGANS: lungs

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity 98% silica.
Reliability : (2) valid with restrictions
Remark : 1. The substance tested consists of much smaller particles (MMAD = 0.15 µm) and only represents a minor portion of the substance marketed, which is < 1% respirable (< 10µm) and 99% >90 µm (reference: Wacker-Chemie GmbH, Particle analysis of pyrogenic (fumed) silicas at technical concentrations and under technical handling conditions, 2001). Therefore, the study is not relevant for hazard definition of the substance.
2. The study was performed at only one concentration level.
3. Exposure was shorter than required for OECD 403 (4 hours).
4. It cannot be excluded that the lung effects were induced by the killing procedure.

24.07.2002 (18)

Type : LC50
Value : > 477 mg/m³
Species : rat
Strain : other: Cpb;WU, Wistar random
Sex : male/female
Number of animals : 10
Vehicle :
Doses : 477 mg/m³
Exposure time : 4 hour(s)
Method : other: not indicated
Year : 1983
GLP : yes
Method : TEST ORGANISMS:
- Source: Central Institute for Breeding of Laboratory Animals TNO, Zeist, The Netherlands
- Weight at study initiation: 176-188 g (males); 138-146 g (females)
- Number of animals: 5/sex

ADMINISTRATION:
- Type of exposure: whole-body
- Exposure duration: 4 hours
- Concentrations: 24400 mg/m3 nominal/477 mg/m3 (maximum attainable concentration tested)
- Particle size: MMAD = 2.9 µm
- Generation of test atmosphere: dust feeder
- Air changes: 1.5/h

EXAMINATIONS: clinical signs and mortality during exposure and daily thereafter until day 14; body weight on days 0, 1, 2, 4, 7 and 14; necropsy on day 14

ANALYSES:
- Method: gravimetrically
- Sampling times: 60, 130 and 170 minutes after starting the exposure

Result	:	MORTALITY: - Number of deaths: none CLINICAL SIGNS: restless with their eyes half closed during exposure BODY WEIGHT: all animals lost body weight during first 2 days, and from the 4th day onwards they gained weight NECROPSY FINDINGS: no abnormalities
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.
Reliability	:	(2) valid with restrictions
Remark	:	1. The substance tested consists of much smaller particles (MMAD = 2.9 µm) and only represents a minor portion of the substance marketed, which is < 1% respirable (< 10µm) and 99% >90 µm (reference: Wacker-Chemie GmbH, Particle analysis of pyrogenic (fumed) silicas at technical concentrations and under technical handling conditions, 2001). 2. It is reported that large amounts of the test material were deposited on walls and cages as result of electrostatical charge of the particles and that the aerosol mainly consisted of large aggregates, which have a large tendency to precipitate. 3. A value of 1.5 airchanges per hour was calculated from the capacity of the exposure chamber and the airflow by the reviewer, whereas 12-15 airchanges are required by guideline OECD403. 4. Only for body weight individual data are given. 5. The actual concentration was the maximum attainable concentration. 6. MMAD was not measured, but calculated from volume mean diameter of 58.5 µm (determined by light scattering) and tapped density of 0.05 g/cm3.

24.07.2002 (19)

Type	:	other
Value	:	
Species	:	rat
Strain	:	Sprague-Dawley
Sex	:	female
Number of animals	:	50
Vehicle	:	
Doses	:	50 mg/m³
Exposure time	:	5 hour(s)
Method	:	other: not indicated
Year	:	1971
GLP	:	no
Method	:	TEST ORGANISMS: - Weight at study initiation: 180-200 g - Number of animals: 50 females ADMINISTRATION: - Type of exposure: inhalation - Exposure duration: 5 h - Concentrations(measured): 50 mg/m³ - Particle size: < 7 µm - Type or preparation of particles: dust feeder - Air changes: not indicated EXAMINATIONS: silica deposition in the lungs and mediastinal lymph nodes at 20 h, 1 month and 3 months after exposure each for part of the animals (according to the method of Stegemann and Fitzek)

animals (according to the method of Stegemann and Fitzek)

ANALYSES:
- Method: gravimetrically

Result : DEPOSITION:
Lung: 0.156, 0.034 and 0.024 mg of test substance at 20 h, 1 month and 3 months, respectively
Mediastinal lymph nodes: 0, 0.003 and 0.004 mg of test substance at 20 h, 1 month and 3 months, respectively

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.

Conclusion : The test substance is eliminated for 78 and 85% in 1 and 3 months, respectively.

Reliability : (2) valid with restrictions

Remark : 1. The information in the report was confined to the above.
2. The substance tested consists of much smaller particles (MMAD <7 µm) and only represents a minor portion of the substance marketed, which is < 1% respirable (< 10µm) and 99% >90 µm (reference: Wacker-Chemie GmbH, Particle analysis of pyrogenic (fumed) silicas at technical concentrations and under technical handling conditions, 2001).

24.07.2002 (20)

5.1.3 ACUTE DERMAL TOXICITY

5.1.4 ACUTE TOXICITY, OTHER ROUTES

Type : other: acute intraperitoneal
Value :
Species : rat
Strain : other: not indicated (in house strain)
Sex : female
Number of animals : 100
Vehicle : other: water; water with Tween 80
Doses : up to 200 mg
Route of admin. : i.p.
Exposure time :
Method : other: no data
Year : 1962
GLP : no
Method : TEST ORGANISMS:
- Source: in house strain.
- Age: not indicated
- Weight at study initiation: not indicated

ADMINISTRATION:
- Vehicle: water with 0.5% Tween, water with test substance (ratio 1:1), test substance only
- Total volume applied: not indicated
- Doses: maximum dose 200 mg (other doses not specified)

EXAMINATIONS:
macroscopic examination of the abdominal cavity and histopathological examination of tissues (not specified) and lesions.
STATISTICAL METHOD:

STATISTICAL METHOD:
Not applied.

Result : MORTALITY:
- Number of deaths at each dose: None

CLINICAL SIGNS: not reported.

NECROPSY FINDINGS: No fibrosis was observed. Macroscopic findings in the abdominal cavity included thickening of the liver and spleen capsules in some cases. The test substance was retrieved from the abdominal cavity in so called dust nodules.
Histopathologically these dust nodules revealed a tight network of reticulin and collagen. Slight phagocyte accumulations were noted and only slight necrosis was apparent. A few dust nodules were observed in the liver.

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.

Conclusion : Rats tolerated intraperitoneal dose levels up to 200 mg.

Reliability : (4) not assignable

Remark : 1. Non GLP study.
2. Insufficient information on animals, husbandry, maintenance, material and methods.
3. No individual tables included.
4. No tables with means, standard deviations and statistical analyses included for clinical observations , body weights, macroscopy and histopathological examinations
5. Copies of histopathological findings not interpretable.

The information was limited to the above.

24.07.2002 (21)

Type : other: acute intraperitoneal

Value :

Species : mouse

Strain : other: not indicated (in house strain)

Sex : no data

Number of animals : 120

Vehicle : other: water; water with Tween 80

Doses : up to 30 mg

Route of admin. : i.p.

Exposure time :

Method : other: no data

Year : 1962

GLP : no

Method : TEST ORGANISMS:
- Source: in house strain.
- Age: not indicated
- Weight at study initiation: not indicated

ADMINISTRATION:
- Vehicle: water with 0.5% Tween, water with test substance (ratio 1:1), test substance only
- Total volume applied: not indicated
- Doses: maximum dose 30 mg (other doses not specified)

EXAMINATIONS:
macroscopic examination of the abdominal cavity and histopathological examination of tissues (not specified) and lesions.

examination of tissues (not specified) and lesions.

STATISTICAL METHOD:
Not applied.

Result : MORTALITY:
- Number of deaths at each dose: No mortality.

CLINICAL SIGNS: not reported.

NECROPSY FINDINGS: No fibrosis was observed. Macroscopic findings in the abdominal cavity included thickening of the liver and spleen capsules. The test substance was retrieved from the abdominal cavity in so called dust nodules.
Histopathologically these dust nodules revealed a thight network of reticulin and collagen. Slight phagocyte accumulations were noted and only slight necrosis was apparent. A few dust cells were observed in the liver.

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.

Conclusion : Mice tolerated intraperitoneal dose levels up to 30 mg.

Reliability : (4) not assignable

Remark : 1. No GLP study.
2. No individual tables included.
3. No tables with means, standard deviations and statistical analyses included for clinical observations , body weights, macroscopy and histopathological examinations
4. Copies of histopathological findings not interpretable.

The information is limited to the above.

24.07.2002 (21)

5.2.1 SKIN IRRITATION

Species : rabbit

Concentration :

Exposure : Semiocclusive

Exposure time : 4 hour(s)

Number of animals : 6

Vehicle : water

PDII : 0

Result : not irritating

Classification :

Method : EPA OPP 81-5

Year : 1995

GLP : yes

Method : TEST ANIMALS:
- Strain: New Zealand albino
- Sex: male/female
- Source: Davidson's Mill Farm, South Brunswick NJ
- Age: adult
- Number of animals: 3/sex
- Controls: not indicated

ADMINISTRATION/EXPOSURE
- Preparation of test substance: 0.5 g test substance diluted with 0.5 ml water
- Area of exposure: 6 cm2

- Area of exposure: 6 cm2
- Occlusion: semi-occlusion
- Removal of test substance: wiped with water

EXAMINATIONS
- Scoring system: Draize
- Examination time points: 1, 24, 48 and 72 h

Result : AVERAGE SCORE
- Erythema: 0.0
- Edema: 0.0

OTHER EFFECTS: none

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.

Reliability : (1) valid without restriction
14.03.2002 (22)

Species : rabbit
Concentration :
Exposure : Occlusive
Exposure time : 24 hour(s)
Number of animals : 6
Vehicle : other: 1% aqueous methylhydroxyethylcellulose-gel
PDII :
Result : not irritating
Classification :
Method : other: Hazardous Substances, part 191, section 11, FDA
Year : 1978
GLP : no
Method : TEST ANIMALS:
- Strain: New Zealand White
- Sex: male/female
- Weight at study initiation: 2.3-2.8 kg
- Number of animals: 3/sex/treatment

ADMINISTRATION/EXPOSURE
- Treatments: intact and abraded skin
- Preparation of test substance: dissolved in vehicle
- Area of exposure: 6.25 cm2
- Occlusion: yes
- Vehicle: 1% aqueous methylhydroxyethylcellulose-gel
- Concentration in vehicle: 6%
- Total volume applied: 8.3 ml
- Removal of test substance: not reported

EXAMINATIONS
- Scoring system: essentially according to Draize
- Examination time points: immediately and 48 h after exposure and daily afterwards for 14 days (separately, by two persons)

Result : AVERAGE SCORE
- Erythema: 0.0
- Edema: 0.0

OTHER EFFECTS: no treatment-related effects

Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.
Reliability	:	(2) valid with restrictions
Remark	:	1. The bandage was occlusive instead of semi-occlusive and the residue of test substance was not removed. 2. The study is not performed in accordance with GLP. 3. Animals were exposed for 24 hours instead of 4 hours as required by OECD 404.

24.07.2002 (23)

Species	:	rabbit
Concentration	:	
Exposure	:	Occlusive
Exposure time	:	24 hour(s)
Number of animals	:	6
Vehicle	:	other: olive oil
PDII	:	
Result	:	not irritating
Classification	:	
Method	:	other: Hazardous Substances, part 191, section 11, FDA
Year	:	1978
GLP	:	no
Method	:	TEST ANIMALS: - Strain: New Zealand White - Sex: male/female - Weight at study initiation: 2.3-2.8 kg - Number of animals: 3/sex/treatment ADMINISTRATION/EXPOSURE - Treatments: intact and abraded skin - Preparation of test substance: dissolved in vehicle - Area of exposure: 6.25 cm2 intact and abraded skin - Occlusion: yes - Vehicle: olive oil - Concentration in vehicle: 50% - Removal of test substance: not reported EXAMINATIONS - Scoring system: essentially according to Draize - Examination time points: immediately and 48 h after exposure and daily afterwards for 14 days (separately, by two persons)
Result	:	AVERAGE SCORE - Erythema: 0.0 - Edema: 0.0 OTHER EFFECTS: no treatment-related effects

Test substance	:	CAS 68611-44-9 (dichlorodimethylsilane, reaction product with amorphous silica), purity not indicated.
Reliability	:	(2) valid with restrictions
Remark	:	1. Observations at 24 and 72 hours after application are given. 2. The study is not performed in accordance with GLP. 3. The test substance was applied under occlusion, which is considered to represent a worst case situation. Animals were exposed for 24 hours instead of 4 hours as required by OECD 404.

24.07.2002 (24)

5.2.2 EYE IRRITATION

Species	:	rabbit
Concentration	:	undiluted
Dose	:	.1 ml
Exposure time	:	
Comment	:	
Number of animals	:	6
Vehicle	:	
Result	:	not irritating
Classification	:	
Method	:	EPA OPP 81-4
Year	:	1995
GLP	:	yes
Method	:	TEST ANIMALS: - Strain: New Zealand albino - Sex: male/female - Source: Davidson's Mill Farm, South Brunswick, NJ - Age: adult - Number of animals: 5 males and 4 females ADMINISTRATION/EXPOSURE - Amount of substance instilled: 0.1 ml (= 0.1-0.2 g) undiluted - Removal of substance: 6 animals not rinsed and 3 animals rinsed with physiol. saline after 20-30 sec EXAMINATIONS - Scoring system: Draize - Observations at: 1, 24, 48 and 72 h (at 24 h also after fluorescein)
Result	:	AVERAGE SCORE (unwashed eyes only) - Cornea: 0 for all observation times - Iris: 0 for all observation times - Conjuntivae (Redness): 0.33 (1, 24 h), 0 (48, 72 h) - Conjuntivae (Chemosis): 0 for all observation times REVERSIBILITY: yes, within 48 hours OTHER EFFECTS: reduced food consumption in two females and one of these also exhibited soft stool, ano-genital staining and reduced fecal volume
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.
Reliability	:	(1) valid without restriction
Remark	:	Only the results of the unwashed eyes were summarized.

14.03.2002 (25)

Species	:	rabbit
Concentration	:	undiluted
Dose	:	.1 other: gram
Exposure time	:	
Comment	:	
Number of animals	:	8
Vehicle	:	
Result	:	not irritating

Classification	:	
Method	:	other: Hazardous Substances, part 191, section 12, Fed. Reg. 37, no. 83, FDA
Year	:	1978
GLP	:	no
Method	:	TEST ANIMALS: - Strain: New Zealand White - Sex: not indicated - Source: internal breeding farm - Weight at study initiation: 2.3-2.8 kg - Number of animals: 8 ADMINISTRATION/EXPOSURE - Amount of substance instilled: 0.1 g - Removal of substance: 5 animals washed after 5 minutes and 3 animals washed after 24 hours with water EXAMINATIONS - Scoring system: essentially in accordance with Draize - Observation period: 24, 48, 72 and 96 hours and 7 d after start of application (separately, by two persons; for all observation times fluorescein was used)
Result	:	AVERAGE SCORE (only eyes washed after 24 h) - Cornea: 0 at all observation times - Iris: 0 at all observation times - Conjuntivae (Redness): 0 at all observation times - Conjuntivae (Chemosis): 0 at all observation times OTHER EFFECTS: none
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.
Reliability	:	(2) valid with restrictions
Remark	:	1. Non-GLP study.

24.07.2002 (26)

Species	:	rabbit
Concentration	:	50 %
Dose	:	.1 ml
Exposure time	:	
Comment	:	
Number of animals	:	8
Vehicle	:	other: olive oil
Result	:	not irritating
Classification	:	
Method	:	other: Hazardous Substances, part 191, section 12, Fed. Reg. 37, no. 83, FDA
Year	:	1978
GLP	:	no
Method	:	TEST ANIMALS: - Strain: New Zealand White - Sex: not indicated - Source: internal breeding farm - Weight at study initiation: 2.3-2.8 kg - Number of animals: 8 ADMINISTRATION/EXPOSURE

ADMINISTRATION/EXPOSURE
- Amount of substance instilled: 0.1 ml (50% in olive oil)
- Removal of substance: 5 animals washed with water after 5 minutes and 3 animals washed after 24 hours

EXAMINATIONS
- Scoring system: essentially in accordance with Draize
- Observations at: 1, 24, 48 and 72 hours after start of application (separately, by two persons; for all observation times fluorescein was used)

Result : AVERAGE SCORE (only eyes washed after 24 h)
- Cornea: 0 for all observation times
- Iris: 0 for all observation times
- Conjuntivae (Redness): 1.0 for 1, 24 and 48 hours; 0 for 72 hours
- Conjuntivae (Chemosis): 0 for all observation times

REVERSIBILITY: yes, within 72 h

OTHER EFFECTS: no treatment-related effects

Test substance : CAS 68611-44-9 (dichlorodimethylsilane, reaction product with amorphous silica), purity not indicated.

Reliability : (2) valid with restrictions

Remark : 1. Non-GLP study.

24.07.2002 (27)

5.3 SENSITIZATION

5.4 REPEATED DOSE TOXICITY

Type : Sub-chronic
Species : rat
Sex : male/female
Strain : Wistar
Route of admin. : inhalation
Exposure period : 13 weeks
Frequency of treatm. : 5 days/week, 6 hours/day
Post exposure period : 52 weeks
Doses : 35 mg/m3 (measured)
Control group : yes
Method : other: not indicated
Year : 1987
GLP : yes
Method : TEST ORGANISMS
- Age: 5 1/2 weeks
- Mean weight at study initiation: 108 g (males) and 105 g (females)
- Number of animals: 70 males and 70 females (10/sex/subgroup, 7 subgroups)
- Species/strain: Wistar (Cpb:WU).
- Source: TNO Central Institute for the Breeding of Laboratory Animals, Zeist, The Netherlands.
- Recovery group: 10 rats/sex/subgroup sacrificed in weeks 26/27, 39/40, 52/53 and 65/66.

ADMINISTRATION / EXPOSURE

ADMINISTRATION / EXPOSURE
- Exposure period: 13 weeks.
- Route of administration: inhalation (whole body).
- Post exposure period: 13, 26, 39 and 52 weeks.
- Doses: 35 mg/m3.
- Particle size: not analysed (due to electrostatic charge of the particles).
- Generation of test atmosphere: dust generators.
- Air changes: ~17/hour.

SATELLITE GROUPS AND REASONS THEY WERE ADDED:
50 rats/sex were allowed a post exposure observation period for maximal 52 weeks. Subgroups of 10 rats/sex were sacrificed at weeks 13, 26, 39 and 52 post exposure (at week 52 20/sex).

CLINICAL OBSERVATIONS AND FREQUENCY:
- Mortality and clinical signs: twice daily (working days) and once daily (weekend).
- Body weight: weekly (exposure period) or once every 4 weeks (post exposure)
- Food consumption: not recorded
- Water consumption: not recorded
- Ophthalmoscopic examination: not recorded
- Behavioural effects: not recorded
- Haematology: at week 13 of exposure and at weeks 26, 39, 52 and 65 of the study blood was collected from 10 rats/sex/dose group and analysed for hemoglobin concentration, erythrocyte count, hematocrit, total and differential leukocyte count, platelet count and prothrombin time.
- Biochemistry: at weeks, 14, 27, 40, 53 and 66 of the study blood was collected from 10 rats/sex/dose group and analysed for albumin, alkaline phosphatase, aspartate aminotransferase, alanine aminotransferase, urea, total protein, creatinine, total bilirubin, calcium, potassium, sodium, inorganic phosphate, cholesterol and glucose.
- Urinalysis: at week 13 of exposure and at weeks 26, 40/41, 52 and 65 of the study blood was collected from 10 rats/sex/dose group and analysed for appearance, volume, density, pH, protein, occult blood, glucose, ketones and microscopy.

ORGANS EXAMINED AT NECROPSY (MACROSCOPIC AND MICROSCOPIC):
- Organ weights: at necropsy (for all rats) the following organs were weighed: adrenals, brain, heart, kidneys, liver, lungs with mediastinal lymph nodes (inclusive regional lymph nodes) trachea and larynx, spleen, testes and thymus.
- Macroscopic: all rats were subjected to gross macroscopic examinations.
- Microscopic: at the week 13 histopathological examinations were performed on all collected tissues of 10 rats/sex of the control and treated group. The following tissues were collected: adrenals, aorta, axillary lymph nodes, brain, caecum, coagulating glands, colon, duodenum, epididymides, eyes, heart, ileum, jejunum, kidneys, liver, lungs with mediastinal lymph nodes (inclusive hilus lymph nodes = regional lymph nodes) trachea and larynx, mammary glands (females only), mesenteric lymph nodes, nose, oesophagus, ovaries, pancreas, parotid salivary glands, pharynx, pituitary, prostate, sciatic nerve, seminal vesicles, skeletal muscle (thigh), skin, spinal cord, spleen, sternum (with bone marrow), stomach, sub maxillary salivary glands, testes, thymus, thyroid with parathyroids, urinary bladder, uterus (with cervix), all gross lesions.
At 13, 26 and 39 weeks post exposure from 5 rats/sex and at 52 weeks post exposure from 10 rats/sex, the lungs, hilus and mediastinal lymph

post exposure from 10 rats/sex, the lungs, hilus and mediastinal lymph nodes were microscopically examined.

OTHER EXAMINATIONS:
- Hydroxyproline/silicon: at week 13 of exposure and at week 52 post exposure from 10 rats/sex and at weeks 13, 26 and 39 post exposure from 5 rats/sex the hydroxyproline and silica content of the lungs and regional lymph node tissue (silicon only) were determined.

ANALYSES:
- Method: gravimetry.
- Sampling times: 3 or 4 times per exposure day.

STATISTICAL METHODS:
Analysis of co-variance, Dunnett test and Fisher Exact test.

Result **:** ANALYSES:
- Actual dose level (by sex): mean daily concentrations (days 2 to 96) ranged between 16.25 to 52.13 mg/m3. Mean of means 34.74 mg/m3
- Stability: not applicable
- Homogeneity: not applicable

TOXIC RESPONSE/EFFECTS BY DOSE LEVEL:
- Mortality and time to death: on day 112 one male and on days 336, 364 and 420 each one female. Mortality was not affected by the exposure to the test material.
- Clinical signs: transient dry coat due to difficulties with drinking using the automatic watering system.
- Body weight gain: decreased in males during weeks 6 to 9.
- Clinical chemistry: at week 13 of exposure in males decreased glucose and plasma sodium. At 13 post exposure in females decreased plasma sodium. At 39 weeks post exposure in females increased inorganic phosphate. . No toxicological significance was attached to the changes of plasma sodium and inorganic phosphate.
- Haematology: at week 13 of exposure in males increased red blood cells, haemoglobin contents, packed cell volumes and prothrombine time. After exposure and at 13 weeks post exposure in females increased neutrophils and decreased lymphocytes.
- Urinalysis: at week 13 of exposure in females decreased urinary volume with associated increased density.
- Organ weights: Until week 39 post-exposure, increased lung weights (absolute and relative to bw) in males and females and at week 13 of exposure increased thymus weights (absolute only) in males.
- Gross pathology: At week 13 of exposure males and females showed lesions of the lungs (including spotted, irregular or gray surface and spongy tissue) and enlarged mediastinal lymph nodes.
- Histopathology: At week 13 of exposure, in males and females treatment-related changes were noted in the lungs, mediastinal lymph nodes and nose. Changes in the lungs consisted of granuloma-like lesions, accumulations of alveolar macrophages, alveolar spaces filled with granular material, debris and polymorphonuclear leucocytes, increased septal cellularity, alveolar bronchiolization and interstitial fibrosis. In the mediastinal lymph nodes findings were characterised by accumulation of macrophages. Findings in the nose comprised slight necrosis or atrophy of the olfactory epithelium. Changes in the lungs and mediastinal lymph nodes decreased in incidence and severity at 13 weeks post exposure or had completely disappeared at 52 weeks post exposure. Findings in the nose were not found as of week 13 post exposure.

nose were not found as of week 13 post exposure.
No effects on male and female gonads were reported.
- Other: Collagen contents of the lungs were increased in males and females at week 13 of exposure and, at 13 and 39 weeks post exposure. Silicon levels in the lungs as well as in the mediastinal lymph nodes were increased in males and females at week 13 of exposure and at 13 and 26 weeks post exposure. In one male silicon was noted in the mediastinal lymph nodes until the end of the 52 week post exposure period.

STATISTICAL RESULTS:
The incidences of changes as described above in body weight, haematology, clinical chemistry, urinalysis and pathology were generally statistically significant in their comparison with the concurrent sham controls

Test substance : 68611-44-9 (dichlorodimethylsilane, reaction product with amorphous silica), purity not indicated

Conclusion : Treatment at 35 mg/m3 resulted in histopathological changes in the lungs, mediastinal lymph nodes and nose. Findings in the lungs and mediastinal lymph nodes diminished in incidence and severity at 13 weeks post exposure or had completely disappeared at 52 weeks post exposure. Findings in the nose were not found as of week 13 post exposure.

Most reliable 13-week study available.

Reliability : (2) valid with restrictions

Remark : 1. The following remarks were deviations from the OECD guidelines: No acclimation period given, no individual tables presented, no food and water consumption recorded, no ophthalmoscopic examinations performed, no clinical signs tables presented.
2. Only one treatment level is applied in this study.

Flag : Critical study for SIDS endpoint

24.07.2002 (28)

Type : Sub-acute
Species : rat
Sex : male/female
Strain : Wistar
Route of admin. : inhalation
Exposure period : 2 weeks
Frequency of treatm. : 5 days/week, 6 hours/day
Post exposure period :
Doses : 0, 31, 87 and 209 (420) mg/m³
Control group :
Method : other: not indicated
Year : 1983
GLP : no
Method : TEST ORGANISMS
- Source: TNO Central Institute, The Netherlands
- Age: 6 weeks
- Weight at study initiation: mean weights males between 118.9 and 120.7 g and females between 104.0 and 107.3 g
- Number of animals: 40 males and 40 females

ADMINISTRATION / EXPOSURE
- Exposure period: 2 weeks, 5 days per week, 6 hours per day.
- Route of administration: inhalation (whole body).
- Doses: 0, 31, 87 and 420 (initial top dose) mg/m3. After 1 day exposure,

the top dose was reduced to 260 mg/m3 and following 3 additional days of exposure again reduced to ~151 mg/m3.
- Particle size: could not be determined due to the electrostatic charge of the particles.
- Generation of test atmosphere: dust generator.
- Air changes: ~13/hour.

CLINICAL OBSERVATIONS AND FREQUENCY:
- Mortality and clinical signs: before and after exposure and once during the weekends.
- Body weight: weekly
- Food consumption: recorded during the second week of exposure only.
- Haematology (during week 2): total number of red blood cells, total number of white blood cells, haemoglobin, packed cell volume and differential white blood cell count.

ORGANS EXAMINED AT NECROPSY (MACROSCOPIC AND MICROSCOPIC):
- Organ weights: kidneys, liver and lungs including trachea and larynx.
- Macroscopic: all animals were subjected to a gross macroscopic examination.
- Microscopic: kidneys, liver, lungs, trachea, larynx, mediastinal lymph nodes and nasal cavity of control and high dose animals; lungs of intermediate dose groups.

ANALYSES:
- Method: gravimetric.
- Sampling times: on exposure days.

STATISTICAL METHODS:
Analysis of covariance, Dunnett's test and Fisher exact test.

Result **:** ANALYSES:
- Actual dose level (by sex): males and females 0, 31, 87 and 420 mg/m3. The top dose was adjusted during the study, resulting in an average exposure concentration of 298 mg/m3 during the first 4 days and 151 mg/m3 during the following 6 days. The overall exposure level for the top dose (mean of means) was 209 mg/m3.

TOXIC RESPONSE/EFFECTS BY DOSE LEVEL:
- Mortality and time to death: at top dose level 4 males and 2 females died within 2 days.
- Clinical signs: at the top dose level (ranging from 420 to 230 mg/m3) severe respiratory distress and apathy. Following reduction of the exposure to 151 mg/m3, slight to moderate respiratory distress and poor general health was visible during the remaining part of the study. At 87 mg/m3 dyspnoea was noted during the course of the study.
- Body weight gain: a dose-related decrease in males and females exposed to 87 mg/m3 or more.
- Food consumption: a dose-related decrease in males and females exposed to 87 mg/m3 or more.
- Haematology: increased red blood cell counts, packed cell volume and haemoglobin was noted in males exposed to 87 mg/m3 and in males and females exposed to 209 mg/m3.
- Organ weights:
Lung: dose-related increase in males and females exposed to 31, 87 and 209 mg/m3.
Liver: dose-related decreased relative liver weights in males and females

Liver: dose-related decreased relative liver weights in males and females exposed to 87 or 209 mg/m3
Kidneys: dose related decrease of absolute kidney weights in males and females exposed to 87 or 209 mg/m3.
- Gross pathology: at exposure levels of 31, 87 and 209 mg/m3, treatment-related findings were noted in the lungs. The findings consisted of a pale and swollen appearance and spongy and/or spotted surface. Occasionally also small focal haemorrhages were seen.
- Histopathology: at 31, 87 and 209 mg/m3, treatment-related findings were noted in the lungs. The findings consisted of focal bronchiolar mucous proliferation, intraluminal mucus deposition, granulomata, focal increased septal cellularity and accumulation of alveolar macrophages. In addition perivascular oedema, alveolar oedema and haemorrhages and slight bronchiolar necrosis were seen in animals that died.

STATISTICAL RESULTS:
Changes in haematology (males only), organ weights and microscopic observations were statistically significant when compared to corresponding controls.

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica, containing 1.48% carbon), purity not indicated.
Conclusion : The LOAEL was 31 mg/m3, based on (histo)pathological findings in the lungs.
Reliability : (2) valid with restrictions
Remark : 1. Non GLP study. Only a limited number of endpoints was investigated.
2. No individual tables were included.
3. The report is limited to the information included in the current summary.
Flag : Critical study for SIDS endpoint
24.07.2002 (29)

Type : Chronic
Species : rat
Sex : male/female
Strain : Wistar
Route of admin. : oral feed
Exposure period : 24 months
Frequency of treatm. : daily
Post exposure period : no
Doses : 100 mg/kg bw
Control group : yes, historical
NOAEL : = 100 mg/kg bw
Method : other: not indicated
Year : 1969
GLP : no
Method : TEST ORGANISMS
- Age: not indicated.
- Weight at study initiation: males and females 70 g.
- Number of animals: 20 males and 20 females.

ADMINISTRATION / EXPOSURE
- Exposure period: 24 months.
- Route of administration: orally via the feed.
- Doses: 100 mg/kg bw

CLINICAL OBSERVATIONS AND FREQUENCY:
- Clinical signs and mortality: examined, no indication of the frequency.
- Body weight: at 2-week intervals.
- Haematology: prior to sacrifice blood was collected and haematology

- Haematology: prior to sacrifice blood was collected and haematology parameters investigated (parameters not indicated).
- Biochemistry: prior to sacrifice blood was collected and subjected to electrophoretic analysis (parameters not indicated).

ORGANS EXAMINED AT NECROPSY (MACROSCOPIC AND MICROSCOPIC):
- Macroscopic: all animals were subjected to a complete gross macroscopic observation
- Microscopic: The following organs were collected from all animals, fixed in Bouin's fixative and stained by the method of Mac Manus, von Masson, toluene blue or Gomori or with a selection of these methods: stomach, small and large intestines, liver, spleen, pancreas, kidneys, adrenals (including plexus solaris), testes, ovaries, uterus, urinary bladder, lungs, heart, a total preparation of neck tissues including lymph nodes, salivary gland, thyroid and thymus, diverse sections of the brain, pituitary gland (with Gasser' s ganglion), sternum and femur with bone marrow and mesenteric lymph nodes.

Result : ANALYSES:
- Actual dose level (by sex): no analysis performed

TOXIC RESPONSE/EFFECTS BY DOSE LEVEL:
- Mortality and time to death: no treatment-related findings described.
- Clinical signs: no treatment-related clinical findings or clinically observed increased tumour incidence.
- Body weight (gain): no treatment-related differences. Body weights prior to termination ranged between 275 to 490 g for males and 205 to 445 g for females.
- Clinical chemistry: no treatment-related findings (effects observed were comparable with historical control data).
- Haematology: no treatment-related findings (effects observed were comparable with historical control data).
- Gross pathology: macroscopically observed changes included, testis atrophy (1 male), increased fat accumulation (3 males/5 females) (other effects were comparable with historical control data).
- Histopathology: testis atrophy in one male (other effects were comparable with historical control data).

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.

Conclusion : No carcinogenic effects (nature and incidence of tumors were comparable with the historical control data) and no other treatment related significant changes were observed.
NOAEL is 100 mg/kg bw when mixed into the diet.
Most reliable chronic study available.

Reliability : (2) valid with restrictions

Remark : 1. Non GLP study.
2. Limited information on maintenance of animals, material and methods.
3. No information on the individual parameters examined in haematology and electrophoretic analysis of the blood.
4. No individual and summary data presented for clinical observations, body weight, food consumption and analysis of the blood.
5. The report is limited to the information included in the current summary.

Flag : Critical study for SIDS endpoint

29.07.2002 (30)

Type	:	Sub-acute
Species	:	rat
Sex	:	female
Strain	:	Sprague-Dawley
Route of admin.	:	inhalation
Exposure period	:	3 days
Frequency of treatm.	:	5 hours/day
Post exposure period	:	20 h, 1 month and 3 months
Doses	:	50 mg/m³
Control group	:	no
Method	:	other: not indicated
Year	:	1971
GLP	:	
Method	:	TEST ORGANISMS - Weight at study initiation: 180-200 g - Number of animals: 30 females ADMINISTRATION / EXPOSURE - Exposure period: 5 h - Route of administration: inhalation - Post exposure period: 20 h, 1 month and 3 months, each for part of the 30 animals - Dose: 50 mg/m³ - Particle size: < 7 µm - Type or preparation of particles: dust feeder - Air changes: not indicated CLINICAL OBSERVATIONS AND FREQUENCY: silica deposition in the lungs and mediastinal lymph nodes at 20 h, 1 month and 3 months after exposure according to the method of Stegemann and Fitzek ANALYSES: - Method: gravimetrically
Result	:	SILICA DEPOSITION: Lung: 0.34, 0.085 and 0.030 mg at 20 h, 1 month and 3 months, respectively Mediastinal lymph nodes: 0, 0.007 and 0.007 mg at 20 h, 1 month and 3 months, respectively
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.
Conclusion	:	The test substance is eliminated for 75 and 92% in 1 and 3 months, respectively.
Reliability	:	(2) valid with restrictions

29.07.2002 (20)

Type	:	Sub-chronic
Species	:	rat
Sex	:	female
Strain	:	Sprague-Dawley
Route of admin.	:	inhalation
Exposure period	:	8 or 12 months
Frequency of treatm.	:	5 hours/day, twice weekly
Post exposure period	:	0-5 months
Doses	:	50 mg/m³
Control group	:	yes
Method	:	other: not indicated

Year : 1971
GLP : no
Method : TEST ORGANISMS
- Number of animals: 80

ADMINISTRATION / EXPOSURE
- Exposure period: 5 h
- Route of administration: inhalation (no details)
- Post exposure period: 0, 1, 3 and 5 months
- Dose: 50 mg/m³
- Particle size: <7 µm
- Type or preparation of particles: dust feeder

CLINICAL OBSERVATIONS AND FREQUENCY:
- Body weight: schedule not reported

ORGANS EXAMINED AT NECROPSY (MACROSCOPIC AND MICROSCOPIC):
lung and mediastinal lymph nodes after 8 and 12 months of exposure (15 animals each) and at 1, 3 and 5 months after exposure (part of 50 animals); silica deposition in the lungs and mediastinal lymph nodes at all times

ANALYSES:
- Method: gravimetrically
- Sampling times: weekly

Result : TOXIC RESPONSE/EFFECTS BY DOSE LEVEL:
- Mortality and time to death: not indicated
- Body weight gain: no treatment-related effects

After 8 and 12 months of exposure:
- Gross pathology: interstitial white dust deposits and slightly enlarged lymph nodes
- Histopathology:
lung: many dust cells in alveoli; locally perivascular and peribronchiolar dust cell deposits with slight to moderate formation of fibrous tissue
Lymph nodes: increased number of granular phagocytes and locally fibrosis

After 1-5 months post-exposure:
- Gross pathology: interstitial grey-white to grey-black dust deposits (at 5 months less than at 1 month); moderately enlarged, grey-black lymph nodes after 1 month, which became smaller after 3 and 5 months;
- Histopathology:
Lung: slight epithelial desquamation (only present after 1 month); locally perivascular and peribronchiolar dust cell deposits with slight to moderate formation of fibrous tissue; thickening of part of the alveolar wall
Lymph nodes: increased number of granular phagocytes and locally fibrosis (signs of recovery could be observed from 1 to 5 months)

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.
Conclusion : The test substance can induce slight, reversible fibrosis. No accumulation of the test substance in the lung is observed.
Reliability : (2) valid with restrictions
Remark : 1. The number of animals at the start of the experiment is not clear.
29.07.2002 (20)

Type	:	Chronic
Species	:	rat
Sex	:	female
Strain	:	other: not indicated (in house strain)
Route of admin.	:	inhalation
Exposure period	:	1 year
Frequency of treatm.	:	4 h daily
Post exposure period	:	3, 5 or 8 months
Doses	:	80 mg/m3
Control group	:	yes
Method	:	other: no data
Year	:	1962
GLP	:	no
Method	:	TEST ORGANISMS - Age: not indicated - Weight at study initiation: not indicated - Number of animals: 235 ADMINISTRATION / EXPOSURE - Exposure period: 1 year. - Route of administration: inhalation - Post exposure period: 3, 5 or 8 months. - Doses: 80 mg/m3 - Positive control: Aerosil 45 mg/m3 - Generation of test atmosphere: dust feeder - Air changes: not indicated CLINICAL OBSERVATIONS AND FREQUENCY: Not indicated. ORGANS EXAMINED AT NECROPSY (MACROSCOPIC AND MICROSCOPIC): - Macroscopic: animals were subjected to macroscopic observations of the lungs and mediastinal lymph nodes - Microscopic: histopathological examination of the lungs and mediastinal lymph nodes (HE-staining and silver staining). OTHER EXAMINATIONS: Chemical analyses of the SiO2-contents of the lungs and mediastinal lymphnodes in an unspecified number of animals. ANALYSES: - Method: Dust collecter with membrane filter (Polley) - Sampling times: initially daily and later in the study at periodic intervals of 1 week, 2 weeks and finally 3 weeks. STATISTICAL METHODS: Not applied.
Result	:	ANALYSES: - Actual dose level (by sex): Not reported TOXIC RESPONSE/EFFECTS BY DOSE LEVEL: - Mortality: 60/235 rats died spontaneously, due to bronchiopneumonia, broncho-ectasia and absesses in the lungs. Deaths were not substance-specific. In the positive control 41/120 rats died spontaneously. - Gross pathology: small grey-white foci under the pleura. Moderately

- Gross pathology: small grey-white foci under the pleura. Moderately enlarged medialstinal lymph nodes and (after 1 year) grey/black discoloured.
- Histopathology: animals found dead showed bronchiopneumonia, bronchio-ectasia and absesses in the lungs. Animals necropsied at intervals after 3 months of exposure showed dust cell granulomata in the lungs and alveolar spaces filled with dust cells and desquamous alveolar cells. Enlarged mediastinal lymph nodes were filled with dust cells. Following chemical analysis increased SiO_2 contents of the lungs and mediastinal lymphnodes was observed during the exposure period.

The dust accumulations did not cause a fibrotic response and during the 3, 5 and 8 months of recovery a clear reduction of dust cell granulomata was noted accompagnied by a decrease of SiO_2 content of the lungs and lymphnodes.

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity >99.8% (SiO_2 and $-CH_3$).

Conclusion : Animals showed dust cells in the lungs and alveolar spaces. Enlarged mediastinal lymph nodes were accumulated with dust cells. The effects were reversible after cessation of exposure. There was no indication of silicosis.

Reliability : (2) valid with restrictions

Remark : 1. No GLP study.
2. Insufficient information on animals, husbandry, maintenance, material and methods.
3. No individual tables included.
4. No tables with means, standard deviations and statistical analyses included for any clinical observations , macroscopic examinations and histopathological examinations.
5. Copies of histopathological findings not interpretable.

29.07.2002 (31)

Type : Sub-chronic
Species : rat
Sex : female
Strain : other: in house strain
Route of admin. : inhalation
Exposure period : 1 year
Frequency of treatm. : 5 days/week, 5 hours/day
Post exposure period : 3 or 6 months
Doses : 100 mg/m³
Control group : no
Method : other: not indicated
Year : 1964
GLP : no
Method : TEST ORGANISMS
- Age: not indicated.
- Weight at study initiation: females 160 to 185 g.
- Number of animals: 340 females (100 to determine the tolerated inhalation dose, 40 for 3-day retention values and 200 for repeated dose exposure).

ADMINISTRATION / EXPOSURE
- Exposure period: 1 year.
- Route of administration: inhalation.
- Post exposure period: 3 to 6 months.
- Doses: 100 mg/m3 or 200 mg/m3 (3-day retention experiment).
- Generation of test atmosphere: dust feeder

- Generation of test atmosphere: dust feeder
ORGANS EXAMINED AT NECROPSY (MACROSCOPIC AND MICROSCOPIC):
- Macroscopic: all rats were subjected to macroscopic examinations of the lungs and mediastinal lymph nodes.
- Microscopic: all lungs and mediastinal lymph nodes were stained with HE or silver stain (GOMORI) and histopathologically examined.

OTHER EXAMINATIONS:

All lungs and mediastinal lymph nodes were analysed for the SiO2 contentafter 3, 6 and 12 months and 3 and 6 months post-exposure. In addition, at regular intervals untreated rats were exposed for 5 hours and 24 hours later the lungs were analysed for the SiO2 content.

ANALYSES:
- Method: gravimetric using a membrane filter dust apparatus.
- Sampling times: at regular intervals

Result **:** ANALYSES:
- Actual dose level (by sex): no data presented

TOXIC RESPONSE/EFFECTS BY DOSE LEVEL:
- Mortality: not reported (it was indicated that a number of animals died during the study because of an overload effect; deaths were not substance-specific)
- Gross pathology: in all rats exposed during the study small grey-white dust foci were noted under the lung surface, particularly in the upper lung lobes. The mediastinal lymph nodes were noted as slightly to moderately enlarged after a period of 3 months exposure. After at least 9 months of exposure these lymph nodes also had a grey-black appearance. In rats found dead spontaneously, adhesion of the pleura, inflamatory cell infiltrations and lung abcesses were often noted.
After a 3 or 6 month post exposure period a time dependent reduction of the number of grey-white dust-foci was noted in the lungs.. The mediastinal lymph nodes were reduced in size (compared to their size during the exposure period) and had a grey/black and soft appearance.
- Histopathology: at 3, 6 and 12 months of exposure increasing incidences of desquamous alveolar cells (with and without dust content), foci of dust cells (in bronchioli, peribrochiolar and perivascular) with increasing (in time) number of dust granulas and cell detritus in the alveolar space (12 months) were noted in the lungs. In the mediastinal lymph nodes also an increasing number of dust cells containing higher numbers of dust granulas was observed after longer exposure times (3-12 months). In addition, a reticulin network developed after increasing exposure times in the lungs.
There were no signs of proliferation, fibrosis, or necrosis seen in the lungs or mediastinal lymph nodes.
Following a 3 or 6 month post exposure period, the lungs revealed groups of alveoli containing accumulations of dust cells, but no desquamous alveolar cells. In addition, peribronchiolar and perivascular small nodules were noted, without any sign of proliferation, necrosis or fibrosis. The number and size of the dust cell foci were reduced.
The mediastinal lymph nodes contained masive amounts of dust cells after 3 and 6 months. A fine reticulin network was visible, however, no connective tissue was observed.

- Other: after 3, 5 and 12 months exposure (100 mg/m3) the lungs contained 4.33mg, 6.71mg and 11.46mg SiO2, respectively and the

contained 4.33mg, 6.71mg and 11.46mg SiO2, respectively and the mediastinal lymph nodes contained 0.132mg, 0.214mg and 0.378 mg SiO2, respectively. Following a 3 or 6 month post exposure period the lungs contained at both time points 5.1mg SiO2 and the mediastinal lymph nodes contained 0.3mg SiO2 after 3 months and 0.35mg after 6 months.

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity approx. 92% (SiO2).
Conclusion : LOAEL after inhalation exposure is 100 mg/m3. A pronounced reversibility of the effects was observed. No silicosis was indicated.
Reliability : (2) valid with restrictions
Remark: : 1. No GLP study.
2. Limited information on animals, husbandry, maintenance, material and methods.
3. The report is limited to the information included in the current summary.

24.07.2002 (32)

Type : Sub-acute
Species : rat
Sex : female
Strain : other: in house strain
Route of admin. : inhalation
Exposure period : 3 days
Frequency of treatm. : 5 hours/day
Post exposure period : no
Doses : 200 mg/m³
Control group : no
Method : other: not indicated
Year : 1964
GLP : no
Method : Rats (n=40) were exposed to the test substance for 3 days. 10 of them were killed 24 h, 1 month, 2 months and 3 months after exposure. Lungs and lymph nodes were analysed for SiO2 content.

Result : After 3 days exposure and 24 hours retention, the lungs contained 0.91 mg SiO2 and in the mediastinal lymph nodes no SiO2 was detected. After a retention period of 1, 2 or 3 months, the SiO2 content in the mediastinal lymph nodes was 0.383 mg, 0.239 mg and 0.173 mg, respectively. Within 3 months 81% of the dust was eliminated.
Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity approx. 92% (SiO2).
Conclusion : The vast majority of inhaled test substance dust was removed from the airways via the broncheal routes. Limited transport of the test substance via the mediastinal lymph nodes was observed. This was attributed to the slight potential of the test substance to penetrate into tissues.
Reliability : (2) valid with restrictions
Remark : 1. No GLP study.
2. Limited information on animals, husbandry, maintenance, material and methods.
3. The report is limited to the information included in the current summary.

24.07.2002 (32)

Type : Sub-acute
Species : rat
Sex : male/female
Strain : Wistar
Route of admin. : oral feed

Exposure period	:	5 weeks up to 8 weeks
Frequency of treatm.	:	
Post exposure period	:	No
Doses	:	500, 1000 and 2000 (gradually increased to 4000, 8000 and 16000) mg/kg bw
Control group	:	yes
NOAEL	:	= 500 mg/kg bw
LOAEL	:	= 1000 mg/kg bw
Method	:	other: not indicated
Year	:	1964
GLP	:	no
Method	:	TEST ORGANISMS - Age: not indicated - Weight at study initiation: males 120 - 130 g and females 120 - 126 g. - Number of animals: 5 rats/sex/treatment ADMINISTRATION / EXPOSURE - Exposure period: 5 weeks (at 500 and 1000 mg/kg), 8 weeks (high dose) - Route of administration: oral via the diet - Doses: initial 0, 500, 1000 and 2000 mg/kg bw. The 2000 mg/kg dose group was increased in 2-weeks intervals to 4000, 8000 and 16000 mg/kg bw. CLINICAL OBSERVATIONS AND FREQUENCY: - Mortality and clinical signs: daily - Body weight: weekly - Food consumption: daily - Ophthalmoscopic examination: not performed - Behavioural effects: not performed - Haematology: prior to and at the end of treatment blood was collected from 5 rats per treatment group and analysed for haemoglobin, erythrocyte count and absolute and differential leucocyte count. - Biochemistry: not performed - Urinalysis: not performed ORGANS EXAMINED AT NECROPSY (MACROSCOPIC AND MICROSCOPIC): - Organ weights: not performed - Macroscopic: at the end of the observation period, all rats were subjected to gross macroscopic examinations. - Microscopic: at necropsy from all rats organs (not specified) were collected and fixed. Livers and kidneys were processed for histopathological examinations (HE-staining and PAS-staining). STATISTICAL METHODS: No statistical analyses performed
Result	:	ANALYSES: No analyses performed TOXIC RESPONSE/EFFECTS BY DOSE LEVEL: - Mortality and time to death: 2 males and 2 females of the top dose level died after 9 and 13 days of exposure to 16000 mg/kg bw. - Clinical signs: At the top dose, following exposure to 16000 mg/kg bw, apathy and decreased grooming activity was noted. In the top dose level (16000 mg/kg) cachexia and haemorrhagic mucosa of the nose and eyes was observed prior to death. - Body weight gain: following 1 week exposure to 8000 mg/kg bw and exposure to 16000 mg/kg bw severe decrease in males and females.

exposure to 16000 mg/kg bw severe decrease in males and females.
- Food consumption: following exposure to 16000 mg/kg bw severe decrease in males and females.
- Haematology: no treatment-related findings
- Gross pathology: Hemorrhage in the mucous membranes of the eyes and nose in animals exposed to 16000 mg/kg bw.
- Histopathology: In 2 females of the 1000 mg/kg group and in 8 animals of the top dose (2000 to 16000 mg/kg) atrophic hepatocytes with decreased appearance and decreased glycogen contents of the cytoplasm was noted.

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.

Conclusion : No reliable conclusions could be drawn from the information presented. The changes observed may be indicative of severe starvation.

Reliability : (2) valid with restrictions

Remark : 1. Non GLP study.
2. No analysis of test substance in the feed, no individual/mean tables included, no ophthalmoscopic observations, no behavioural tests, no clinical biochemistry analysis of the blood, no organ weights.
3. The nutricial value of the feed may have been affected since at higher dose levels the feed comprised more than 5% test substance (at 16000 mg/kg bw even up to 25%).
4. It was not indicated that the rats were fasted before necropsy. This (as well as the nutricial value of the feed) may influence the cytoplasmatic glycogen contents of hepatocytes.
5. Copies of figures (body weights and food consumption) were not/difficult interpretable.
6. The pathological conclusions may considered of doubtful toxicological significance and may be related to the starving condition of the animals.

25.07.2002 (33)

Type : Sub-chronic
Species : rat
Sex : male/female
Strain : Wistar
Route of admin. : oral feed
Exposure period : 6 months
Frequency of treatm. : daily
Post exposure period : 3 weeks
Doses : 500 mg/kg bw
Control group : yes
NOAEL : = 500 mg/kg bw
Method : other: not indicated
Year : 1965
GLP : no
Method : TEST ORGANISMS
- Age: not indicated
- Weight at study initiation: males 120 - 122 g and females 120 to 126 g
- Number of animals: 40 males and 40 females

ADMINISTRATION / EXPOSURE
- Exposure period: 6 months
- Route of administration: oral via the feed
- Post exposure period: 3 weeks
- Doses: 500 mg/kg bw

PARAMETERS ASSESSED DURING STUDY:
- Clinical observations: daily.
- Body weight: weekly.

- Body weight: weekly.
- Food consumption: daily
- Haematology: blood withdrawal from 10 animals/sex/treatment prior to the start of treatment, at monthly intervals and at the end of the recovery period (5/sex/treatment): determination of haemoglobin content, erythrocyte count and total and differential leucocyte count.

ORGANS EXAMINED AT NECROPSY (MACROSCOPIC AND MICROSCOPIC):

- Organ weights: at scheduled necropsy (after 6 months exposure or 3 weeks recovery) the following organs were weighed: heart, liver, lungs, spleen, kidneys, brain, adrenals, thymus, pituitary gland, ovaries and testes.
- Gross pathology: at necropsy all rats were subjected to gross macroscopic examinations. In addition tissues (not exactly specified) were collected for possible histopathological examinations.
- Histopathology: The following tissues were prepared and stained (HE-staining and PAS-staining) for histopathological examinations: liver, kidneys, heart, lungs, adrenals, stomach, ovaries and testes.

STATISTICAL METHODS:
No indication which tests were used.

Result : ANALYSES:
Not performed

TOXIC RESPONSE/EFFECTS BY DOSE LEVEL:
- Mortality: 1 male at 500 mg/kg bw, 1 male and 1 female in controls; death was not treatment-related, a lung infection was observed.
- Clinical signs: no treatment-related findings
- Body weight gain: no treatment-related findings
- Food consumption: no treatment-related findings
- Haematology: no treatment-related findings
- Organ weights: no treatment-related findings
- Gross pathology: no treatment-related findings
- Histopathology: no treatment-related findings. Slight progressive transformation of the adrenal cortex among females of the treatment group was noted to be reversible and attributed to chronic stress.

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.

Conclusion : NOAEL is 500 mg/kg bw

Reliability : (2) valid with restrictions

Remark : 1. No GLP study.
2. Limited information on animals, husbandry, maintenance, material and methods.
3. No individual tables included.
4. No tables with clinical observations, macroscopic examinations and histopathological examinations.
5.The report is limited to the information included in the current summary.

25.07.2002 (34)

Type : Sub-acute

Species : rat

Sex : female

Strain : other: not indicated (in house strain)

Route of admin. : gavage

Exposure period : 19 or 39 days

Frequency of treatm.	:	Once in 2-days intervals
Post exposure period	:	4 weeks
Doses	:	500 and 1000 mg/kg bw
Control group	:	no
NOAEL	:	= 1000 mg/kg bw
Method	:	other: not indicated
Year	:	1962
GLP	:	no
Method	:	TEST ORGANISMS - Age: not indicated - Weight at study initiation: not indicated - Number of animals: 30 ADMINISTRATION / EXPOSURE - Exposure period: 19 or 39 days. - Route of administration: oral gavage. - Post exposure period: 4 weeks. - Doses: 500 or 1000 mg/kg bw - Vehicle: not indicated - Total volume applied: not indicated CLINICAL OBSERVATIONS AND FREQUENCY: Not indicated ORGANS EXAMINED AT NECROPSY (MACROSCOPIC AND MICROSCOPIC): - Macroscopic: animals were subjected to macroscopic examinations
Result	:	TOXIC RESPONSE/EFFECTS BY DOSE LEVEL: - Mortality / clinical signs: no findings - Gross pathology: after 4 weeks recovery no macroscopic findings.
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity: >99.8% (SiO2 and -CH3).
Conclusion	:	No clinical and macroscopic findings were observed after 10 or 20 oral treatments with the test substance and a subsequent 4-week recovery period.
Reliability	:	(2) valid with restrictions
Remark	:	1. Non GLP study. 2. Insufficient information on animals, husbandry, maintenance, material and methods. 3. No individual tables included. 4. No tables with means, standard deviations and statistical analyses included for any clinical observations , macroscopic examinations and histopathological examinations. 5. Copies of histopathological findings not interpretable. 6. The report was limited to the above.

25.07.2002 (31)

5.5 GENETIC TOXICITY 'IN VITRO'

Type	:	Ames test
System of testing	:	TA98, TA100, TA1535, TA1537 and TA 1538
Test concentration	:	100, 333, 1000, 3333 and 5000 µg/plate
Cytotoxic concentr.	:	> 5000 µg/plate
Metabolic activation	:	with and without
Result	:	negative
Method	:	other

Year	:	1995
GLP	:	yes
Method	:	SYSTEM OF TESTING - Species/cell type: *Salmonella typhimurium* / TA98, TA100, TA1535, TA1537 and TA 1538 - Deficiency: histidine - Metabolic activation system: Arochlor-induced rat liver S9 ADMINISTRATION: - Dosing: 100, 333, 1000, 3333 and 5000 µg/plate in 100 µl DMSO - Number of replicates: 3 - Application: plate incorporation - Positive controls: 2-aminoanthracene (all strains, +S9); 2-nitrofluorene (TA98 and TA1538, -S9); sodium azide (TA100 and TA1535, -S9); 9-aminoacridine (TA1537, -S9) - Negative control: DMSO (100 µl/plate) CRITERIA FOR EVALUATING RESULTS: dose-related increase in the mean revertants per plate of at least one tester strain with a minimum of two increasing concentrations
Result	:	GENOTOXIC EFFECTS: - With metabolic activation: negative - Without metabolic activation: negative PRECIPITATION CONCENTRATION: 3333 µg/plate CYTOTOXIC CONCENTRATION: - With metabolic activation: >5000 µg/plate - Without metabolic activation: >5000 µg/plate
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity >99%.
Conclusion	:	Most reliable Ames test available.
Reliability	:	(1) valid without restriction
Remark	:	1. In some experiments precipation was observed at 1000 µg/plate. At higher concentrations precipation was seen in all cases. 2. No strain to detect effects on AT-base pairs was included. 3. This study was performed according to OECD 471, although not mentioned in the report.
Flag	:	Critical study for SIDS endpoint

14.03.2002 (35)

Type	:	Chromosomal aberration test
System of testing	:	CHO cells
Test concentration	:	63, 125, 250 and 500 µg/ml
Cytotoxic concentr.	:	>500 µg/ml
Metabolic activation	:	with and without
Result	:	negative
Method	:	other
Year	:	1995
GLP	:	yes
Method	:	SYSTEM OF TESTING - Species/cell type: Chinese Hamster Ovary - Metabolic activation system: Arochlor 1254-induced rat liver S9 - No. of metaphases analyzed: 50/replicate ADMINISTRATION:

ADMINISTRATION:
- Dosing: 63, 125, 250 and 500 µg/ml
- Number of replicates: 2
- Application: in DMSO
- Positive control: Mitomycin C (-S9) and Cyclophosphamide (+S9)
- Negative control: DMSO-treated and untreated
- Pre-incubation time: 16-24 h
- Incubation time: -S9 12 h (last 2 h in presence of Colcemid); + S9 4 h (+ 8 h in medium, last 2 h in presence of Colcemid)

CRITERIA FOR EVALUATING RESULTS: positive if % of cells with aberrations is dose-responsive and one or more concentrations statistically higher than the solvent control
- Statistical method: Fisher's test and Cochran-Armitage (dose-responsiveness)

Result : GENOTOXIC EFFECTS:
- With metabolic activation: negative
- Without metabolic activation: negative

FREQUENCY OF EFFECTS:
without S9: 0, 1, 0, 0 % at 63, 125, 250 and 500 µg/ml, respectively
with S9: 3, 1, 1, 3 % at 63, 125, 250 and 500 µg/ml, respectively

PRECIPITATION CONCENTRATION: 500 µg/ml

MITOTIC INDEX: Dose selection was based on test with BrdU incorporation. In this test no influence on the MI index upto 500 µg/ml was observed.

Positive controls are within expected limits for not activated and activated experiments.

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity >99%.

Conclusion : Most reliable chromosomal aberration study available.

Reliability : (1) valid without restriction

Remark : 1. In the absence of 50% reduction in mitotic activity the highest soluble concentration was selected as highest dose level.
2. The experiment was performed according to OECD473, although not mentioned in the report.

Flag : Critical study for SIDS endpoint

14.03.2002 (36)

Type : Ames test

System of testing : TA98, TA100, TA1537 and WP2 uvrA

Test concentration : 5 - 1580 µg/plate

Cytotoxic concentr. : > 1580 µg/plate

Metabolic activation : with and without

Result : negative

Method : other: bacterial mutagenicity test

Year : 1983

GLP : no data

Method : SYSTEM OF TESTING
- Species/cell type: *Salmonella typhimurium* / TA98, TA100, TA1537 and *Escherichia coli* / WP2 uvrA
- Deficiency: histidine, tryptophane (WP2 uvrA)
- Metabolic activation system: Arochlor 1254-induced rat liver S9

ADMINISTRATION:
- Dosing: 5.0 (-S9 only), 15.8, 50, 158, 500 and 1580 µg/plate
- Number of replicates: 2 (3 for TA1537)
- Application: plate incorporation
- Positive controls: benzo(a)pyrene, benzo(e)pyrene, 2-aminoanthracene and 3-methylcholanthrene for experiments with S9; benzo(a)pyrene-4,5-oxide, N-methyl-N'-nitro-N-nitrosoguanidine and N-ethyl-N'-nitro-N-nitrosoguanidine for experiments without S9
- Negative control: DMSO (vehicle)
- Pre-incubation time: none

DEVIATIONS FROM GUIDELINE: addition of histidine-proficient bacteria to the plates as internal standard to establish toxicity; TA98 + S9 was also tested in the presence of 1,1,1-trichloropropene 2,3-oxide

Result : GENOTOXIC EFFECTS:
- With metabolic activation: negative
- Without metabolic activation: negative

PRECIPITATION CONCENTRATION: 1580 µg/plate

CYTOTOXIC CONCENTRATION:
- With metabolic activation: > 1580 µg/plate
- Without metabolic activation: > 1580 µg/plate

Test substance : Toluene extract of CAS 68611-44-9.
Reliability : (2) valid with restrictions
Remark : 1. Only four strains were tested.
2. Test substance was added as a suspension in DMSO for the three highest concentrations.

25.07.2002 (37)

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

Type : other: combined fertility and prenatal toxicity study
In vitro/in vivo : In vivo
Species : rat
Sex : male/female
Strain : Wistar
Route of admin. : oral feed
Exposure period : 6 months

Frequency of treatm.	:	daily
Duration of test	:	6 months treatment and 3 weeks recovery
Doses	:	500 mg/kg bw
Control group	:	yes
Result	:	NOAEL 500 mg/kg bw
Method	:	other: not indicated
Year	:	1965
GLP	:	no
Method	:	TEST ORGANISMS - Age: not indicated - Mean weight at study initiation: males 120 - 122 g and females 120 to 126 g - Number of animals: 2 males and 10 females/treatment (males were selected from 20 males/treatment in the parallel 6 months repeated dose study). ADMINISTRATION / EXPOSURE - Premating period: 8 weeks (first progeny) 17 weeks (second progeny) - Exposure period: 6 months - Route of administration: oral via the feed - Post exposure period: 3 weeks - Doses: 500 mg/kg bw MATING PROCEDURES: - Mating: 5 females / 1 male - Procedure: 14 day caging together. No further indications on how pregnancy was confirmed. PARAMETERS ASSESSED DURING STUDY (P generation): - Mortality/clinical observations: daily. - Body weight: weekly. - Food consumption: daily - Reproduction performance: during the first delivery (~12 weeks of treatment) and the second delivery (~21 weeks of treatment) the number of pregnant females, pups, still births, pup weight and litter size was recorded. - Haematology: prior to the start of treatment, after 1 and 2 months and at the end of both the treatment and recovery period, blood was collected from 10 males and 10 females (5/sex for recovery group) and analysed for the haemoglobin content, erythrocyte count and total and differential leucocyte count. OFFSPRING (F1a and F1b progeny): - Clinical observations: during a 4-week lactation period (frequency not specified). - Body weight: at birth and weekly during the lactation period. In addition, the number of runts was recorded. ORGANS EXAMINED AT NECROPSY (MACROSCOPIC AND MICROSCOPIC): Parental generation: - Organ weights: at scheduled necropsy (after 6 months exposure or 3 weeks recovery) the following organs were weighed: heart, liver, lungs, spleen, kidneys, brain, adrenals, thymus, pituitary gland, ovaries and testes. - Gross pathology: at necropsy all rats were subjected to gross macroscopic examinations. In addition tissues (not exactly specified) were collected for possible histopathological examinations. - Histopathology: The following tissues were prepared and stained (HE-

- Histopathology: The following tissues were prepared and stained (HE-staining and PAS-staining) for histopathological examinations: liver, kidneys, heart, lungs, adrenals, stomach, ovaries and testes.

Offspring (F1a and F1b):
- Gross pathology: the number of malformations and abnormalities at birth was recorded and at the end of a 4-week lactation period all pups were subjected to gross macroscopic examinations.

STATISTICAL METHODS:
Not indicated.

Result : TOXIC RESPONSE/EFFECTS BY DOSE LEVEL:

PARENTAL DATA (P):
- Mortality: in the 500 mg/kg dose group 1 male died within the 6 months of dietary exposure. Death was not trearment-related, a lung infection was observed; 1 male and 1 female died in controls.
- Body weight: No treatment-related differences
- Food consumption: No treatment-related differences
- Clinical signs: No treatment-related findings
- Haematology: No treatment-related findings
- Organ weight changes: No treatment-related differences
- Macroscopy: No treatment-related findings
- Histopathology incidence and severity: No treatment-related findings. Slight progressive transformation of the adrenal cortex among females of the treatment group was noted to be reversible and attributed to chronic stress.
- Other: No effects on male or female gonads were reported.

OFFSPRING TOXICITY F1a AND F1b:
- Litter size and weights: No treatment-related differences
- clinical signs: No treatment-related findings
- Visible abnormalities: No treatment-related findings
- Postnatal growth, growth rate: No treatment-related findings

Test substance : CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.

Conclusion : The NOAEL was 500 mg/kg bw.
Most reliable study on this endpoint.

Reliability : (2) valid with restrictions

Remark : 1. Non GLP study.
2. Limited information on animals, husbandry, maintenance, material and methods.
3. No individual tables included.
4. No tables with clinical observations, macroscopic examinations and histopathological examinations.
5. The report is limited to the information included in the current summary.

Flag : Critical study for SIDS endpoint

25.07.2002 (34) (38)

Type : other: 2-generation reproductive performance

In vitro/in vivo : In vivo

Species : rat

Sex : male/female

Strain : Wistar

Route of admin. : oral feed

Exposure period	:	24 months
Frequency of treatm.	:	daily
Duration of test	:	24 months
Doses	:	100 mg/kg bw
Control group	:	historical
Result	:	NOAEL = 100 mg/kg bw
Method	:	
Year	:	1969
GLP	:	no
Method	:	TEST ORGANISMS - Age: not indicated. - Weight at study initiation: males and females 70 g. - Number of animals: 20 males and 20 females (parental) ADMINISTRATION / EXPOSURE - Exposure period: 24 months. - Route of administration: orally via the feed. - Doses: 100 mg/kg bw. MATING PROCEDURES: - Mating: 1 male was paired with 5 females STANDARDIZATION OF LITTERS: 5 males and 5 females were selected from the F1 offspring and further raised. Approximately 7 month later 1 male thereof was paired with the 5 females. After aproximately 3 months, 5 males and 5 females were selected from the F2-offspring and further raised. PARAMETERS ASSESSED DURING STUDY F1 AND F2: - Mortality and clinical signs: all offspring was checked for preliminary deaths and clinical changes. - Others: the reproducibility was evaluated.
Result	:	OFFSPRING TOXICITY F1 AND F2: - Viability index: no spontaneous deaths occurred. - Other observations: no sterility and normal development established.
Test substance	:	CAS 68611-44-9 (silane, dichlorodimethyl-, reaction products with silica), purity not indicated.
Conclusion	:	NOAEL for the reproductive performance is 100 mg/kg bw.
Reliability	:	(2) valid with restrictions
Remark	:	1. No GLP study. 2. Limited information on maintenance of animals, material and methods. 3. The report is limited to the information included in the current summary.

25.07.2002 (30)

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

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10.1 END POINT SUMMARY

10.2 HAZARD SUMMARY

10.3 RISK ASSESSMENT