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November 15, 1995

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Dear Sir:

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Bayer Corporation is submitting a Study on Acute Inhalation Toxicity in Rats According to OECD NO. 403, Report # 24245 on Desmodur I, (Isophorone-diisocyanate) CAS# 4098-71-9, that we recently received from our parent company Bayer AG; as a follow-up to earlier submissions made under the 8(e) CAP program (July 29, 1992 & August 3, 1992).

In this study, groups of five Wistar rats/sex/concentration were exposed for a four-hour period to liquid aerosols of the test material using concentrations ranging from 0 (air control) to 410.3 mg/M3 air (analytical determination). Concentrations of 20.4 mg/M3 were tolerated without mortality, but, starting at this concentration and higher, clinical signs of toxicity indicative of irritation to the respiratory tract were induced, i.e., bradypnea, dyspnea, labored breathing, rales, serous discharge, red encrustation's of the muzzle, cyanosis, as well as other non-specific signs such as reduced motility, emaciation and sluggishness. Some of these signs lasted upward of 28 days post-exposure. The resultant LC50 value for this study was calculated to be approximately 40 mg/M3 air for both sexes which places this compound in the "Extremely Toxic" category of EPA's TSCA 8(e) Reporting Guidance Document for acute inhalation toxicity. This information will be provided in our hazard communications literature and training programs.

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The information submitted in this report is not considered "Confidential Business Information". Please contact me if you have any questions.

Sincerely,

Donald W. Lamb

Donald W. Lamb, Ph.D
Vice President
Product Safety & Regulatory Affairs
412-777-7431

89960000012

95-2-25.doc:vmk
Attachment - Certified Mail: P 921 654 944

BAYER AG
DEPARTMENT OF TOXICOLOGY
FRIEDRICH-EBERT-STR. 217-333
D - 42096 WUPPERTAL

Report-No.: 24245

Date: 17.08.1995

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Isophorondiisocyanat

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STUDY ON ACUTE INHALATION TOXICITY IN RATS ACCORDING TO OECD NO. 403

BAYER AG

by

Dr. T. Märtins

BAYER AG

Study No.: T0055415

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GOOD LABORATORY PRACTICE COMPLIANCE STATEMENT

This study conforms to the OECD Principles of Good Laboratory Practice (GLP) and to the Principles of Good Laboratory Practice (GLP) according to Annex 1 ChemG (Bundesanzeiger No. 42a of March 2, 1983 and Bundesgesetzblatt [federal laws gazette] Part I of March 22, 1990).

Dr. T. Märtins
Study Director

Date: 07.07.95
(dd.mm.yy)

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2. QUALITY ASSURANCE STATEMENT

Test Substance: **Isophorondiisocyanat**

Study No.: **T0055415**

The study was audited by Quality Assurance on the dates given below. Audit reports have been submitted in writing to the study director and, if necessary, also the laboratory management, or other persons affected.

Date of audit	Date of report to study director/management
Nov. 25, 1993 (study plan)	*Nov. 25, 1993*
Nov. 24, 1993	*Nov. 24, 1993*

To the best of my knowledge, the results of the study and the methods used have been correctly reported.

Quality Assurance Unit
PH-QA-C/GLP, Bayer AG

Date: Aug. 08, 1995

Responsible: Dr.R.Rauchschwalbe

3. SIGNATURES

Dr. Thomas Märtins
Study Director

Date: 07.07.95
(dd.mm.yy)

Dr. Wolfgang Rüngeler
Inhalation Analytics

Date: 07.07.95
(dd.mm.yy)

Dr. Jürgen Pauluhn
Head of Inhalation Toxicology

Date: July 25, 1995
(dd.mm.yy)

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4. SUMMARY

A study assessing the acute inhalation toxicity of Isophorondiisocyanat (hereafter referred to as *test substance)* on rats has been conducted in accordance with OECD Guideline No. 403. Groups were exposed to atmospheres from 20.4 to 410.3 mg/m³ air of the test substance (4 hour exposure, 4 weeks post-exposure observation period) and each liquid aerosol was generated so as to be well respirable. The results can be summarized as follows:

LC_{50}		NOEL
Males:	approx. 40 mg/m³ air[1]	< 20 mg/m³ air
Females:	approx. 40 mg/m³ air	

Clinical Observations

A concentration of 20.4 mg/m³ was tolerated in both genders without lethality. Exposures to concentrations of 53.3 mg/m³ and higher induced delayed lethalities; animals came *ad exitum* up to day 28 of the post-exposure observation period. Clinical signs were observed following exposures to concentrations of 20.4 mg/m³ and higher. Findings included unspecific effects like decrements in body weight gain, reduced motility, piloerection, ungroomed coat, sluggishness, emaciation, and a depressed righting response. However, most of the clinical observations such as tachypnea, bradypnea, labored breathing, irregular breathing pattern, extreme breathing difficulties, rales, sneezing, reddening of nose, red incrustations at nose and/or muzzle, serous nasal discharge, cyanosis, hypothermia were consistent with an assessment that this test substance induces severe irritant effects to the respiratory tract.

Gross Pathology

With the exception of a less collapsed lung and some focal discolorations of the lung, survivors showed no substance-induced macroscopic alterations. Animals which died during or following exposure showed a list of macroscopic findings, which are considered to reflect local irritant effects to the respiratory tract (nose and/or muzzle with red incrustations, mucous membrane of nose with reddenings; pleural cavity filled with liquid; lung less collapsed, with dark-red foci or diffusely black-red, emphysematous, spongy, and with escape of liquid at the cut part).

Evaluation and Assessment

The highly respirable aerosol of the test substance induced a high acute inhalation toxicity to the rat. Signs characteristic for an agent inducing severe irritant effects to the respiratory tract were observed.

[1] All concentration data represent analytically confirmed concentrations of the test substance (purity: >99%) in the breathing zone of the animals.

5. INTRODUCTION

This acute inhalation toxicity study was conducted in accordance with OECD Guideline No. 403 using Isophorondiisocyanat as a test substance. The study was performed on rats (nose-only exposure over 4 h to a respirable aerosol, dynamic exposure conditions, 4 week observation period).

The objective of this study was to provide information on potential health hazards likely to arise from short-term exposure by the inhalation route. Data may serve as a basis for classification and labeling of the product.

The study was conducted at the test facility of the Institute of Toxicology - Agrochemicals, Department of Toxicology, Bayer AG, D-42096 Wuppertal, Germany.

Study no.: T0055415

Study period: 24.11.1993 - 05.01.1994

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6. RESPONSIBILITIES

Head of the Institute of Toxicology: ..... Prof. Dr. G. Schlüter
head of Toxicology Industrial Chemicals: ..... Prof. Dr. E. Löser
Head of Inhalation Toxicology: ..... Dr. J. Pauluhn
Study Director and Report Author: ..... Dr. T. Märtins
Test substance delivery: ..... Dr. W. Slawyk
Analytical characterization of test substance: ..... Dr. M. Dislich
Analytical characterization of test atmospheres: ..... Dr. W. Rüngeler
Central Animal Supply Department: ..... Dr. K. Hoffmann
Air conditioning/air make-up ..... Dipl. Ing. G. Strietholt
Necropsy/Gross pathology: ..... Dr. Rosenbruch
Archiving the study data: ..... Prof. Dr. G. Schlüter
Quality Assurance: ..... Dr. H. Lehn

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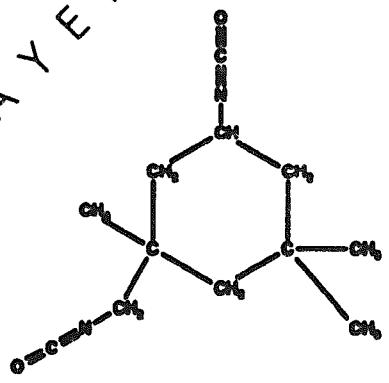
7. MATERIALS AND METHODS

7.1. Test substance

Test substance:	Isophorondiisocyanat (IPDI)
Batch no.:	1.5/3-28
Producer:	BAYER AG, Leverkusen
Storage:	Room temperature, desiccator
Stability:	Guaranteed for the duration of this study (stable up to December 31, 1993)
Purity:	> 99 % Isophorondiisocyanat

Chemical characterization:

CAS no.:	4098-71-9
CAS name:	Cyclohexane, 5-isocyanato-1(isocyanato methyl)-1,3,3-trimethyl
Structural formula:	
Empirical formula:	$C_{12}H_{18}N_2O_2$
Molecular weight:	222 g/mol

Physico-chemical properties of test substance:

Appearance:	Yellowish liquid
Odour	Pungent
pH value:	not applicable
Vapor pressure:	0.0004 hPa (at 20 °C)
Saturation concentration:	3.6 mg/m³ air
Specific weight:	1.06 g/ml

7.2. Test system and housing of animals

Species and species justification
The study was conducted with rats, a rodent species recommended by the test guidelines. SPF bred Wistar rats, strain Hsd/Win:WU [formerly BOR: WISW (SPF-Cpb)], from the experimental animal breeder Harlan-Winkelmann, Borchen, Germany, were used. Animals of this strain have been used at Bayer AG in toxicological studies for years. Historical data on their physiology, diseases and spontaneous alterations are available. The state of health of the strain is randomly checked regularly at the insistance of the Central Animal Supply Department, Bayer AG, for the important specific infectious pathogens. The results of these examinations are archived.

Acclimatization
The animals were acclimatized to the animal room conditions for at least 5 days before use.

Identification
Animals were identified by both individual colour-marking and cage-labels. All animals from this study were located on one cage-rack.

Randomization
Before the start of the study the health status of each animal was assessed. Animals were subsequently assigned to exposure groups at random (randomization procedure is described in section 7.16.).

Health status
Only healthy rats free of signs were used for this study. The animals were not vaccinated or treated with anti-infective agents either before their arrival or during the acclimatization or study periods. The females were nulliparous and not pregnant.

Age and weight
At the study start the variation of individual weights did not exceed ± 10 per cent of the mean for each sex and group (cf. Appendix). Animals of the weight class used are 2 - 3 months old and hence fulfill the criterion for young adults.

Animal housing
During the acclimatization and study periods the animals were housed singly in conventional Makrolon® Type II cages (based on A. Spiegel and R. Gönnert, Zschr. Versuchstierkunde, 1, 38-46 (1961) and G. Meister, Zschr. Versuchstierkunde, 7, 144-153 (1965)). Cages and water bottles were changed twice a week while unconsumed feed was changed once per week. The legal requirements for housing experimental animals (86/609 EEC) were followed.

Bedding
Certified bedding consisted of type S 8/15 low-dust wood granulate from Saniff, Soest/Westfalen, Germany. The wood granulate was randomly checked for germ and

contaminant contents at the request of the Central Animal Supply Department, Bayer AG. Data provided no evidence of an impact on the study objective.

Animal rooms

All animals were housed in a single room. For reasons of space availability rats from other acute toxicity studies were housed in the same room, however mistakes in animal assignments were excluded by adequate spatial separation (separate cage racks), clear cage labelling, and appropriate organization of all work procedures. The housing of several studies in one animal room is not considered to be a deviation from GLP-requirements since many acute studies are composed of 10 animals only (as required to perform a limit test).

Environmental conditions in the animal room

The room environment was:

Room temperature:	22 ± 2 °C
Relative humidity:	approximately 50 %
Dark/light cycle:	12 h/12 h; artificial light from 6.00 a.m. to 6.00 p.m. Central European Time
Illumination:	approximately 13-14 watt/m² floor area
Ventilation:	approximately 10 air changes per hour

The room humidity and temperature were continuously monitored and documented using a calibrated thermohygrograph. Occasional deviations from these conditions occurred, e.g. as a result of animal room cleaning, but these had no detectable influence on the outcome of this study.

Cleaning, disinfection, and pest control

The animal room was regularly cleaned and disinfected once a week with an aqueous solution of Zephirol®. Contamination of the feed and contact with the test system were excluded. Pest control was not conducted in the animal room.

Feeding and Water

Ration consisted of a standard fixed-formula diet (Altromin® 1324 pellets maintenance diet for rats and mice, Altromin GmbH, Lage) and tap water (drinking bottles). Both food and water were available *ad libitum*. The pelletized feed was contained in a rack in the stainless-steel wire cage cover. The nutritive composition as well as the germ and contaminant contents of the standard diet was checked regularly by random sampling by the Central Animal Supply Department, Bayer AG.

Drinking quality tap-water (Drinking Water Decree of 05.12.1990, Bundesgesetzblatt [federal law gazette] part I, page 2612) was provided *ad libitum* in polycarbonate bottles containing approximately 300 ml (based on A. Spiegel and R. Gönnert, Zschr. Versuchstierkunde, 1, 38-46 (1961) and G. Meister, Zschr. Versuchstierkunde, 7, 144-153 (1965)).

Details concerning general feed and water specifications are provided in the Appendix. The results of feed and water analyses are retained by Bayer AG. The available data provided no evidence of an impact on the study objective.

7.3. Test guidelines

The study described below was carried out in accordance with OECD Guideline No. 403 'Acute Inhalation Toxicity' and EC Guideline 92/69/EEC, Annex, Part B.2. 'Acute Toxicity - Inhalation'. The study conditions were adjusted so as to fulfill also the EPA Guideline 'Acute Exposure - Inhalation Toxicity' (US EPA, 1982) in so far as it was technically possible and reasonable for this study. Other recommendations (US EPA SEP, 1988) were also considered so as to comply with internationally recognized procedures.

7.4. Exposure conditions

Mode of exposure

Animals were exposed to the aerosolized test substance in restrainers made of Plexiglas. Restrainer tubes were chosen that accommodated the animals size. These tubes were designed so that the rat's tail remained outside the tube, thus restrained-induced hyperthermia can be avoided. This type of exposure is preferable to whole-body exposure on scientific (Pauluhn, 1984) and technical reasons (rapid attainment of steady-state concentrations, no problems with regard to test atmosphere inhomogeneities, better capabilities to control all inhalation chamber parameters, easier cleaning of exhaust air, and lower consumption of test substance). Moreover, contamination of the fur can largely be avoided. The chambers used are commercially available (TSE, D-61348 Bad Homburg v.d.H.) and the performance of this type of chamber has been published (Pauluhn, 1984; Pauluhn, 1988; Pauluhn, 1994).

Vehicle

Based upon a possible exposure potential during handling/use of the product, the test substance was generated as an aerosol. No vehicle was used.

7.5. Aerosol generation and exposure technique

Aerosol generation

Under dynamic conditions the test substance was nebulized using a two-component nozzle with conditioned compressed air (15 litres of air/min; dispersion pressure approximately 600 kPa). A microlitre-pump (Hamilton Microlab® M) was used for dosing the test substance into the nozzle. The test substance was nebulized into a glass baffle (pre-chamber) attached to a dilution system. In groups 2 to 4 the dilution system was composed of a glas flask (volume approx. 2 l) with an inlet for the dilution air and a veturi tube, which were connected in series (for generation details cf. Table 1, results). In groups 5 and 6 the dilution system consisted only of the glas flask. Following dilution, the aerosol was ducted into the intake of the cylindrical inhalation chamber. A skeleton view of the aerosol supply system to the chamber is depicted in Figure 1.

Optimization of respirability

The baffle increases the efficiency of aerosol generation and prevents larger particles from entering the chamber (Tillery et al., 1976). The baffle dimensions were - diameter: approx. 13 cm, volume: approx. 1 l.

In all groups a metal cyclone connected to the glas flask (in groups 2 to 4 between the glass flask and the venturi tube) was used to reduce the particle size. This cyclone was calibrated for use with the air flow (28 l) chosen (for air flow details cf. Table 1, results). In that this test substance is essentially pure (> 99%), use of a cyclone will not selectively alter the atmospheric composition of this test substance.

Inhalation Chamber

The inhalation chamber made of stainless steel consists of two concentric cylinders (Dimensions: volume of inner cylinder = 7 l, total outer diameter = 30 cm, height = 28 cm). The construction of the inhalation chamber is shown schematically in Fig. 1. The test atmosphere is forced through an opening in the inner concentric cylinder towards the periphery of the chamber, directly towards the openings of the animal exposure tubes. This arrangement ensures that each animal breathes fresh aerosol of uniform concentration and particle size at all times. The 'flow-past' system design thus minimizes the rebreathing of exhaled test atmosphere and the degradation of the reactive test substance in the presence of water.

Conditioning the compressed air

Compressed air was supplied by Boge compressors and was conditioned (i.e. freed from water, dust, and oil) automatically by a VIA compressed air dryer. Adequate control devices were employed to control supply pressure.

Air flows

During the exposure period air flows were monitored continuously and, if necessary, readjusted to the conditions required. Air flows were measured with calibrated flowmeters and were checked for correct performance at regular intervals using bubble meters as primary calibrations standards.

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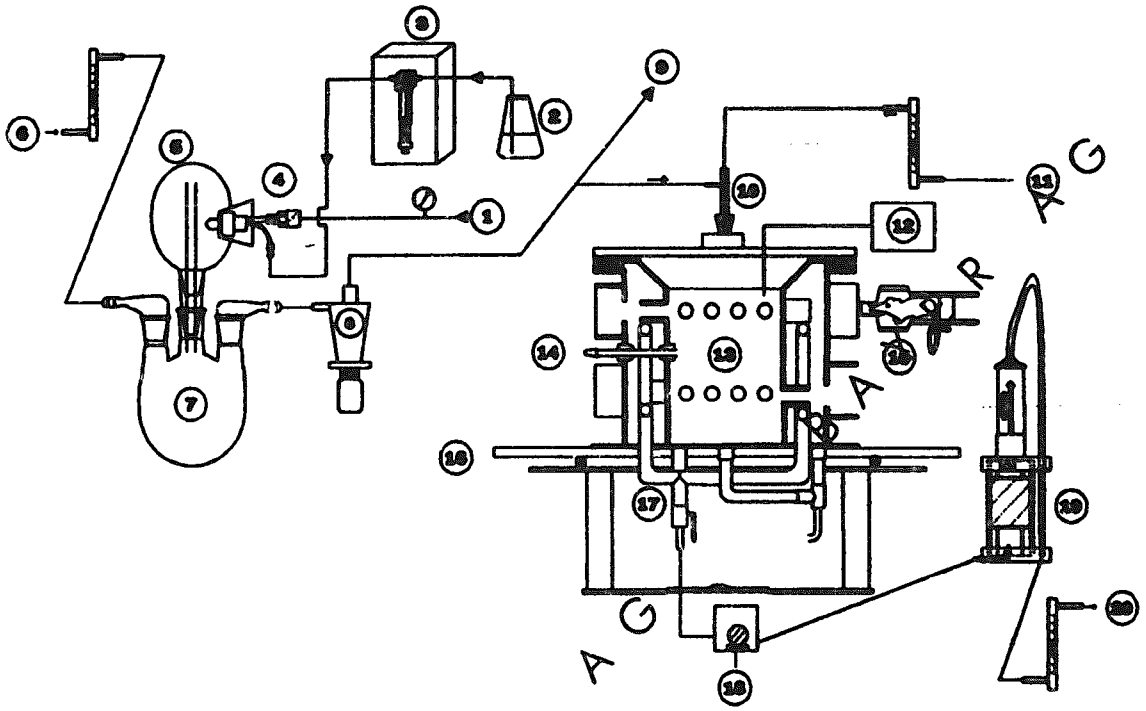
Fig. 1: Generation technique and inhalation chamber



1. Compressed air
2. Test substance reservoir
3. Microlitre-pump
4. Nozzle
5. Baffle
6. Dilution air into glass flask with flowmeter
7. Glas flask used as expansion chamber
8. Cyclone
9. By-pass
10. Venturi tube (used only in groups 2-4)
11. Dilution air into Venturi tube with flowmeter
12. Photometer (real-time monitoring)
13. Inhalation chamber
14. Sampling location ('breathing zone sampling')
15. Rat in exposure tube
16. Rotatable base
17. Air outlet
18. Sensor for temperature and relative humidity measurement
19. Aerosol filter (air make-up)
20. Exhaust air with flowmeter.

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Inhalation chamber steady-state concentration

The test atmosphere generation conditions provide an adequate number of air exchanges per hour (approx. 140-240 x). Under such test conditions steady state is attained within the first 2 minutes of exposure ($t_{99\%}$ = 4.6 x chamber volume/flow rate; McFarland, 1976).

The ratio between the air supplied and exhausted was chosen so that approximately 70-80% of the air supplied is removed by the exhaust system. The remainder provides adequate dead-space ventilation of the exposure tubes. At each exposure port an air flow of at least approx. 1.5 l/min was provided. This is equivalent to approx. 5 respiratory minute volumes of the rats. The test atmosphere can by no means be diluted by bias-air-flows. The inhalation chamber was operated in a well ventilated chemical fume hood.

Treatment of exhaust air

The exhaust air was purified via cotton-wool aerosol and HEPA filters. These filters were disposed of by Bayer AG.

7.6. Inhalation chamber temperature and humidity

The temperature and humidity measurements were made using a computerized system (Leybold Heraeus). The values were recorded at intervals of 10 min (Position of measurement cf. Figure 1). The temperature and humidity values considered to be representative for this study are provided in Table 1, results, and in the Appendix .

The relative humidity was measured with a humidity sensor (CCH capacitor). The humidity-sensor is protected from particles by a double sintered metal filter with an interposed Teflon membrane (pore size approximately 1 µm). This sensor was calibrated using saturated salt solutions according to Greenspan (1977). The temperature sensors were calibrated with a calibration thermometer. The measured values were recorded and evaluated with an Apple 2e computer and an MDP 8240/45 analogue-digital converter using an IEEE 488 interface.

7.7. Analysis of the test atmosphere

The nominal concentration was calculated from the ratio of the quantity of test substance sprayed into the baffle and the total throughput of air through the inhalation chamber. Dilution ratios were taken into consideration. Specific information concerning airflows and test atmosphere concentrations are provided in Table 1, results, and in the appendix. The lower analytical concentrations as compared with the nominal concentrations are attributed to the efficient removal of larger particles in the baffle/preseparator/dilution system.

The test-substance concentration was determined after derivatization using high performance liquid chromatography (HPLC). Details concerning methodological aspects of the sampling and characterization of this test substance from air have been reported separately (cf. Appendix, Analytic Report by Dr. W. Rüngeler).

Concentrations in the test atmosphere were also determined once gravimetrically by means of filter samples (glass fiber filters, Sartorius no. SM 13400-050 S, Göttingen, Germany) in order to recognize degradation and evaporation losses of the test substance and to verify impactor recovery analyses as well.

Chamber samples were taken in the vicinity of the breathing zone of the animals (cf. Fig. 1). The number of samples taken was sufficient to characterize the test atmosphere and was adjusted so as to accommodate the sampling duration and/or the need to confirm specific concentration values. Optimally, samples were collected at least 1) after the equilibrium concentration had been attained, 2) near the exposure midpoint, and 3) near the end of exposure. All analytical concentrations reported refer to mg of test substance/m³ air.

7.8. Characterization of particle-size distribution

Samples for the analysis of the aerodynamic particle-size distribution were also taken in the vicinity of the breathing zone. These samples were taken using a low-pressure Aeras stainless steel cascade impactor LPI 4/0.06/9 stages (Hauke, 4810 Gmunden, Austria). Specifications and evaluations are provided in the appendix. The individual impactor stages were covered with aluminium foil which had been gravimetrically evaluated. Due to the presence of the adhesive filter a coating for these surfaces was not considered necessary (to prevent particle reentrainment (bounce) into the air stream). The atmosphere particle size distribution was characterized once per exposure.

Evaluation of particle-size distributions

For the evaluation of the cascade impactor analyses the mass median aerodynamic diameter (MMAD) and the geometric standard deviation (GSD) are determined from the probit-transformed cumulative particle mass frequency distribution (y-axis) and the logarithmic effective cut-off diameters (ECD's) (x-axis) of the individual impactor stages by linear regression. The GSD is calculated from the regression line: percentile 84 / percentile 50. The relative mass with an aerodynamic diameter ≤ 3 µm ("respirable mass fraction") [Raabe, 1982; Snipes, 1989; SOT-Commentary, 1992] is calculated from the regression line. For probit transformation and linear regression FORTRAN algorithms published by Rosiello et al. (1977) are used. The NMAD is calculated from the MMAD using the following formula [Raabe, 1970; Marple and Rubow, 1980; Pauluhn, 1994].

$$MMAD = NMAD \times \exp(3 \ln^2 GSD)$$

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To verify whether the aerosol distribution is in fact unimodal and log-normal the normalized mass per stage (f_H') is evaluated as a histogram. $\Delta \log D_p$ is equal the difference $\log D_{p+1}$ - $\log D_p$, whereas D_p is the lower (left) cut-size limit and D_{p+1} the higher (right) cut-size limit of the corresponding impactor stage. As demonstrated by the evaluations included in the appendix, the impactor stage cut-off limit (D_{p+1}) to the right was used for all calculations.

$$f_H' = \frac{1}{N_f} \times \frac{mass\,/\,stage}{\Delta \log D_p}$$

The log-normal mass distribution $y'(D_{ae}) = 1/N_f \times y(D_{ae})$ as a function of the aerodynamic diameter (D_{ae}) is computed using the formula:

$$y'(D_{ae}) = \exp\left(-\frac{(\log D_{ae} - \log MMAD)^2}{2 \times \log^2 GSD}\right)$$

The normalization factor (N_f) is calculated as follows:

$$N_f = \frac{\Sigma mass}{\log GSD \times \sqrt{2\pi}}$$

Where Σmass is the total mass collected by the cascade impactor, where $m_{relative}$ = mass per stage/Σmass.

The algorithm for the calculation of particle size characteristics is taken from pertinent reference works on aerosol physics (Dennis, 1976; Marple and Rubow, 1980) and proves to be generally applicable (Pauluhn, 1982; Pauluhn 1988; Pauluhn, 1994).

Respirability

Fig. 2, below, demonstrates that the particle size distribution achieved is adequate to reach all potential target structures of the respiratory tract.

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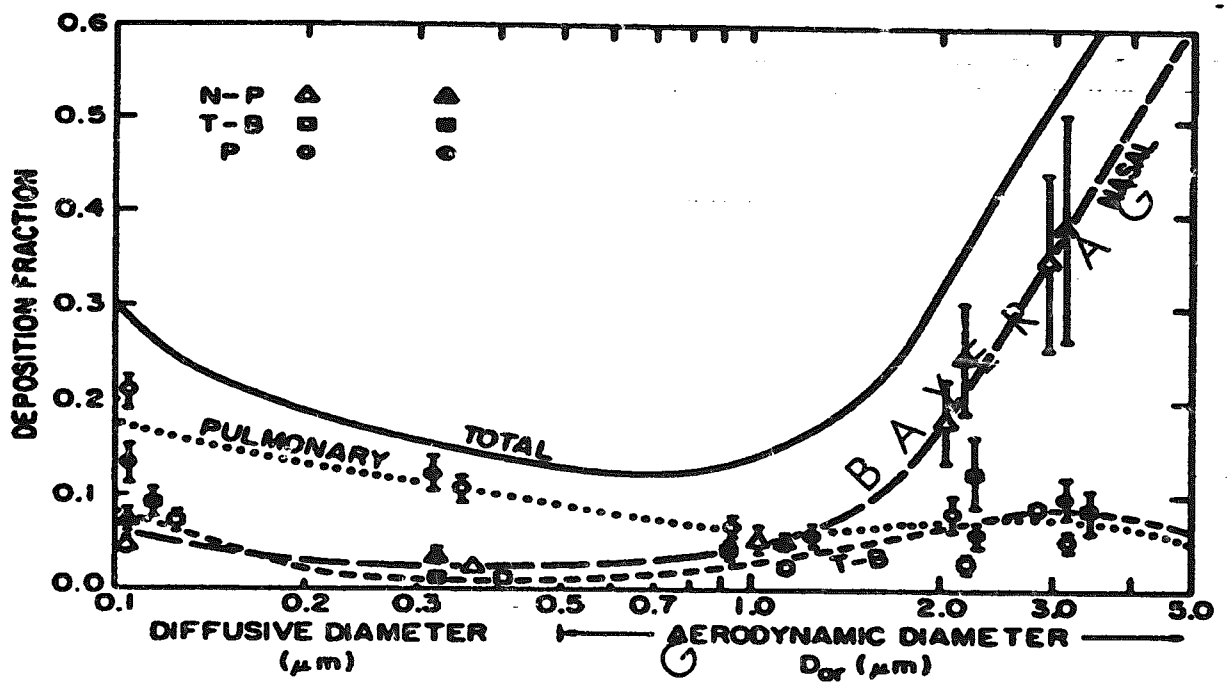
Fig. 2: Respirability of aerosols (Raabe, 1982)



7.5 Collection efficiency

The sampling equipment was adjusted with calibrated flowmeters to internationally recognized standards (ACGIH, 1978; Section I "Calibration of Air Sampling Instruments").

The conditions for test atmosphere generation were optimized to provide maximum aerosol respirability to rats (Raabe, 1982; Snipes, 1989; SOT-Commentary, 1992). The absence of larger particles and high flow rates in the vicinity of the sampling ports make it possible to disregard potential anisokinetic sampling errors, thus ensuring a representative sampling even with different sampling probe orifice diameters and flow rates. The tolerance limits for the radius of the probe orifice are calculated using the following formula [ACGIH, 1978]. Calculations consider both a particle size distribution that encompasses aerodynamic diameters (D_{ae}) of 0.5 to 7.4 µm and sample flows ranging from 8 to 80 ml/sec.

$$5 \times \sqrt[3]{\frac{flow \times \tau}{4 \times \pi}} \leq r_p \leq \frac{1}{5} \times \sqrt[2]{\frac{flow}{g \times \tau \times \pi}}$$

r_p = radius of the sample probe in cm = ½ x D_p
τ = relaxation time ($D_{ae\,0.5\,\mu m}$ = 1x10^{-6} sec; $D_{ae\,7.4\,\mu m}$ = 1.7x10^{-4} sec)
g = gravity constant = 980 cm/sec^2

Tolerance limits calculations for the sample probe orifice (r_p) indicated that a representative sampling is assured when the orifice inner diameter is in the range of 1.0 to 1.6 cm. Orifices of the sampling instruments used here are consistent with this criteria. Details of the D_p tolerance limit calculations are published elsewhere (Pauluhn, 1988; Pauluhn, 1994).

7.10. Stability of the test atmosphere

The stability of the aerosol generation system was continuously monitored using a RAM-1 or RAS-2 real-time aerosol photometer (MIE, Bedford, Massachusetts, USA). Samples were taken continuously from the vicinity of the breathing zone. This chamber monitoring allows for an overall survey of toxicologically relevant technical parameters (inlet and exhaust flows as well as atmosphere homogeneity, temporal stability, and generation performance). Interruptions in exposure (e.g. resulting from obstruction of the nozzle or other technical mishaps) are recorded and, if applicable, a commensurate interval is added to the exposure duration for compensation.

7.11. Number of animals per group

Five male and five female rats were simultaneously exposed per concentration under nose-only exposure conditions to each test atmosphere.

7.12. Exposure time and duration of observation period

Animals were exposed to each concentration for 4 hours. The post-exposure period of observation was 4 weeks.

7.13. Control animals

To distinguish exposure-related effects, direct comparisons with appropriate controls are conducted. Controls were exposed to conditioned air under conditions comparable to those used for this study (air flow 15 litres/min; duration of exposure = 1 x 4 h; 5 males and 5 females per group; 4 week observation period).

Note: Control studies are performed under GLP-conditions but without assignment to a particular study. This allows use of control data for several studies that have been performed under similar experimental conditions within a recent time frame. This procedure is in compliance with current testing guidelines as well as animal welfare regulations.

7.14. Clinical observations

Clinical signs

The appearance and behaviour of each rat was examined carefully several times on the day of exposure and twice daily (morning and evening) thereafter. Weekend assessments were made once a day (morning). Assessments from restraining tubes were made only if unequivocal signs occurred (e.g. spasms, abnormal movements, severe respiratory signs). Following exposure, observations are made and recorded systematically; individual records are maintained for each animal. Cageside observations included, but were not limited to, changes in the skin and fur, eyes, mucous membranes, respiratory, circulatory, autonomic and central nervous system, and somatomotor activity and behaviour pattern. Particular attention was directed to observation of tremors, convulsions, salivation, diarrhoea, lethargy, somnolence, and coma. The time of death was recorded as precisely as possible.

Clinical observations were conducted so as to take into account the pattern of examination consistent with a Functional Observational Battery (FOB). Each rat was first observed in its home cage and then individually examined. The following reflexes were tested, based on recommendations made by Irwin (1968) and Moser et. al. (1988): visual placing response and grip strength on wire mesh, abdominal muscle tone, corneal and pupillary reflexes, pinnal reflex, righting reflex, tail-pinch response, startle reflex with respect to behavioural changes stimulated by sounds (finger snapping) and touch (back) as well as grip strength.

Note: All signs are reported in the form of incidence tables (cf. appendix). The resolution of these tables is per one day, the maximum response is always displayed. The incidence of signs will reflect signs from surviving animals. Uncommon signs related to an agonal condition that may be observed on the day of death are recorded but may not be incorporated into the incidence tables. These signs are described in the results if they differ from previous observations.

Body weights

Body weights were measured before exposure, on days 3 and 7, and weekly thereafter. Individual weights are also recorded at death.

Rectal temperatures

The rectal temperatures were measured directly after cessation of exposure (approximately 15 to 30 min after the end of exposure) using a Digimed H 11 digital thermometer with an F2 rectal probe.

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7.15. Necropsy and gross pathology

All surviving rats were sacrificed at the end of the observation period using sodium pentobarbital (Nembutal®; approx. 300 mg/kg body weight, intraperitoneal injection). All rats, irrespective of the day of death, were given a gross-pathological examination. Consideration was given to performing a gross necropsy on animals as indicated by the nature of toxic effects, with particular reference to changes related to the respiratory tract. All gross pathological changes were recorded and evaluated.

7.16. Statistical evaluation of data

With graphs of means of data, the indicated parameters were evaluated relative to controls (mean = 100%). The single standard deviations are also shown relative to the means of the controls. Statistically significant differences (versus controls) are indicated here by asterisks ('*' for $p < 0.05$ and '**' for $p < 0.01$).

Physical measurements
From the data of the analytical determinations, the temperature and relative humidity measurements the means and, if appropriate (more than 3 values per measurement), a single standard deviation were calculated. The statistical methods used in the evaluation of the aerodynamic particle-size distribution were described in Section 7.8.

Randomization
A computerized list of random numbers served the purpose to assign animals at random to the treatment groups.

Body weights
Means and single standard deviations of body weights are calculated. Mean body weights are also depicted graphically as a function of time (cf. Appendix).

Since in acute studies individual group means may differ prior to commencement of the first exposure, the body weight gain was statistically evaluated for each group. For these evaluations a one-way ANOVA (vide infra) was used.

Physiological data
Data of rectal temperature analysis were statistically evaluated using the ANOVA procedure (vide infra).

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Variance analysis (ANOVA)

This parametric method checks for normal distribution of data by comparing the median and mean. The groups are compared at a confidence level of $(1-\alpha) = 95\%$ ($p = 0.05$). The test for the between-group homogeneity of the variance employed Box's test if more than 2 study groups were compared with each other. If the above F-test shows that the intra-group variability is greater than the inter-group variability, this is shown in the Appendix as *"no statistical difference between the groups"*. If a difference is found then a pairwise post-hoc comparison is conducted (1- and 2-sided) using the Games and Howell modification of the Tukey-Kramer significance test. This program was originally obtained from BCTIC.

Calculation of the LC_{50}

If calculation of a median lethal concentration (LC_{50}) is possible, it is performed by computer (HP 3000) according to the method of A.P. Rosiello, J.M. Essigmann, and G.N. Wogan (1977) as modified by Pauluhn (1983). This method is based on the maximum-likelihood method of C.I. Bliss (1938).

Since in this study only one pair of values was within 0% and 100% lethality (cf. group 3), calculations based on the a.m. method were not possible. Therefore, the geometric mean concentration of group 2 and 4 was designated the approximate LC_{50}.

Necropsy findings

If findings occur more frequently from the respiratory tract of surviving rats they are evaluated statistically using the pairwise Fisher test after the R x C chi-squared test (HP 3000, Department of Toxicology, Bayer AG). The Fisher test was only performed if differences occurred between groups in the R x C chi-squared test or if a frequency value of < 5 was calculated. This procedure was performed in accordance with Gad and Weil (1982). For calculation of the unilateral p value a symmetrical distribution was assumed (p unilateral = (p bilateral)/2).

7.17. Programming and validating software

Software code for the following purposes was written in HP Fortran (HP 3000) or Microsoft Fortran 77 (PC): particle-size analysis, ANOVA, Fisher test, inhalation chamber data tabulation program, graphics software, physiological data evaluation. All scratch files were generated using Fortran F8.3 format using the Fortran default rounding routines. Fortran format A was always used to generate alphanumeric tables and graphs; i.e. numbers in figures and tables are rounded-up or -off due to the different format codes of the server. The computer programs were carefully tested using published data sets (e.g. BCTIC, Gad and Weil, 1982). Wherever possible, raw data and calculated values are displayed graphically to provide a versatile opportunity for data comparison.

Various models of calculators, computers, and computer programs have been used to analyze data for this study. Since various models round or truncate numbers differently, values in some tables may differ slightly from those in other tables or from independently calculated data. The integrity of the study and interpretation of the data were unaffected by these differences.

7.18. Archival procedures

A reserve sample of the test substance, the protocol, raw data, and final report are archived in locations specified by Bayer AG, in accordance with GLP requirements.

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8. RESULTS

8.1. Generation of test atmosphere

Information concerning generation of test atmospheres is provided in Table 1.

Table 1: Generation and chamber conditions

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Nominal Conc. (mg/m³)	Control	115	289	462	979	1514
Actual Conc. (mg/m³)	0	20.4	53.3	73.8	104.6	410.3
% Actual of Nominal	--	18	18	16	28	27
Primary Flow (l/min)	15	15/5[1]	15/5[1]	15/5[1]	15	15
Dilution Flow (l/min)	--	13/11.4[2]	13/11.4[2]	13/11.4[2]	13	13
Total Chamber Flow (l/min)	15	16.4	16.4	16.4	28	28
Exhaust Flow (l/min)[3]	11.5	13	13	12	23	23
Substance Supply into Nozzle (µl/min)	--	10	25	40	10	40
MMAD (µm)	--	1.7	1.6	1.6	2.1	2.0
GSD	--	1.9	1.6	1.6	1.7	1.8
Impactor Recovery (mg/m³)	--	17	53	73	94	432
Gravimetric Conc. (mg/m³)	--	18	55	85	105	410
Aerosol Mass < 3 µm (%)	--	82	91	90	76	77
Mean Temperature (°C)	23	22	22	23	22	22
Mean Rel. Humidity (%)	13	12	5	10	9	10

Conc. = Concentration
Nominal Conc.: Calculation based on the test substance density of 1.06 g/ml
MMAD = Mass Median Aerodynamic Diameter
GSD = Geometric Standard Deviation
-- = not applicable
[1] 1st value = Primary air flow into nozzle, 2nd value = Flow fraction into veturi tube
[2] 1st value = Dilution air flow, 2nd value = Air flow into venturi tube
[3] Including 1½ litre monitoring flow

Characterization of the test atmospheres

Details as well as representative examples of physical measurements of the chamber test atmosphere are given in the appendix. Analytical as well as real time monitoring of each test atmosphere from the breathing zone indicated that the exposure conditions were stable over the exposure period. Indices of the analysis of the aerosol particle-size distribution demonstrated that the aerosols generated were highly respirable and deposited throughout the entire rodent respiratory tract. The gravimetric and analytical concentrations concentrations in the test atmosphere as well as the total recovery obtained by cascade impactor showed good agreement suggesting that interstage wall losses as well as evaporation were negligible.

Humidity values were deliberately kept low in all groups, which was achieved by the use of dry air for generation, in order to minimize degradation of the test substance in the presence of water.

8.2. Clinical observations

The results obtained during and after exposures of rats for 4 hours to the test substance are summarized in Table 2.

Table 2: Summary of acute inhalation toxicity

Group	Sex	Analytical Concentration (mg/m³ air)	Toxicological Result	Onset and Duration of Signs	Time Point of Lethalities
1	male	0	0 / 0 / 5	--	--
2	male	20.4	0 / 5 / 5	4h - 6d	--
3	male	53.3	3 / 5 / 5	4h - 28d	16d - 28d
4	male	73.8	5 / 5 / 5	4h - 12d	1d - 12d
5	male	104.6	5 / 5 / 5	4h - 10d	1d - 10d
6	male	410.3	5 / 5 / 5	≤4h	≤4h
1	female	0	0 / 0 / 5	--	--
2	female	20.4	0 / 5 / 5	4h - 2d	--
3	female	53.3	3 / 5 / 5	4h - 28d	11d - 25d
4	female	73.8	5 / 5 / 5	4h - 9d	3d - 9d
5	female	104.6	5 / 5 / 5	4h - 20d	1d - 20d
6	female	410.3	5 / 5 / 5	≤4h - 6h	≤4h-6h

0d = day of exposure; ≤4h = within the exposure period
-- = not applicable
Values given in the 'Toxicological results' column are:
1st = number of dead animals.
2nd = number of animals with signs after cessation of exposure.
3rd = number of animals exposure

Clinical signs
A complete listing of the intensity and time-dependence of the observed signs is presented in the appendix. A qualitative description, for the signs of importance in toxicological evaluation, is given below.

Group 1:
No signs were observed.

Group 2:
Reduced motility, piloerection, ungroomed coat, bradypnea, labored breathing, rales, sluggishness, nose and/or muzzle with red incrustations, reddening of nose.

Group 3:
Reduced motility, piloerection, ungroomed coat, tachypnea, bradypnea, labored breathing, rales, irregular breathing pattern, sluggishness, nose and/or muzzle with red incrustations, serous nasal discharge, cyanosis, emaciation.

Group 4:
Reduced motility, piloerection, ungroomed coat, bradypnea, labored breathing, rales, extreme breathing difficulties, serous nasal discharge, sluggishness, nose and/or muzzle with red incrustations, cyanosis. All animals died during the post-exposure observation period.

Group 5:
Reduced motility, piloerection, ungroomed coat, bradypnea, labored breathing, rales, sneezing, extreme breathing difficulties, serous nasal discharge, sluggishness, nose and/or muzzle with red incrustations, cyanosis, emaciation. All animals died during the post-exposure observation period.

Group 6:
All animals died during or immediately following exposure.

Reflex measurements
The battery of reflex measurements was made from surviving animals on day 1 and on following days if abnormal or depressed reflexes were noted. Summaries of the reflex data are included in the Appendix. With the exception of a depressed righting response observed nearly exclusively in moribund group 4 and 5 animals, reflexes were normal in all groups.

Body weights
Individual data as well as evaluations of data concerning body weight gain are included in the Appendix. A significant depression in body weight gain was observed in group 2 and above.

Rectal temperature
Results of the evaluation of the rectal temperature are summarized in the appendix. Animals in group 2 and above showed a concentration dependent decrease of the body temperatures (hypothermia) after cessation of exposure.

8.3. Gross pathology

Individual findings from the gross-pathological examinations and details concerning the time of death are shown in the appendix. A qualitative description, only for findings of toxicological importance and for toxicological evaluation, is given:

Animals sacrificed at the end of the observation period

Except for a less collapsed lung and some focal discolorations of the lung, which were only sporadically observed, survivors showed no substance-induced macroscopic alterations.

Animals that died during the exposure or observation period

nose and/or muzzle with red incrustations, mucous membrane of nose with reddenings
pleural cavity filled with liquid
lung less collapsed, with dark-red foci or diffusely black-red, emphysematous, spongy, and with escape of liquid at the cut part
small intestine with reddenings and yellowish and/or reddish content
liver pale, spotted, and with distinct lobular pattern
spleen pale
kidneys pale, pelvis of kidneys with reddenings.
Findings of the nose/muzzle, pleural cavity, and lung are considered to reflect local irritant effects to the respiratory tract.

8.4. LC_{50} calculation and NOEL

Details of the LC_{50} calculation as well as a graphical presentation and evaluation of mortality data are provided in the Appendix.

LC_{50} Males:	*approx. 40 mg/m³ air*
LC_{50} Females:	*approx. 40 mg/m³ air*
LC_{50} Males and Females Combined:	*approx. 40 mg/m³ air*

A NOEL concentration for this test substance was not established during this experiment.

9. EVALUATION AND DISCUSSION

The highly respirable aerosol of the test substance induced a high acute inhalation toxicity to the rat.

Evidence of toxicity was apparently concentration dependent. Most of the clinical observations such as tachypnea, bradypnea, labored breathing, irregular breathing pattern, extreme breathing difficulties, rales, sneezing, reddening of nose, red incrustations at nose and/or muzzle, serous nasal discharge, cyanosis, hypothermia, and delayed lethalities as well as gross pathology findings of the respiratory tract are consistent with an assessment that this test substance induces severe irritant effects to the respiratory tract. A sex difference was not ascertained.

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10. KEY TO ABBREVIATIONS / UNITS USED

Conc.	Concentration (mg/m³ air)
nomin.	Nominal
analyt.	Analytical
mcm/µm	Micrometer
Expos.	Exposure
n.a.	not applicable
NOEL	No observable effect level
MMAD	Mass Median Aerodynamic Diameter (µm)
NMAD	Number Median Aerodynamic Diameter (µm)
GSD	Geometric standard deviation
ECD	Effective cut-off diameter (µm)
Ai	Sample for analysis
STAND/Std/s/σ	Standard deviation
MEANS/Mw/ø	Means
F	F-test value (F-ratio)
DF	Degrees of freedom
PROB	Probability
SS	Total sum of squares
MS	Mean squares
TREATMENT	- between the groups
ERROR	- within the groups
TOTAL	- total
Observation No.: n-nn	Body weight gain from date n to date nn
Body Weights	unit = gram (g)
Rectal Temperature	unit = degree celsius (°C)

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12. APPENDIX

Chamber atmosphere characterization

Group	Date of exposure (dd.mm.yy)	Sampled volume (l)[1] / Flow rate (l/min)[1]	Actual test substance concentrations (mg/m³ air)	Mean concentration (mg/m³ air)
1	14.09.93	n.a.	0 (air control)	n.a.
2	07.12.93	10 / 1 50 / 4	16.3 - 21.6 - 23.2 18	20.4+) 18*)
3	08.12.93	10 / 1 20 / 4	51.5 - 53.7 - 54.8 55	53.3+) 55*)
4	14.12.93	10 / 1 20 / 4	70.4 - 76.9 - 74.1 85	73.8+) 85*)
5	01.12.93	10 / 1 20 / 4	97.0 - 105.3 - 111.4 105	104.6+) 105*)
6	30.11.93	10 / 1 10 / 4	408.0 - 405.4 - 417.4 390	410.3+) 390*)

n.a.: not applicable
+) chemically-analytically (HPLC) determined
*) gravimetrically determined

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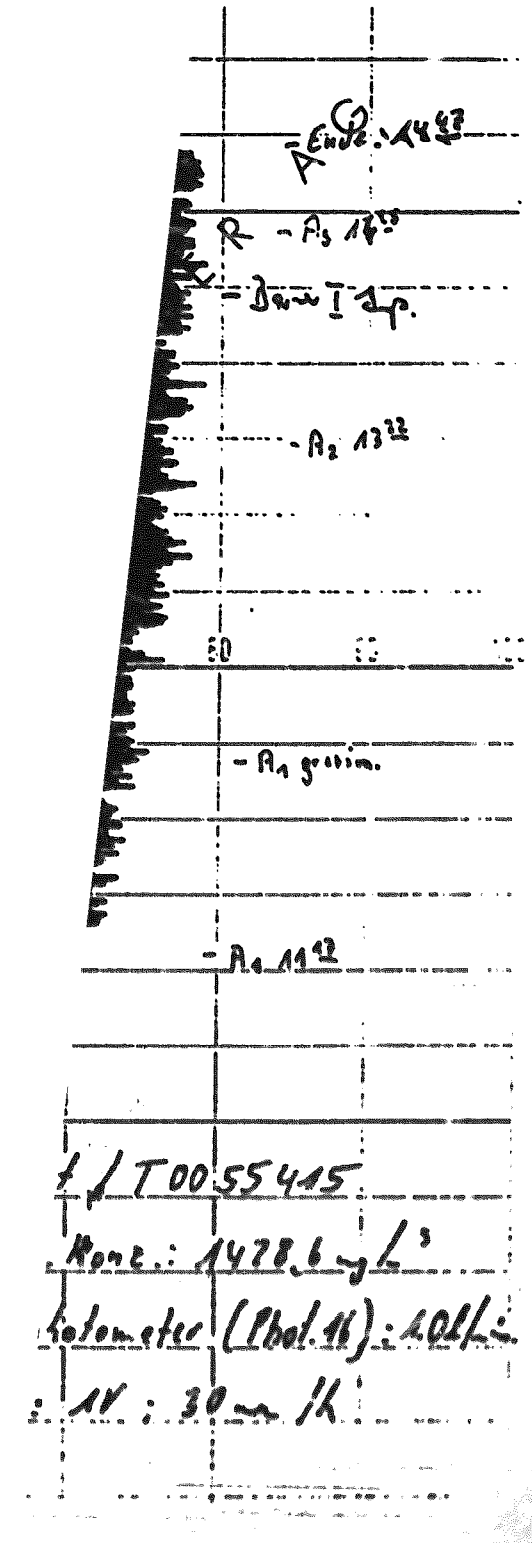
orondiisocyanat



Example of chamber temperature and humidity measurement

Group no. 6; actual concentration = 410.3 mg/m³ of the test substance.

Date: 30.11.93 Start: 10.47 End: 14.47

Time [h.m]	Temperature [°C]	rel. Humidity [%]
10.50	21.7	24.7
11.00	21.7	20.8
11.10	21.7	16.7
11.20	21.5	14.9
11.30	21.7	14.1
11.40	21.7	13.1
11.50	21.7	12.1
12.00	21.7	11.7
12.10	21.7	10.9
12.20	21.6	10.4
12.30	21.7	9.5
12.40	22.0	9.5
12.50	22.0	9.1
13.00	22.1	8.8
13.10	22.1	7.6
13.20	22.0	7.3
13.30	22.1	7.1
13.40	22.1	6.5
13.50	21.8	6.0
14.00	21.8	5.6
14.10	22.1	5.6
14.20	21.8	4.9
14.30	22.1	4.0
14.40	22.1	3.5
Mean	21.9	10.2
Std.	.2	5.2

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Characterization of particle size distribution

Group no. 2; actual concentration = 20.4 mg/m³ of the test substance.

ANALYSIS OF PARTICLE DISTRIBUTIONS

Type of investigation: Acute Inhalation - Aerosol

Compound: ISOPHORONDIISOCYANAT

Date of exposure: 07.12.1993 Study-no.: T0055415

N	Impactor stage (µm - µm)	Cut-Off diameter (µm)	Mass/ stage (mg)	Rel. mass (%)	Cumul. mass (%)
1	0.06 - 0.12	0.06	.000	.00	.00
2	0.12 - 0.25	0.12	.005	.27	.00
3	0.25 - 0.49	0.25	.026	1.39	.27
4	0.49 - 0.90	0.49	.201	10.74	1.66
5	0.90 - 1.85	0.90	1.017	54.36	12.40
6	1.85 - 3.69	1.85	.494	26.40	66.76
7	3.69 - 7.42	3.69	.092	4.92	93.16
8	7.42 - 14.8	7.42	.036	1.92	98.08
9	14.8 - 30.	14.8	.000	.00	100.00

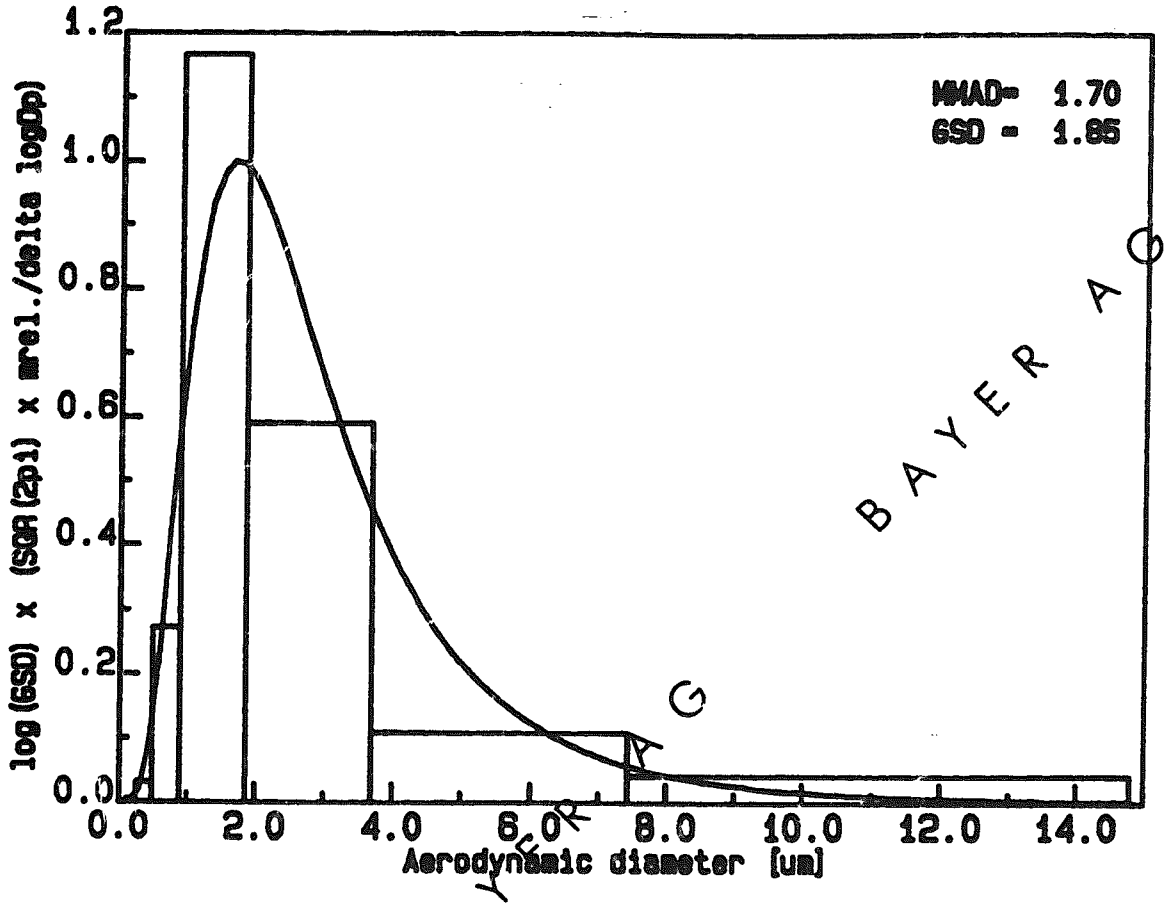
Mass Median Aerodynamic Diameter (MMAD): 1.70 µm
Geometric standard deviation: 1.85

Number Median Aerodynamic Diameter (NMAD): .544 µm
Surface Median Aerodynamic Diameter (SMAD): 1.16 µm

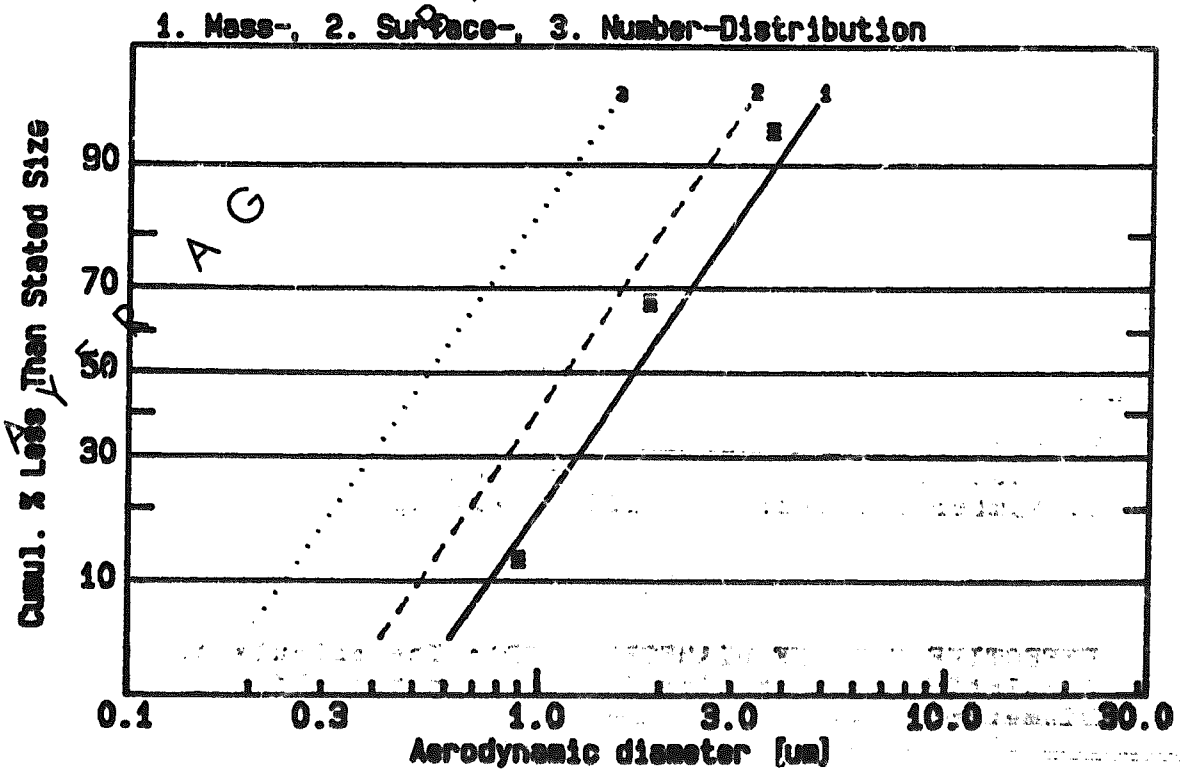
System: BERNER-IMPACTOR I
Air flow: 5.45 liter/min.
Sampling time: 1200.00 seconds
Concentration (computed): 17.2 mg per m³ air

Respirability (% ≤ 3 µm):
1. Mass related: 82 % (measured)
2. Number related: 100 % (extrapolated)

EFFECTIVE CUT-OFF DIAMETER (ECD): The calculation of the cumulative distribution is based on the 'Effective Cut-Off Diameter'.


MMAD= 1.70
GSD = 1.85
log (GSD) x (SQR(2pi) x mrel./delta logDp)
Aerodynamic diameter [um]
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0

07.12.1993


1. Mass-, 2. Surface-, 3. Number-Distribution
Cumul. % Less Than Stated Size
Aerodynamic diameter [um]
90
70
50
30
10
0.1
0.3
1.0
3.0
10.0
30.0

Group no. 3; actual concentration = 53.3 mg/m³ of the test substance.

ANALYSIS OF PARTICLE DISTRIBUTIONS

Type of investigation: Acute Inhalation - Aerosol

Compound: Isophorondiisocyanat

Date of exposure: 08.12.93 Study-no.: T0055415

N	Impactor stage (µm - µm)	Cut-Off diameter (µm)	Mass/ stage (mg)	Rel. mass (%)	Cumul. mass (%)
1	0.06 - 0.12	0.06	.000	.00	.00
2	0.12 - 0.25	0.12	.005	.09	.00
3	0.25 - 0.49	0.25	.023	.40	.09
4	0.49 - 0.90	0.49	.615	10.57	.48
5	0.90 - 1.85	0.90	3.161	54.35	11.06
6	1.85 - 3.69	1.85	1.771	30.45	65.41
7	3.69 - 7.42	3.69	.239	4.11	95.86
8	7.42 - 14.8	7.42	.002	.03	99.97
9	14.8 - 30.	14.8	.000	.00	100.00

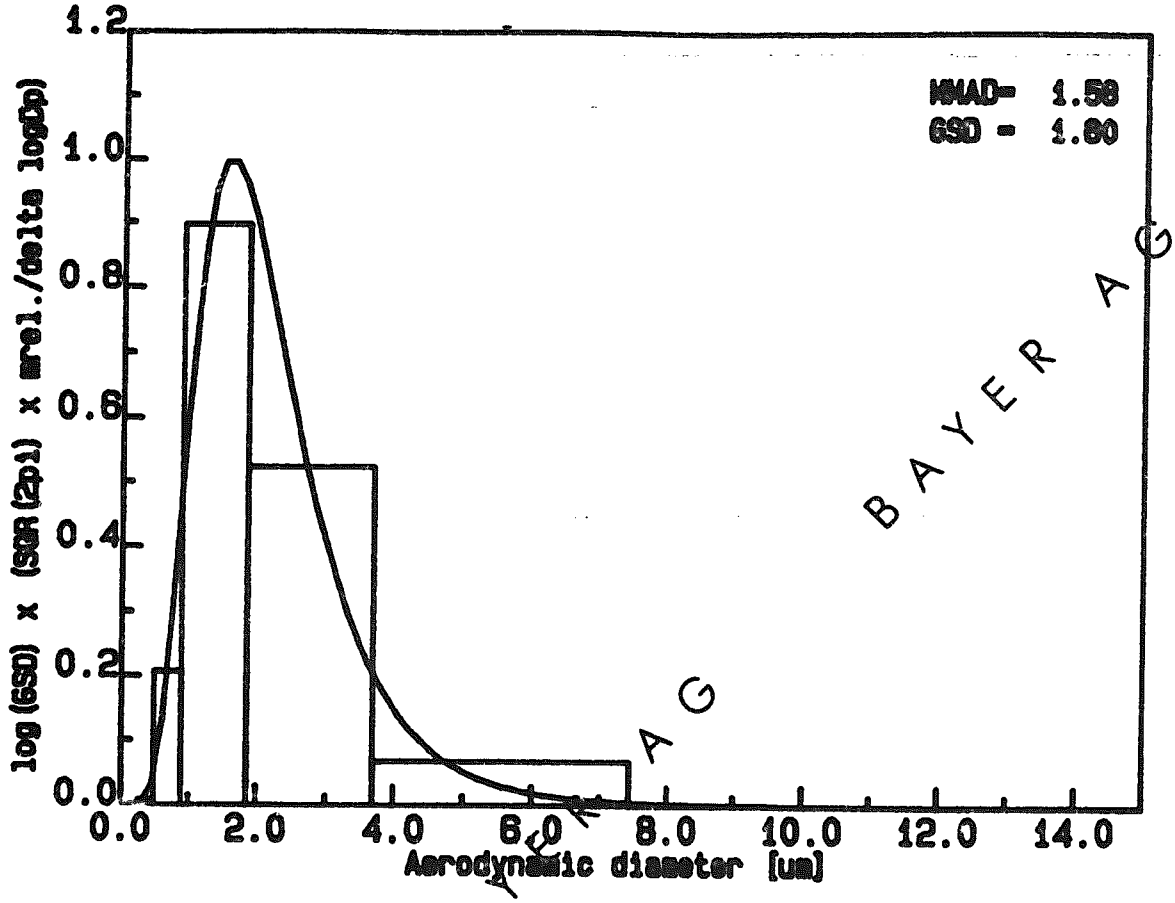
Mass Median Aerodynamic Diameter (MMAD): 1.58 µm
Geometric standard deviation: 1.60

Number Median Aerodynamic Diameter (NMAD): .807 µm
Surface Median Aerodynamic Diameter (SMAD): 1.26 µm

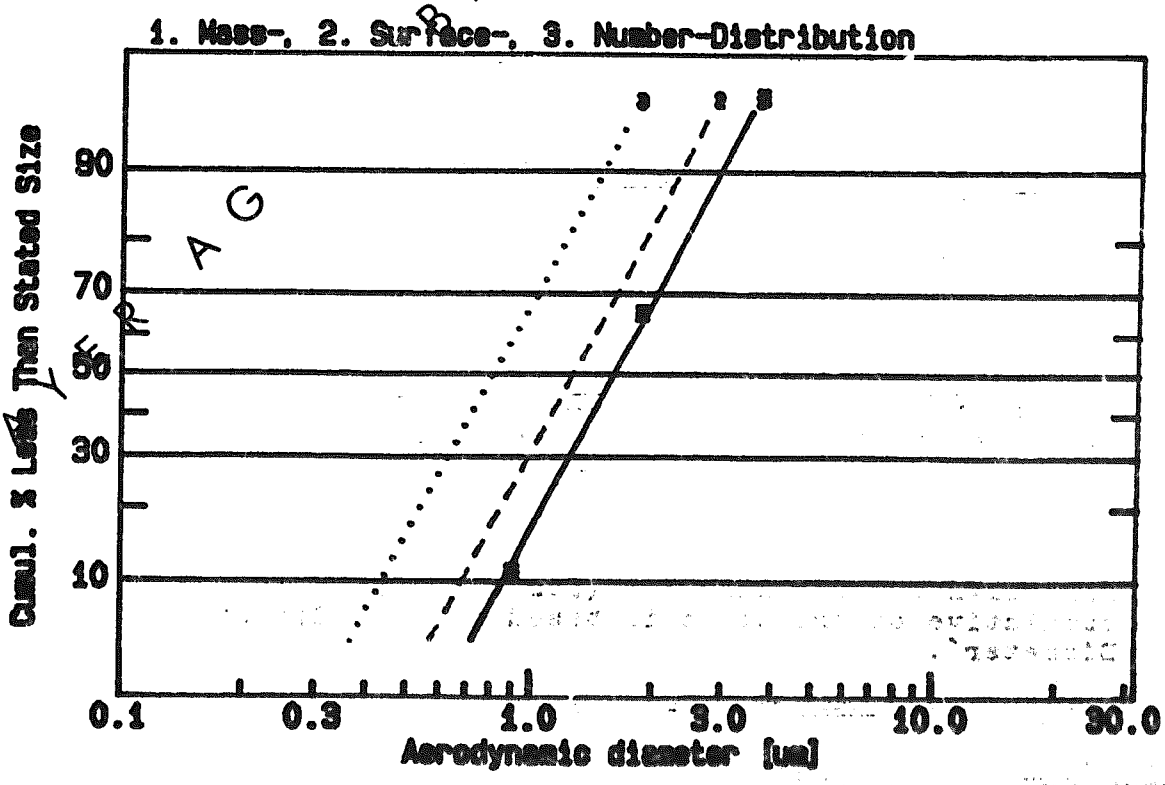
System: BERNER-IMPACTOR I
Air flow: 5.45 liter/min.
Sampling time: 1200.00 seconds
Concentration (computed): 53.4 mg per m³ air

Respirability (% ≤ 3 µm):
1. Mass related: 91 % (measured)
2. Number related: 100 % (extrapolated)

EFFECTIVE CUT-OFF DIAMETER (ECD): The calculation of the cumulative distribution is based on the 'Effective Cut-Off Diameter'.


MMAD= 1.58
GSD = 1.80
log (GSD) x (SQR(2pi) x mrel./delta logDp)
Aerodynamic diameter [um]
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0

08.12.83


1. Mass-, 2. Surface-, 3. Number-Distribution
Cumul. % Less Than Stated Size
Aerodynamic diameter [um]
10
30
50
70
90
0.1
0.3
1.0
3.0
10.0
30.0

Group no. 4; actual concentration = 73.8 mg/m³ of the test substance.

ANALYSIS OF PARTICLE DISTRIBUTIONS

Type of investigation: Acute Inhalation - Aerosol

Compound: ISOPHORONDIISOCYANAT

Date of exposure: 14.12.1993 Study-no.: T0055415

N	Impactor stage (µm - µm)	Cut-Off diameter (µm)	Mass/ stage (mg)	Rel. mass (%)	Cumul. mass (%)
1	0.06 - 0.12	0.06	.000	.00	.00
2	0.12 - 0.25	0.12	.003	.13	.00
3	0.25 - 0.49	0.25	.003	.13	.13
4	0.49 - 0.90	0.49	.245	10.33	.25
5	0.90 - 1.85	0.90	1.213	51.16	10.59
6	1.85 - 3.69	1.85	.793	33.45	61.75
7	3.69 - 7.42	3.69	.102	4.30	95.19
8	7.42 - 14.8	7.42	.012	.51	99.49
9	14.8 - 30.	14.8	.000	.00	100.00

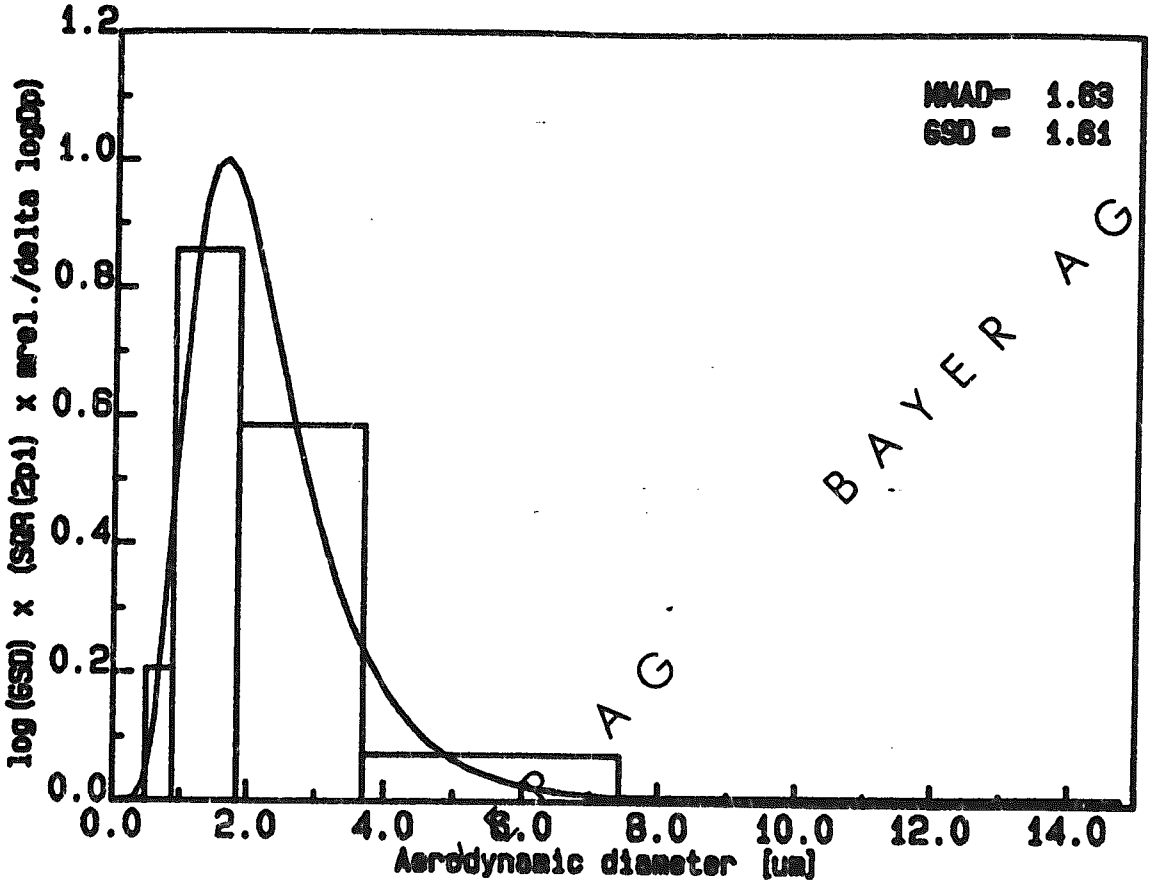
Mass Median Aerodynamic Diameter (MMAD): 1.63 µm
Geometric standard deviation: 1.61

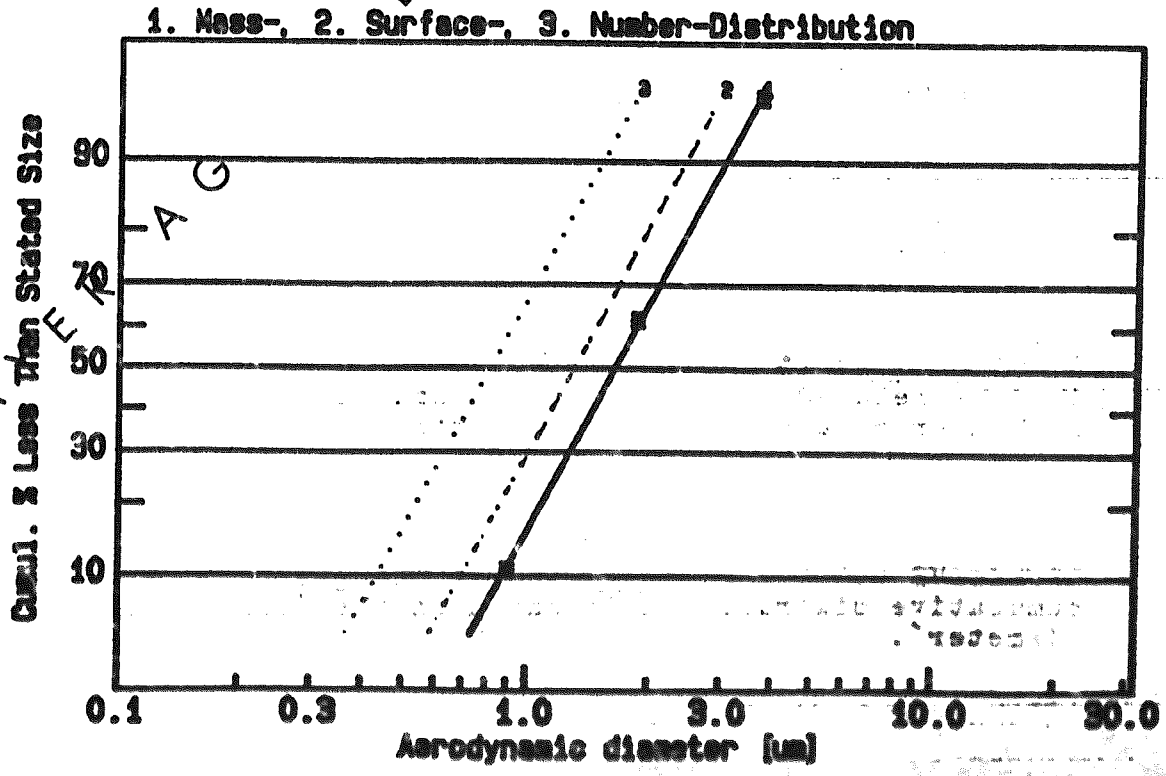
Number Median Aerodynamic Diameter (NMAD): .814 µm
Surface Median Aerodynamic Diameter (SMAD): 1.29 µm

System: BERNER-IMPACTOR I
Air flow: 5.45 liter/min.
Sampling time: 360.00 seconds
Concentration (computed): 72.5 mg per m³ air

Respirability (% ≤ 3 µm):
1. Mass related: 90 % (measured)
2. Number related: 100 % (extrapolated)

EFFECTIVE CUT-OFF DIAMETER (ECD): The calculation of the cumulative distribution is based on the 'Effective Cut-Off Diameter'.





14.12.1983
BAYER AG

Group no. 5; actual concentration = 104.6 mg/m³ of the test substance.

ANALYSIS OF PARTICLE DISTRIBUTIONS

Type of investigation: Acute Inhalation - Aerosol

Compound: ISOPHORONDIISOCYANAT

Date of exposure: 01.12.1993 Study-no.: T0055415

N	Impactor stage (µm - µm)	Cut-Off diameter (µm)	Mass/ stage (mg)	Rel. mass (%)	Cumul. mass (%)
1	0.06 - 0.12	0.06	.000	.00	.00
2	0.12 - 0.25	0.12	.001	.07	.00
3	0.25 - 0.49	0.25	.005	.33	.07
4	0.49 - 0.90	0.49	.082	5.36	.39
5	0.90 - 1.85	0.90	.581	37.97	5.75
6	1.85 - 3.69	1.85	.644	42.09	43.73
7	3.69 - 7.42	3.69	.216	14.12	85.82
8	7.42 - 14.8	7.42	.001	.07	99.93
9	14.8 - 30.	14.8	.000	.00	100.00

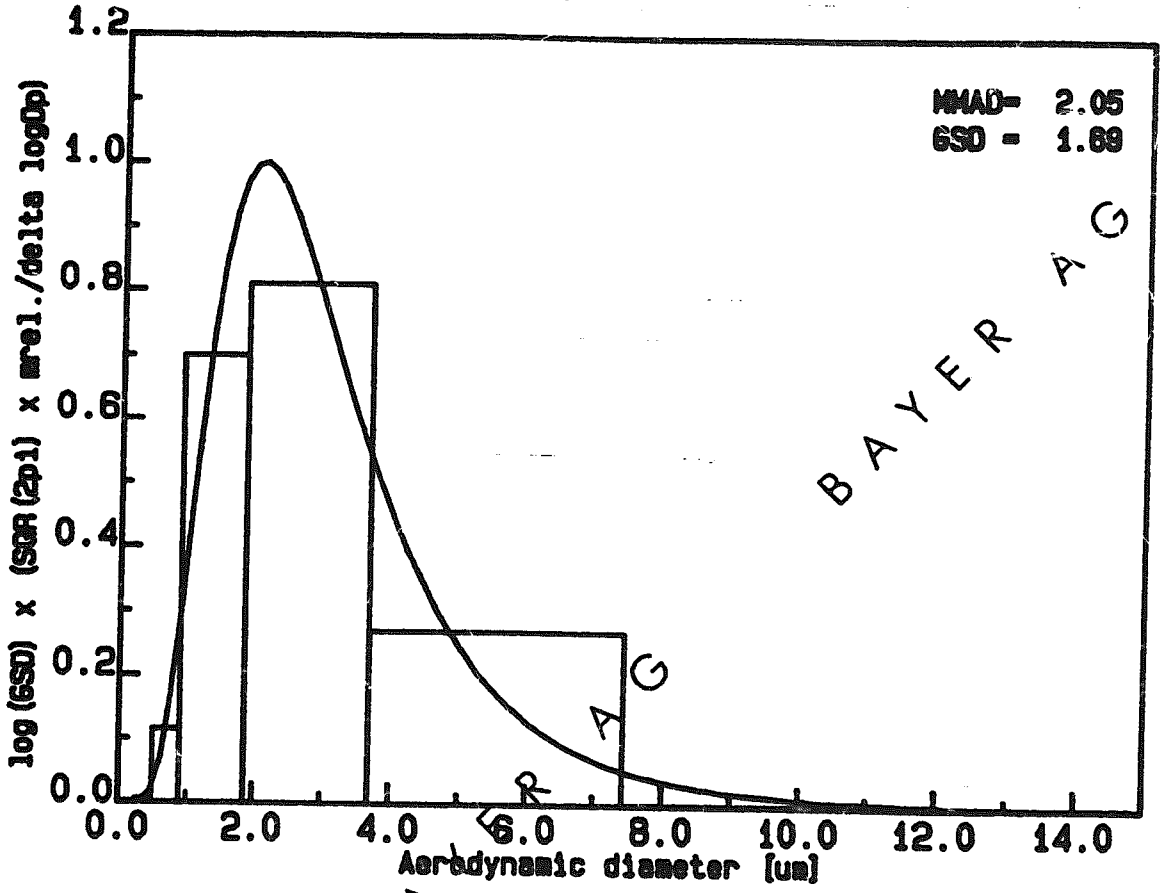
Mass Median Aerodynamic Diameter (MMAD): 2.05 µm
Geometric standard deviation: 1.69

Number Median Aerodynamic Diameter (NMAD): .887 µm
Surface Median Aerodynamic Diameter (SMAD): 1.55 µm

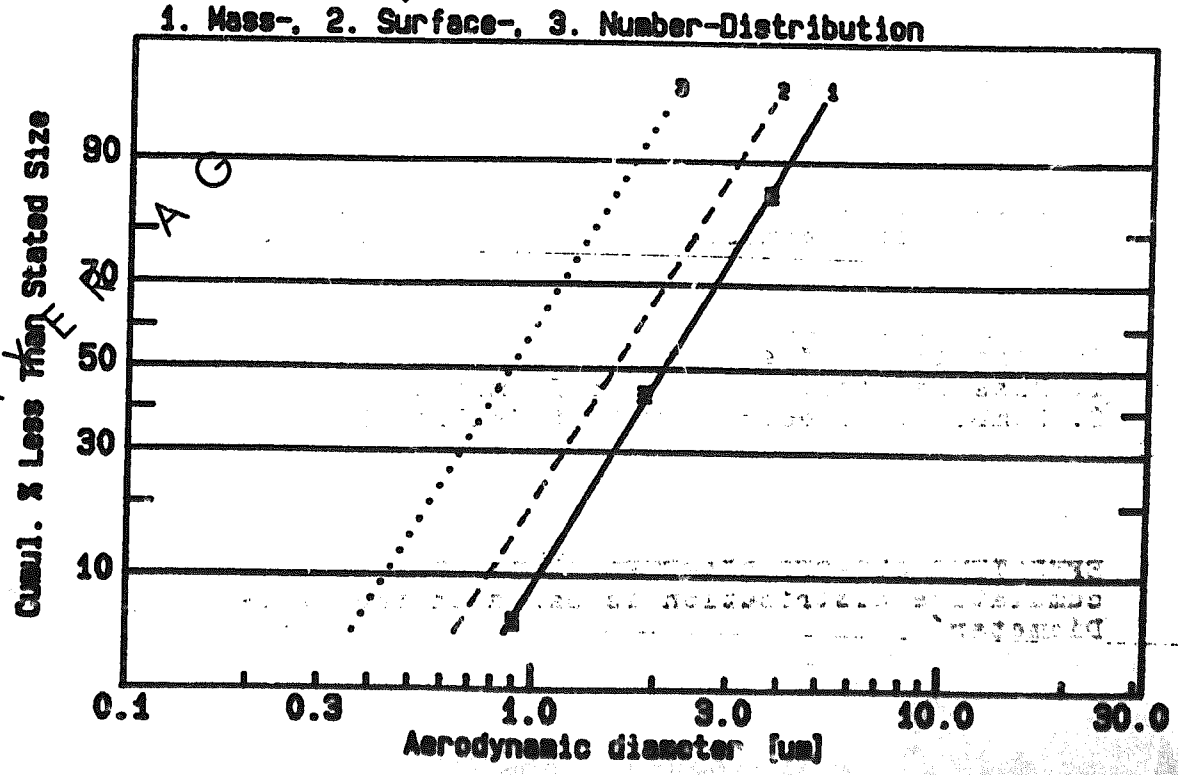
System: BERNER-IMPACTOR I
Air flow: 5.45 liter/min.
Sampling time: 180.00 seconds
Concentration (computed): 93.6 mg per m³ air

Respirability (% ≤ 3 µm):
1. Mass related: 76 % (measured)
2. Number related: 99 % (extrapolated)

EFFECTIVE CUT-OFF DIAMETER (ECD): The calculation of the cumulative distribution is based on the 'Effective Cut-Off Diameter'.


MMAD= 2.05
GSD = 1.69
log (GSD) x (SQR(2pi) x mrel./delta logDp)
Aerodynamic diameter [um]
BAYER AG

01.12.1993


1. Mass-, 2. Surface-, 3. Number-Distribution
Cumul. % Less Than Stated Size
Aerodynamic diameter [um]
BAYER AG

Group no. 6; actual concentration = 410.3 mg/m³ of the test substance.

ANALYSIS OF PARTICLE DISTRIBUTIONS

Type of investigation: Acute Inhalation - Aerosol

Compound: ISOPHORONDIISOCYANAT

Date of exposure: 30.11.93 Study-no.: T0055415

N	Impactor stage (µm - µm)	Cut-Off diameter (µm)	Mass/ stage (mg)	Rel. mass (%)	Cumul. mass (%)
1	0.06 - 0.12	0.06	.000	.00	.00
2	0.12 - 0.25	0.12	.002	.03	.00
3	0.25 - 0.49	0.25	.017	.24	.03
4	0.49 - 0.90	0.49	.652	9.24	.27
5	0.90 - 1.85	0.90	2.529	35.83	9.51
6	1.85 - 3.69	1.85	2.843	40.28	45.34
7	3.69 - 7.42	3.69	.962	13.63	85.62
8	7.42 - 14.8	7.42	.053	.75	99.25
9	14.8 - 30.	14.8	.000	.00	100.00

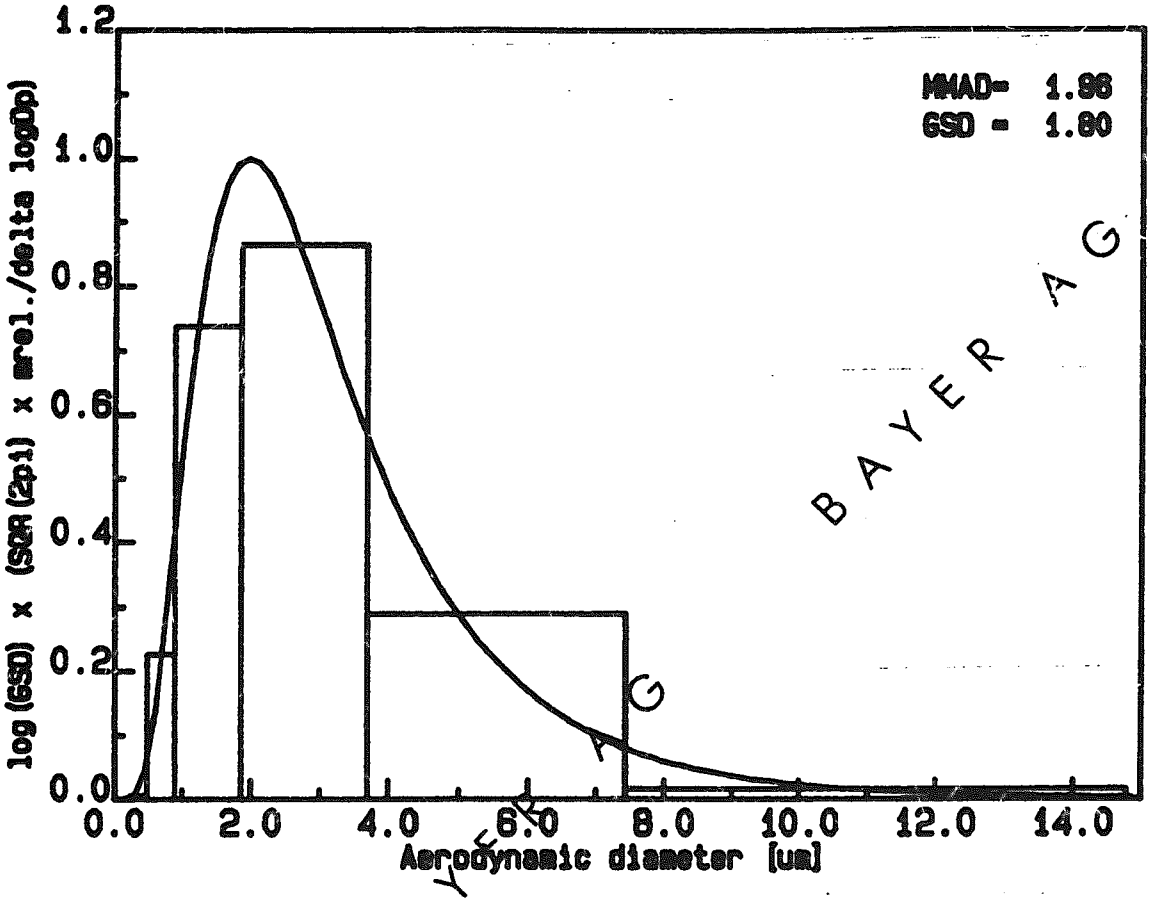
Mass Median Aerodynamic Diameter (MMAD): 1.96 µm
Geometric standard deviation: 1.80

Number Median Aerodynamic Diameter (NMAD): .689 µm
Surface Median Aerodynamic Diameter (SMAD): 1.38 µm

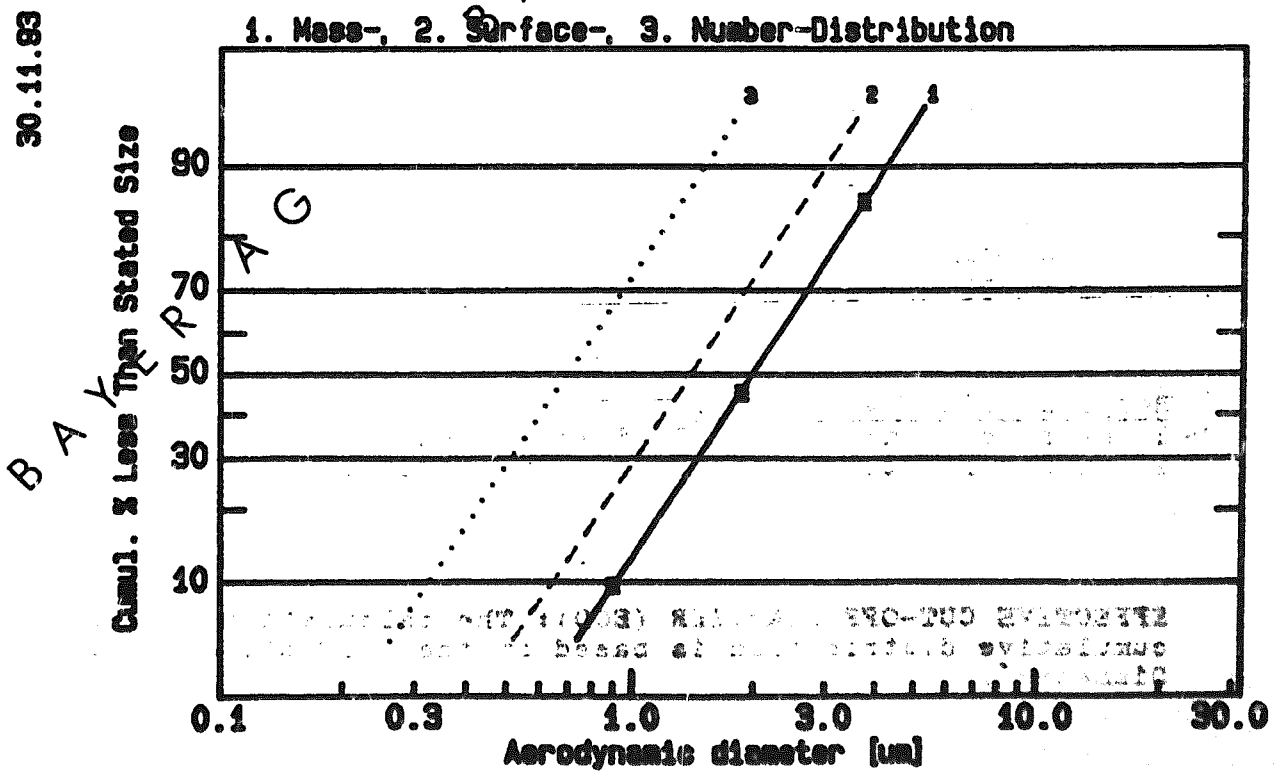
System: BERNER-IMPACTOR I
Air flow: 5.45 liter/min.
Sampling time: 180.00 seconds
Concentration (computed): 431.7 mg per m³ air

Respirability (% ≤ 3 µm):
1. Mass related: 77 % (measured)
2. Number related: 100 % (extrapolated)

EFFECTIVE CUT-OFF DIAMETER (ECD): The calculation of the cumulative distribution is based on the 'Effective Cut-Off Diameter'.


MMAD= 1.96
GSD = 1.80
log (GSD) x (SQR (2pi) x mrel./delta logDp)
Aerodynamic diameter [um]
BAYER AG

30.11.83


1. Mass-, 2. Surface-, 3. Number-Distribution
Cumul. % Less Than Stated Size
Aerodynamic diameter [um]
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Koerpergewichte / body weights

I: Expositionstag / exposure day
II: 3. Nachbeobachtungstag / 3rd observation day
III: nach 1 Woche / after 1 week
IV: nach 2 Wochen / after 2 weeks
V: nach 3 Wochen / after 3 weeks
VI: nach 4 Wochen / after 4 weeks
No.: Tier-Nummer / animal number

Konzentration/concentration: 0 mg/m3 air
Gruppe/group: 1 - sex: MALE

No.	I	II	III	IV	V	VI
1	192.0	200.0	222.0	268.0	301.0	319.0
2	200.0	207.0	232.0	282.0	314.0	339.0
3	183.0	192.0	217.0	269.0	310.0	345.0
4	198.0	214.0	242.0	295.0	332.0	369.0
5	194.0	203.0	228.0	269.0	301.0	327.0
MEAN	193.4	203.2	228.2	276.6	311.6	339.8
STD	6.6	8.2	9.6	11.8	12.7	19.2

Alle Gewichte in g / all weights in g

Konzentration/concentration: 20.4 mg/m3 air
Gruppe/group: 2 - sex: MALE

No.	I	II	III	IV	V	VI
41	210.0	207.0	229.0	262.0	290.0	313.0
42	206.0	199.0	224.0	273.0	304.0	325.0
43	200.0	202.0	226.0	271.0	302.0	329.0
44	209.0	186.0	203.0	253.0	270.0	301.0
45	207.0	202.0	222.0	255.0	277.0	305.0
MEAN	206.4	199.2	220.8	262.8	288.6	314.6
STD	3.9	7.9	10.3	9.1	15.0	12.2

Alle Gewichte in g / all weights in g

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Koerpergewichte / body weights

I: Expositionstag / exposure day
II: 3. Nachbeobachtungstag / 3rd observation day
III: nach 1 Woche / after 1 week
IV: nach 2 Wochen / after 2 weeks
V: nach 3 Wochen / after 3 weeks
VI: nach 4 Wochen / after 4 weeks
No.: Tier-Nummer / animal number

Konzentration/concentration: 53.3 mg/m3 air
Gruppe/group: 3 - sex: MALE

No.	I	II	III	IV	V	VI
51	175.0	165.0	171.0	191.0	229.0	258.0
52	172.0	155.0	155.0	119.0	111.0	+
53	175.0	144.0	153.0	145.0	183.0	228.0
54	172.0	152.0	153.0	135.0	+	--
55	180.0	156.0	146.0	126.0	+	--
MEAN	174.8	154.4	155.6	143.2	174.3	243.0
STD	3.3	7.6	9.3	28.4	59.5	21.2

+ = Tier gestorben / animal died
Alle Gewichte in g / all weights in g

Konzentration/concentration: 73.8 mg/m3 air
Gruppe/group: 4 - sex: MALE

No.	I	II	III	IV	V	VI
61	188.0	157.0	151.0	+	--	--
62	184.0	151.0	157.0	+	--	--
63	188.0	+	--	--	--	--
64	196.0	+	--	--	--	--
65	188.0	165.0	149.0	+	--	--
MEAN	188.8	157.7	152.3			
STD	4.4	7.0	4.2			

+ = Tier gestorben / animal died
Alle Gewichte in g / all weights in g

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Koerpergewichte / body weights

I: Expositionstag / exposure day
II: 3. Nachbeobachtungstag / 3rd observation day
III: nach 1 Woche / after 1 week
IV: nach 2 Wochen / after 2 weeks
V: nach 3 Wochen / after 3 weeks
VI: nach 4 Wochen / after 4 weeks
No.: Tier-Nummer / animal number

Konzentration/concentration: 104.6 mg/m3 air
Gruppe/group: 5 - sex: MALE

No.	I	II	III	IV	V	VI
31	209.0	178.0	161.0	+	--	--
32	197.0	+	--	--	--	--
33	203.0	170.0	178.0	+	--	--
34	206.0	+	--	--	--	--
35	193.0	+	--	--	--	--
MEAN	201.6	174.0	169.5			
STD	6.5	5.7	12.0			

+ = Tier gestorben / animal died
Alle Gewichte in g / all weights in g

Konzentration/concentration: 410.3 mg/m3 air
Gruppe/group: 6 - sex: MALE

No.	I	II	III	IV	V	VI
21	195.0	+	--	--	--	--
22	199.0	+	--	--	--	--
23	186.0	+	--	--	--	--
24	183.0	+	--	--	--	--
25	198.0	+	--	--	--	--
MEAN	192.2					
STD	7.3					

+ = Tier gestorben / animal died
Alle Gewichte in g / all weights in g

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ONE-WAY ANALYSIS OF VARIANCE OF BODY WEIGHT GAIN

ANALYSIS OF B.W. DATA FOR MALE - OBSERVATION-No.: 1- 2

Group-No.: 1 / 0 mg/m3 air
8.0 7.0 9.0 16.0 9.0
MEDIAN= 9.0 MEAN= 9.8 STD= 3.6

Group-No.: 2 / 20.4 mg/m3 air
-3.0 -7.0 2.0 -23.0 -5.0
MEDIAN= -5.0 MEAN= -7.2 STD= 9.4

Group-No.: 3 / 53.3 mg/m3 air
-10.0 -17.0 -31.0 -20.0 -24.0
MEDIAN=-20.0 MEAN=-20.4 STD= 7.8

Group-No.: 4 / 73.8 mg/m3 air
-31.0 -33.0 -23.0
MEDIAN=-31.0 MEAN=-29.0 STD= 5.3

Group-No.: 5 / 104.6 mg/m3 air
-31.0 -33.0
MEDIAN=-32.0 MEAN=-32.0 STD= 1.4

Group: 5 HAS LESS THAN 3 OBSERVATIONS,OMITTED FROM BOX'S TEST

BOX'S TEST FOR HOMOGENEITY OF VARIANCES AT P=.05000 LEVEL

CALCULATED F	D.F.'S	PROBABILITY
1.0882	3 & 292.	.3547

HOMOGENEOUS VARIANCES (ONE-TAILED TEST)

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	4511.	4	1127.8	23.800	.000
ERROR	710.8	15	47.387		
TOTAL	5222.	19			

OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL

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GAMES AND HOWELL MODIFICATION OF
TUKEY-KRAMER'S HONESTLY SIGNIFICANT DIFFERENCE TEST
(WITH THE STUDENTIZED RANGE STATISTIC)

GROUPS COMPARED	CALCULATED TEST VALUE	DEGREES OF FREEDOM	PROBABILITY	CONCLUSION
5. % ONE-TAILED TEST				
1 AND 2	-5.33	5	.0631	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 2	5.33	5	.0631	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 3	-11.10	6	.0010	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 3	11.10	6	.0010	SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 4	-15.92	3	.0001	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 4	15.92	3	.0001	SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 5	-31.42	5	.0000	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 5	31.42	5	.0000	SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 3	-3.40	8	.2071	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 3	3.40	8	.2071	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 4	-5.91	6	.0314	SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 4	5.91	6	.0314	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 5	-8.08	4	.0211	SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 5	8.08	4	.0211	SIGNIFICANT
5. % ONE-TAILED TEST				
3 AND 4	-2.62	6	.4273	NOT SIGNIFICANT
5. % TWO-TAILED TEST				

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3 AND 4	2.62	6	.4273	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
3 AND 5	-4.51	5	.1120	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
3 AND 5	4.51	5	.1120	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
4 AND 5	-1.32	2	.8658	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
4 AND 5	1.32	2	.8658	NOT SIGNIFICANT

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ONE-WAY ANALYSIS OF VARIANCE OF BODY WEIGHT GAIN

ANALYSIS OF B.W. DATA FOR MALE - OBSERVATION-No.: 2- 3

Group-No.: 1 / 0 mg/m3 air
22.0 25.0 25.0 28.0 25.0
MEDIAN= 25.0 MEAN= 25.0 STD= 2.1

Group-No.: 2 / 20.4 mg/m3 air
22.0 25.0 24.0 17.0 20.0
MEDIAN= 22.0 MEAN= 21.6 STD= 3.2

Group-No.: 3 / 53.3 mg/m3 air
6.0 .0 9.0 1.0 -10.0
MEDIAN= 1.0 MEAN= 1.2 STD= 7.3

Group-No.: 4 / 73.8 mg/m3 air
-6.0 6.0 -16.0
MEDIAN= -6.0 MEAN= -5.3 STD= 11.0

Group-No.: 5 / 104.6 mg/m3 air
-17.0 8.0
MEDIAN= -4.5 MEAN= -4.5 STD= 17.7

Group: 5 HAS LESS THAN 3 OBSERVATIONS,OMITTED FROM BOX'S TEST

BOX'S TEST FOR HOMOGENEITY OF VARIANCES AT P=.05000 LEVEL

CALCULATED F	D.F.'S	PROBABILITY
2.8885	3 & 292.	.0351

HETEROGENEOUS VARIANCES (ONE-TAILED TEST)

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	3301.	4	825.26	15.002	.000
ERROR	825.2	15	55.011		
TOTAL	4126.	19			

OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL

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GAMES AND HOWELL MODIFICATION OF
TUKEY-KRAMER'S HONESTLY SIGNIFICANT DIFFERENCE TEST
(WITH THE STUDENTIZED RANGE STATISTIC)

GROUPS COMPARED	CALCULATED TEST VALUE	DEGREES OF FREEDOM	PROBABILITY	CONCLUSION
5. % ONE-TAILED TEST				
1 AND 2	-2.79	7	.3636	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 2	2.79	7	.3636	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 3	-9.95	5	.0043	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 3	9.95	5	.0043	SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 4	-6.67	2	.1250	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 4	6.67	2	.1250	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 5	-3.33	1	.4768	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 5	3.33	1	.4768	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 3	-8.13	6	.0069	SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 3	8.13	6	.0069	SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 4	-5.84	2	.1582	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 4	5.84	2	.1582	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 5	-2.93	1	.5271	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 5	2.93	1	.5271	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
3 AND 4	-1.29	3	.8757	NOT SIGNIFICANT
5. % TWO-TAILED TEST				

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3 AND 4	1.29	3	.8757	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
3 AND 5	-.62	1	.9179	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
3 AND 5	.62	1	.9179	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
4 AND 5	.08	2	1.0034	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
4 AND 5	.08	2	1.0034	NOT SIGNIFICANT

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ONE-WAY ANALYSIS OF VARIANCE OF BODY WEIGHT GAIN

ANALYSIS OF B.W. DATA FOR MALE - OBSERVATION-No.: 3- 4

Group-No.: 1 / 0 mg/m3 air
46.0 50.0 52.0 53.0 41.0
MEDIAN= 50.0 MEAN= 48.4 STD= 4.9

Group-No.: 2 / 20.4 mg/m3 air
33.0 49.0 45.0 50.0 33.0
MEDIAN= 45.0 MEAN= 42.0 STD= 8.4

Group-No.: 3 / 53.3 mg/m3 air
20.0 -36.0 -8.0 -18.0 20.0
MEDIAN=-18.0 MEAN=-12.4 STD= 20.7

BOX'S TEST FOR HOMOGENEITY OF VARIANCES AT P=.05000 LEVEL

CALCULATED F	D.F.'S	PROBABILITY
3.6145	2 & 324.	.0272

HETEROGENEOUS VARIANCES (ONE-TAILED TEST)

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	1.116E+04	2	5580.8	31.945	.000
ERROR	2096.	12	174.70		
TOTAL	1.326E+04	14			

OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL

BAYER AG

GAMES AND HOWELL MODIFICATION OF
TUKEY-KRAMER'S HONESTLY SIGNIFICANT DIFFERENCE TEST
(WITH THE STUDENTIZED RANGE STATISTIC)

GROUPS COMPARED	CALCULATED TEST VALUE	DEGREES OF FREEDOM	PROBABILITY	CONCLUSION
5. % ONE-TAILED TEST				
1 AND 2	-2.07	6	.3697	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 2	2.07	6	.3697	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 3	-9.03	4	.0064	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 3	9.03	4	.0064	SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 3	-7.69	5	.0066	SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 3	7.69	5	.0066	SIGNIFICANT

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ONE-WAY ANALYSIS OF VARIANCE OF BODY WEIGHT GAIN

ANALYSIS OF B.W. DATA FOR MALE - OBSERVATION-No.: 4- 5

Group-No.: 1 / 0 mg/m3 air
33.0 32.0 41.0 37.0 32.0
MEDIAN= 33.0 MEAN= 35.0 STD= 3.9

Group-No.: 2 / 20.4 mg/m3 air
28.0 31.0 31.0 17.0 22.0
MEDIAN= 28.0 MEAN= 25.8 STD= 6.1

Group-No.: 3 / 53.3 mg/m3 air
38.0 -8.0 38.0
MEDIAN= 38.0 MEAN= 22.7 STD= 26.6

BOX'S TEST FOR HOMOGENEITY OF VARIANCES AT P=.05000 LEVEL

CALCULATED F	D.F.'S	PROBABILITY
5.6313	2 & 178.	.0046

HETEROGENEOUS VARIANCES (ONE-TAILED TEST)

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	349.6	2	174.81	1.077	.379
ERROR	1623.	10	162.35		
TOTAL	1973.	12			

NO OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL
NO STATISTICAL DIFFERENCE BETWEEN THE GROUPS

BAYER AG

ONE-WAY ANALYSIS OF VARIANCE OF BODY WEIGHT GAIN

ANALYSIS OF B.W. DATA FOR MALE - OBSERVATION-No.: 5- 6

Group-No.: 1 / 0 mg/m3 air
18.0 25.0 35.0 37.0 26.0
MEDIAN= 26.0 MEAN= 28.2 STD= 7.8

Group-No.: 2 / 20.4 mg/m3 air
23.0 21.0 27.0 31.0 28.0
MEDIAN= 27.0 MEAN= 26.0 STD= 4.0

Group-No.: 3 / 53.3 mg/m3 air
29.0 45.0
MEDIAN= 37.0 MEAN= 37.0 STD= 11.3

Group: 3 HAS LESS THAN 3 OBSERVATIONS,OMITTED FROM BOX'S TEST
NOT ENOUGH GROUPS FOR BOX'S TEST

CALCULATED F	DEG. OF FREEDOM	PROBABILITY
3.7937	4. & 4	.1133

HOMOGENEITY OF VARIANCES

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	175.5	2	87.725	1.816	.217
ERROR	434.8	9	48.311		
TOTAL	610.3	11			

NO OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL
NO STATISTICAL DIFFERENCE BETWEEN THE GROUPS

BAYER AG

Koerpergewichte / body weights

I: Expositionstag / exposure day
II: 3. Nachbeobachtungstag / 3rd observation day
III: nach 1 Woche / after 1 week
IV: nach 2 Wochen / after 2 weeks
V: nach 3 Wochen / after 3 weeks
VI: nach 4 Wochen / after 4 weeks
No.: Tier-Nummer / animal number

Konzentration/concentration: 0 mg/m3 air
Gruppe/group: 1 - sex: FEMALE

No.	I	II	III	IV	V	VI
6	163.0	170.0	175.0	185.0	193.0	198.0
7	155.0	161.0	165.0	172.0	177.0	182.0
8	161.0	169.0	171.0	174.0	176.0	180.0
9	170.0	173.0	180.0	183.0	192.0	196.0
10	174.0	178.0	187.0	199.0	207.0	215.0
MEAN	164.6	170.2	175.6	182.6	189.0	194.2
STD	7.5	6.2	8.4	10.7	12.9	14.1

Alle Gewichte in g / all weights in g

Konzentration/concentration: 20.4 mg/m3 air
Gruppe/group: 2 - sex: FEMALE

No.	I	II	III	IV	V	VI
46	183.0	182.0	184.0	193.0	195.0	206.0
47	179.0	166.0	167.0	185.0	191.0	200.0
48	198.0	197.0	202.0	211.0	215.0	232.0
49	183.0	173.0	180.0	189.0	195.0	209.0
50	179.0	170.0	172.0	184.0	186.0	193.0
MEAN	183.2	177.6	181.0	192.4	196.4	208.0
STD	9.2	12.3	13.5	11.0	11.0	14.7

Alle Gewichte in g / all weights in g

BAYER AG

Koerpergewichte / body weights

I: Expositionstag / exposure day
II: 3. Nachbeobachtungstag / 3rd observation day
III: nach 1 Woche / after 1 week
IV: nach 2 Wochen / after 2 weeks
V: nach 3 Wochen / after 3 weeks
VI: nach 4 Wochen / after 4 weeks
No.: Tier-Nummer / animal number

Konzentration/concentration: 53.3 mg/m3 air
Gruppe/group: 3 - sex: FEMALE

No.	I	II	III	IV	V	VI
56	168.0	160.0	168.0	174.0	183.0	193.0
57	177.0	148.0	156.0	139.0	+	--
58	174.0	151.0	143.0	161.0	172.0	175.0
59	170.0	155.0	148.0	+	--	--
60	168.0	144.0	137.0	118.0	114.0	+
MEAN	171.4	151.6	150.4	148.0	156.3	184.0
STD	4.0	6.2	12.1	24.7	37.1	12.7

+ = Tier gestorben / animal died
Alle Gewichte in g / all weights in g

Konzentration/concentration: 73.8 mg/m3 air
Gruppe/group: 4 - sex: FEMALE

No.	I	II	III	IV	V	VI
66	175.0	141.0	+	--	--	--
67	185.0	+	--	--	--	--
68	173.0	151.0	+	--	--	--
69	189.0	+	--	--	--	--
70	182.0	153.0	141.0	+	--	--
MEAN	180.6	148.3	141.0			
STD	6.4	6.4	.0			

+ = Tier gestorben / animal died
Alle Gewichte in g / all weights in g

BAYER AG

Koerpergewichte / body weights

I: Expositionstag / exposure day
II: 3. Nachbeobachtungstag / 3rd observation day
III: nach 1 Woche / after 1 week
IV: nach 2 Wochen / after 2 weeks
V: nach 3 Wochen / after 3 weeks
VI: nach 4 Wochen / after 4 weeks
No.: Tier-Nummer / animal number

Konzentration/concentration: 104.6 mg/m3 air
Gruppe/group: 5 - sex: FEMALE

No.	I	II	III	IV	V	VI
36	177.0	+	--	--	--	--
37	190.0	+	--	--	--	--
38	182.0	+	--	--	--	--
39	183.0	157.0	151.0	131.0	+	--
40	179.0	+	--	--	--	--
MEAN	182.2	157.0	151.0	131.0		
STD	5.0	.0	.0	.0		

+ = Tier gestorben / animal died
Alle Gewichte in g / all weights in g

Konzentration/concentration: 410.3 mg/m3 air
Gruppe/group: 6 - sex: FEMALE

No.	I	II	III	IV	V	VI
26	175.0	+	--	--	--	--
27	180.0	+	--	--	--	--
28	178.0	+	--	--	--	--
29	177.0	+	--	--	--	--
30	178.0	+	--	--	--	--
MEAN	177.6					
STD	1.8					

+ = Tier gestorben / animal died
Alle Gewichte in g / all weights in g

BAYER AG

ONE-WAY ANALYSIS OF VARIANCE OF BODY WEIGHT GAIN

ANALYSIS OF B.W. DATA FOR FEMALE- OBSERVATION-No.: 1- 2

Group-No.: 1 / 0 mg/m3 air
7.0 6.0 8.0 3.0 4.0
MEDIAN= 6.0 MEAN= 5.6 STD= 2.1

Group-No.: 2 / 20.4 mg/m3 air
-1.0 -13.0 -1.0 -10.0 -3.0
MEDIAN= -3.0 MEAN= -5.6 STD= 5.5

Group-No.: 3 / 53.3 mg/m3 air
-8.0 -29.0 -23.0 -15.0 -24.0
MEDIAN=-23.0 MEAN=-19.8 STD= 8.3

Group-No.: 4 / 73.8 mg/m3 air
-34.0 -22.0 -29.0
MEDIAN=-29.0 MEAN=-28.3 STD= 6.0

BOX'S TEST FOR HOMOGENEITY OF VARIANCES AT P=.05000 LEVEL

CALCULATED F	D.F.'S	PROBABILITY
1.8036	3 & 292.	.1450

HOMOGENEOUS VARIANCES (ONE-TAILED TEST)

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	2801.	3	933.75	26.795	.000
ERROR	487.9	14	34.848		
TOTAL	3289.	17			

OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL

BAYER AG

GAMES AND HOWELL MODIFICATION OF
TUKEY-KRAMER'S HONESTLY SIGNIFICANT DIFFERENCE TEST
(WITH THE STUDENTIZED RANGE STATISTIC)

GROUPS COMPARED	CALCULATED TEST VALUE	DEGREES OF FREEDOM	PROBABILITY	CONCLUSION
5. % ONE-TAILED TEST				
1 AND 2	-5.98	5	.0299	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 2	5.98	5	.0299	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 3	-9.40	4	.0084	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 3	9.40	4	.0084	SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 4	-13.32	2	.0048	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 4	13.32	2	.0048	SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 3	-4.50	7	.0589	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 3	4.50	7	.0589	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 4	-7.52	4	.0203	SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 4	7.52	4	.0203	SIGNIFICANT
5. % ONE-TAILED TEST				
3 AND 4	-2.37	6	.4087	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
3 AND 4	2.37	6	.4087	NOT SIGNIFICANT

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ONE-WAY ANALYSIS OF VARIANCE OF BODY WEIGHT GAIN

ANALYSIS OF B.W. DATA FOR FEMALE- OBSERVATION-No.: 2- 3

Group-No.: 1 / 0 mg/m3 air
5.0 4.0 2.0 7.0 9.0
MEDIAN= 5.0 MEAN= 5.4 STD= 2.7

Group-No.: 2 / 20.4 mg/m3 air
2.0 1.0 5.0 7.0 2.0
MEDIAN= 2.0 MEAN= 3.4 STD= 2.5

Group-No.: 3 / 53.3 mg/m3 air
8.0 8.0 -8.0 -7.0 -7.0
MEDIAN= -7.0 MEAN= -1.2 STD= 8.4

BOX'S TEST FOR HOMOGENEITY OF VARIANCES AT P=.05000 LEVEL

CALCULATED F	D.F.'S		PROBABILITY
3.5124	2 4	324.	.0300

HETEROGENEOUS VARIANCES (ONE-TAILED TEST)

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	114.5	2	57.267	2.038	.172
ERROR	337.2	12	28.100		
TOTAL	451.7	14			

NO OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL
NO STATISTICAL DIFFERENCE BETWEEN THE GROUPS

BAYER AG

ONE-WAY ANALYSIS OF VARIANCE OF BODY WEIGHT GAIN

ANALYSIS OF B.W. DATA FOR FEMALE- OBSERVATION-No.: 3- 4

Group-No.: 1 / 0 mg/m3 air
10.0 7.0 3.0 3.0 12.0
MEDIAN= 7.0 MEAN= 7.0 STD= 4.1

Group-No.: 2 / 20.4 mg/m3 air
9.0 18.0 9.0 9.0 12.0
MEDIAN= 9.0 MEAN= 11.4 STD= 3.9

Group-No.: 3 / 53.3 mg/m3 air
6.0 -17.0 18.0 -19.0
MEDIAN= -5.5 MEAN= -3.0 STD= 18.0

BOX'S TEST FOR HOMOGENEITY OF VARIANCES AT P=.05000 LEVEL

CALCULATED F	D.F.'S	PROBABILITY
5.1428	2 & 261.	.0067

HETEROGENEOUS VARIANCES (ONE-TAILED TEST)

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	473.7	2	236.83	2.366	.139
ERROR	1101.	11	100.11		
TOTAL	1575.	13			

NO OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL
NO STATISTICAL DIFFERENCE BETWEEN THE GROUPS

BAYER AG

ONE-WAY ANALYSIS OF VARIANCE OF BODY WEIGHT GAIN

ANALYSIS OF B.W. DATA FOR FEMALE- OBSERVATION-No.: 4- 5

Group-No.: 1 / 0 mg/m3 air
8.0 5.0 2.0 9.0 8.0
MEDIAN= 8.0 MEAN= 6.4 STD= 2.9

Group-No.: 2 / 20.4 mg/m3 air
2.0 6.0 4.0 6.0 2.0
MEDIAN= 4.0 MEAN= 4.0 STD= 2.0

Group-No.: 3 / 53.3 mg/m3 air
9.0 11.0 -4.0
MEDIAN= 9.0 MEAN= 5.3 STD= 8.1

BOX'S TEST FOR HOMOGENEITY OF VARIANCES AT P=.05000 LEVEL

CALCULATED F	D.F.'S	PROBABILITY
2.9394	2 & 178.	.0539

HOMOGENEOUS VARIANCES (ONE-TAILED TEST)

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	14.44	2	7.2205	.397	.687
ERROR	181.9	10	18.187		
TOTAL	196.3	12			

NO OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL
NO STATISTICAL DIFFERENCE BETWEEN THE GROUPS

BAYER AG

ONE-WAY ANALYSIS OF VARIANCE OF BODY WEIGHT GAIN

ANALYSIS OF B.W. DATA FOR FEMALE- OBSERVATION-No.: 5- 6

Group-No.: 1 / 0 mg/m3 air
5.0 5.0 4.0 4.0 8.0
MEDIAN= 5.0 MEAN= 5.2 STD= 1.6

Group-No.: 2 / 20.4 mg/m3 air
11.0 9.0 17.0 14.0 7.0
MEDIAN= 11.0 MEAN= 11.6 STD= 4.0

Group-No.: 3 / 53.3 mg/m3 air
10.0 3.0
MEDIAN= 6.5 MEAN= 6.5 STD= 4.9

Group: 3 HAS LESS THAN 3 OBSERVATIONS,OMITTED FROM BOX'S TEST
NOT ENOUGH GROUPS FOR BOX'S TEST

CALCULATED F	DEG. OF FREEDOM	PROBABILITY
5.8519	4. & 4	.0593

HOMOGENEITY OF VARIANCES

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	108.4	2	54.208	4.953	.035
ERROR	98.50	9	10.944		
TOTAL	206.9	11			

OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL

GAMES AND HOWELL MODIFICATION OF TUKEY-KRAMER'S HONESTLY SIGNIFICANT DIFFERENCE TEST (WITH THE STUDENTIZED RANGE STATISTIC)

GROUPS COMPARED	CALCULATED TEST VALUE	DEGREES OF FREEDOM	PROBABILITY	CONCLUSION
5. % ONE-TAILED TEST				
1 AND 2	4.71	5	.0462	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 2	4.71	5	.0462	NOT SIGNIFICANT
5. % ONE-TAILED TEST				

1 AND 3	.51	1	.8603	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 3	.51	1	.8603	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 3	-1.84	2	.5189	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 3	1.84	2	.5189	NOT SIGNIFICANT

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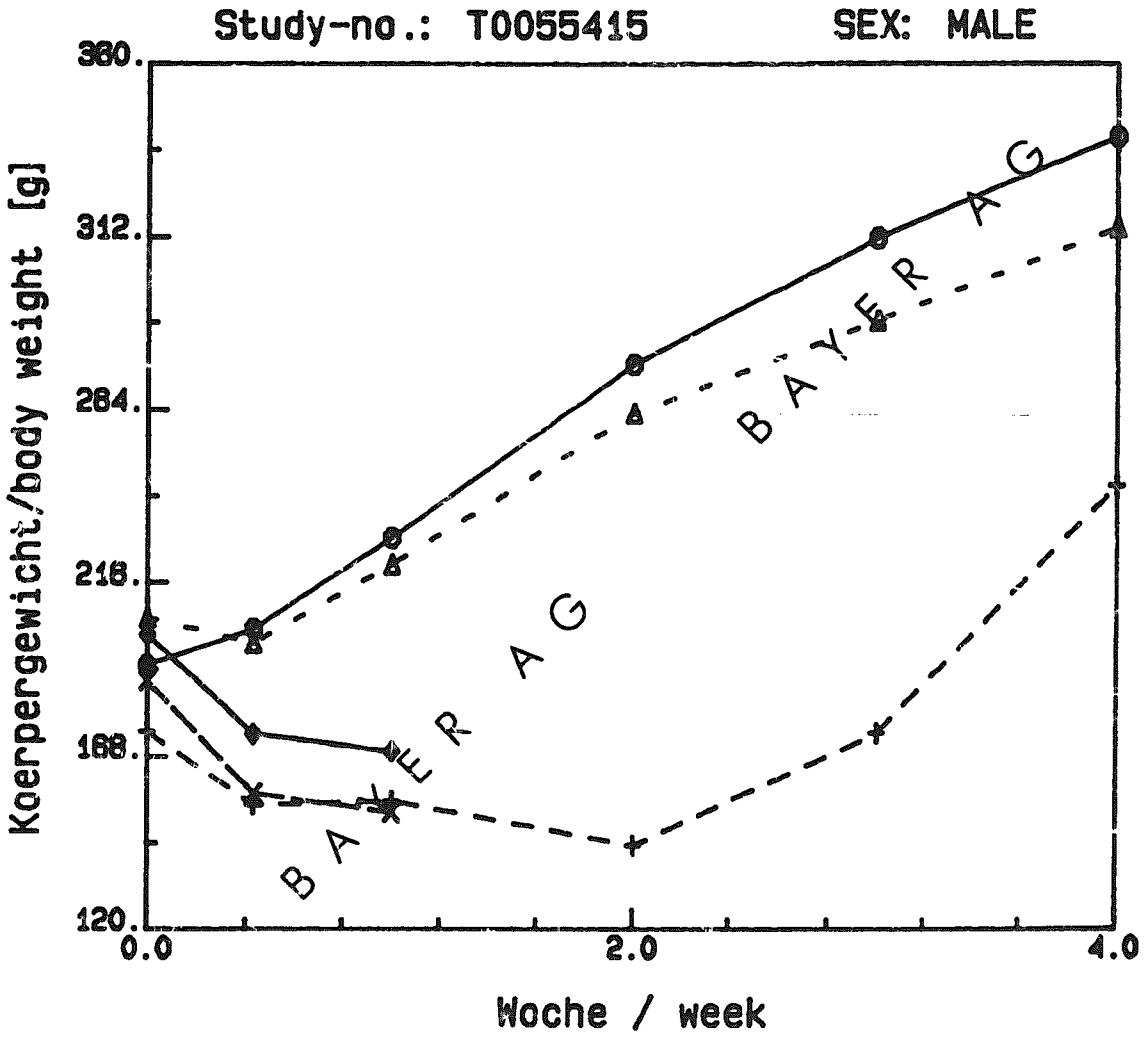

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- ⊙ group: 1
- ▲ group: 2
- + group: 3
- × group: 4
- ◆ group: 5
- ✦ group: 6

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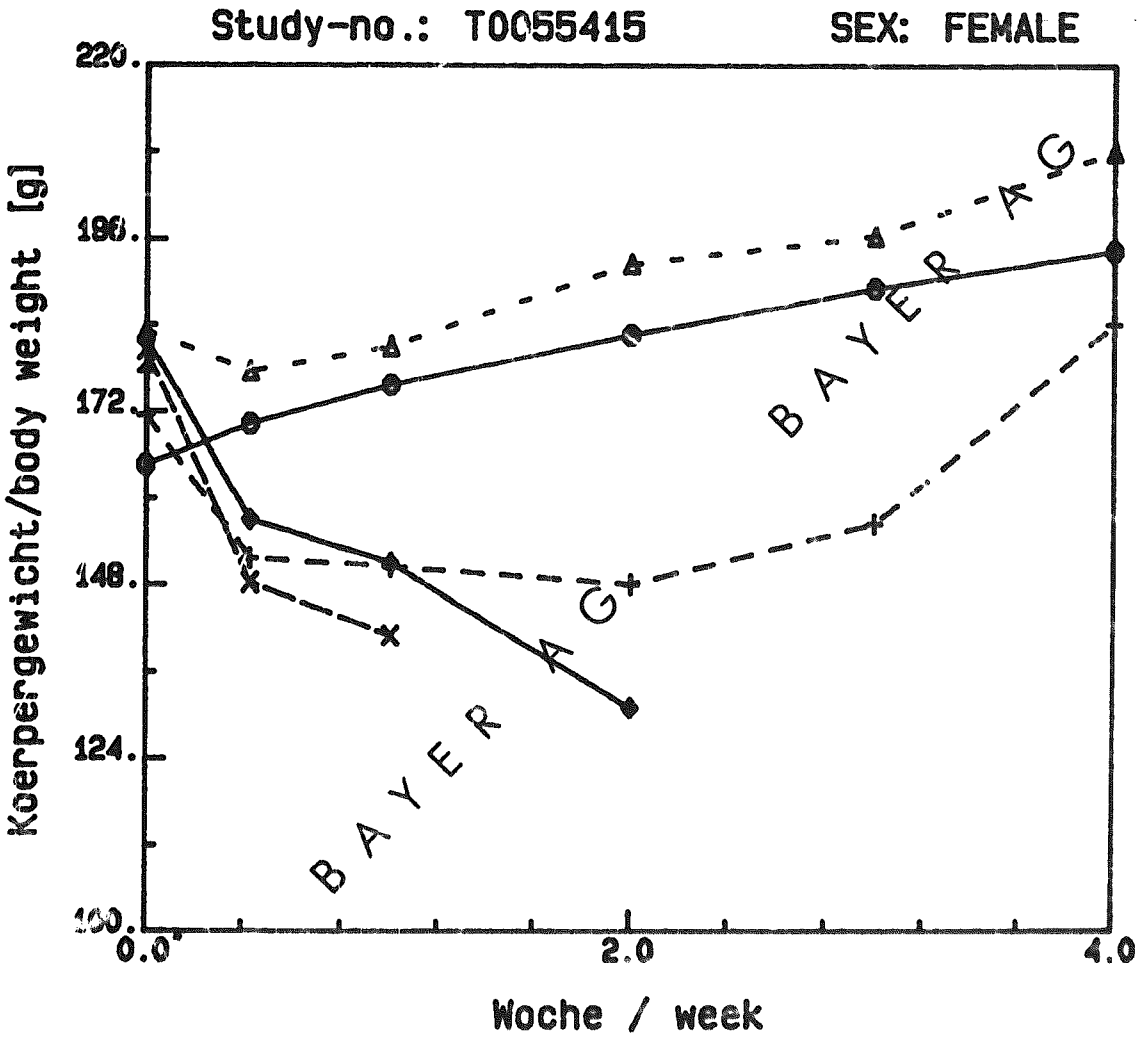

BAYER AG

- ● group: 1
- ▲ group: 2
- + group: 3
- × group: 4
- ◆ group: 5
- ♦ group: 6

ONE-WAY ANALYSIS OF VARIANCE PROGRAM : ANOVA

Analysis of Rectal Temperature (Deg. Celsius) / MALES

Group-no.: 1 - Animal:1-5 - control

37.800	37.900	37.900	38.000	38.100
MEDIAN= 37.900	MEAN= 37.940	STD = .114		

Group-no.: 2 - Animal:41-45 - 20.4 mg/m3 air

32.000	28.300	32.600	28.700	33.300
MEDIAN= 32.000	MEAN= 30.980	STD = 2.315		

Group-no.: 3 - Animal:51-55 - 53.3 mg/m3 air

26.900	25.800	26.800	25.000	26.100
MEDIAN= 26.100	MEAN= 26.120	STD = .779		

Group-no.: 5 - Animal:61-65 - 73.8 mg/m3 air

27.500	27.400	28.000	27.800	27.800
MEDIAN= 27.800	MEAN= 27.700	STD = .245		

Group-no.: 4 - Animal:31-35 - 104.6 mg/m3 air

31.400	28.400	27.000	26.800	25.700
MEDIAN= 27.000	MEAN= 27.860	STD = 2.200		

BOX'S TEST FOR HOMOGENEITY OF VARIANCES AT P=.05000 LEVEL

CALCULATED F	D.F.'S	PROBABILITY
7.8778	4 & 600.	.0000

HETEROGENEOUS VARIANCES (ONE-TAILED TEST)

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	444.3	4	111.07	51.067	.000
ERROR	43.50	20	2.1750		
TOTAL	487.8	24			

OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL

BAYER

GAMES AND HOWELL MODIFICATION OF
TUKEY-KRAMER'S HONESTLY SIGNIFICANT DIFFERENCE TEST
(WITH THE STUDENTIZED RANGE STATISTIC)

GROUPS COMPARED	CALCULATED TEST VALUE	DEGREES OF FREEDOM	PROBABILITY	CONCLUSION
5. % ONE-TAILED TEST				
1 AND 2	-9.50	4	.0110	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 2	9.50	4	.0110	SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 3	-47.47	4	.0000	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 3	47.47	4	.0000	SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 5	-119.85	6	.0000	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 5	119.85	6	.0000	SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 4	-14.47	4	.0002	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 4	14.47	4	.0002	SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 3	-6.29	5	.0336	SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 3	6.29	5	.0336	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 5	-4.46	4	.1416	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 5	4.46	4	.1416	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 4	-3.09	8	.2751	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 4	3.09	8	.2751	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
3 AND 5	6.12	5	.0375	SIGNIFICANT
5. % TWO-TAILED TEST				

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3 AND 5	6.12	5	.0375	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
3 AND 4	2.36	5	.5214	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
3 AND 4	2.36	5	.5214	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
5 AND 4	.23	4	.9970	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
5 AND 4	.23	4	.9970	NOT SIGNIFICANT

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BAYER AG
BAYER AG

ONE-WAY ANALYSIS OF VARIANCE PROGRAM : ANOVA

Analysis of Rectal Temperature (Deg. Celsius) / FEMALES

Group-no.: 1 - Animal:6-10 - control

37.900	37.900	38.100	38.600	37.800
MEDIAN= 37.900	MEAN= 38.060	STD = .321		

Group-no.: 2 - Animal:46-50 - 20.4 mg/m3 air

30.900	32.600	33.000	30.900	33.200
MEDIAN= 32.600	MEAN= 32.120	STD = 1.134		

Group-no.: 3 - Animal:56-60 - 53.3 mg/m3 air

28.600	26.700	27.900	26.600	27.100
MEDIAN= 27.100	MEAN= 27.380	STD = .853		

Group-no.: 4 - Animal:66-70 - 73.8 mg/m3 air

27.300	27.000	27.600	26.400	28.100
MEDIAN= 27.300	MEAN= 27.280	STD = .638		

Group-no.: 5 - Animal:36-40 - 104.6 mg/m3 air

26.200	26.800	25.900	27.400	26.000
MEDIAN= 26.200	MEAN= 26.460	STD = .631		

BOX'S TEST FOR HOMOGENEITY OF VARIANCES AT P=.05000 LEVEL

CALCULATED F	D.F.'S		PROBABILITY
1.3434	4	600.	.2513

HOMOGENEOUS VARIANCES (ONE-TAILED TEST)

ONE-WAY CLASSIFICATION ANALYSIS OF VARIANCE

SOURCE	SS	DF	MS	F	PROB
TREATMENT	479.6	4	119.89	205.156	.000
ERROR	11.69	20	.58440		
TOTAL	491.3	24			

OVERALL SIGNIFICANCE AT 5.% (ONE-TAILED) LEVEL

Note: In one female rat (group no. 6, animal no. 30) the rectal temperature was also measured (23.7 Deg. Celsius). However, this animal died shortly after the measurement.

GAMES AND HOWELL MODIFICATION OF
TUKEY-KRAMER'S HONESTLY SIGNIFICANT DIFFERENCE TEST
(WITH THE STUDENTIZED RANGE STATISTIC)

GROUPS COMPARED	CALCULATED TEST VALUE	DEGREES OF FREEDOM	PROBABILITY	CONCLUSION
5. % ONE-TAILED TEST				
1 AND 2	-15.93	5	.0000	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 2	15.93	5	.0000	SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 3	-37.07	5	.0000	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 3	37.07	5	.0000	SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 4	-47.73	6	.0000	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 4	47.73	6	.0000	SIGNIFICANT
5. % ONE-TAILED TEST				
1 AND 5	-51.82	6	.0000	SIGNIFICANT
5. % TWO-TAILED TEST				
1 AND 5	51.82	6	.0000	SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 3	-10.56	7	.0008	SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 3	10.56	7	.0008	SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 4	-11.76	6	.0006	SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 4	11.76	6	.0006	SIGNIFICANT
5. % ONE-TAILED TEST				
2 AND 5	-13.79	6	.0001	SIGNIFICANT
5. % TWO-TAILED TEST				
2 AND 5	13.79	6	.0001	SIGNIFICANT
5. % ONE-TAILED TEST				
3 AND 4	-.30	7	.9995	NOT SIGNIFICANT
5. % TWO-TAILED TEST				

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3 AND 4	.30	7	.9995	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
3 AND 5	-2.74	7	.3789	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
3 AND 5	2.74	7	.3789	NOT SIGNIFICANT
5. % ONE-TAILED TEST				
4 AND 5	-2.89	8	.3274	NOT SIGNIFICANT
5. % TWO-TAILED TEST				
4 AND 5	2.89	8	.3274	NOT SIGNIFICANT

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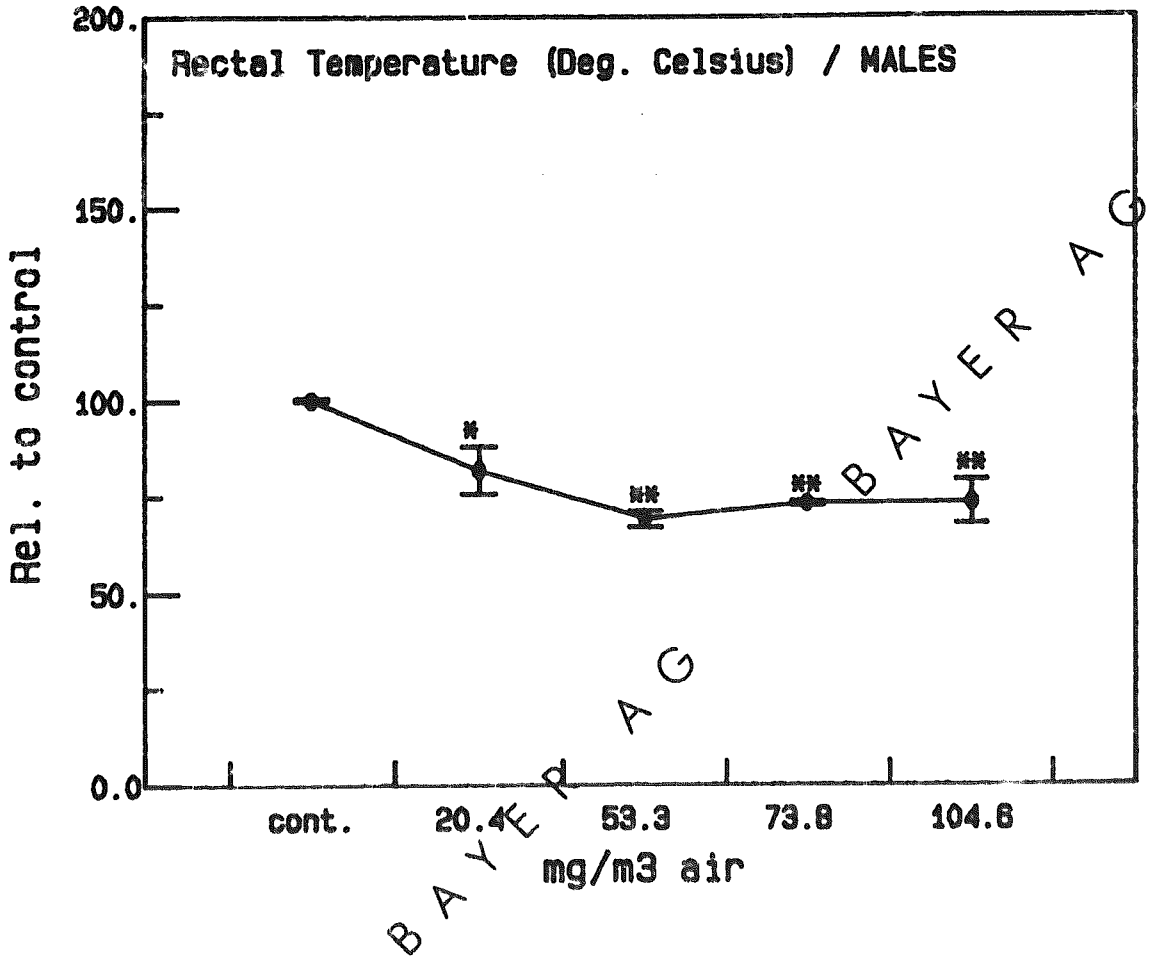
Isophorondiisocyanat

Study-no.: T0055415



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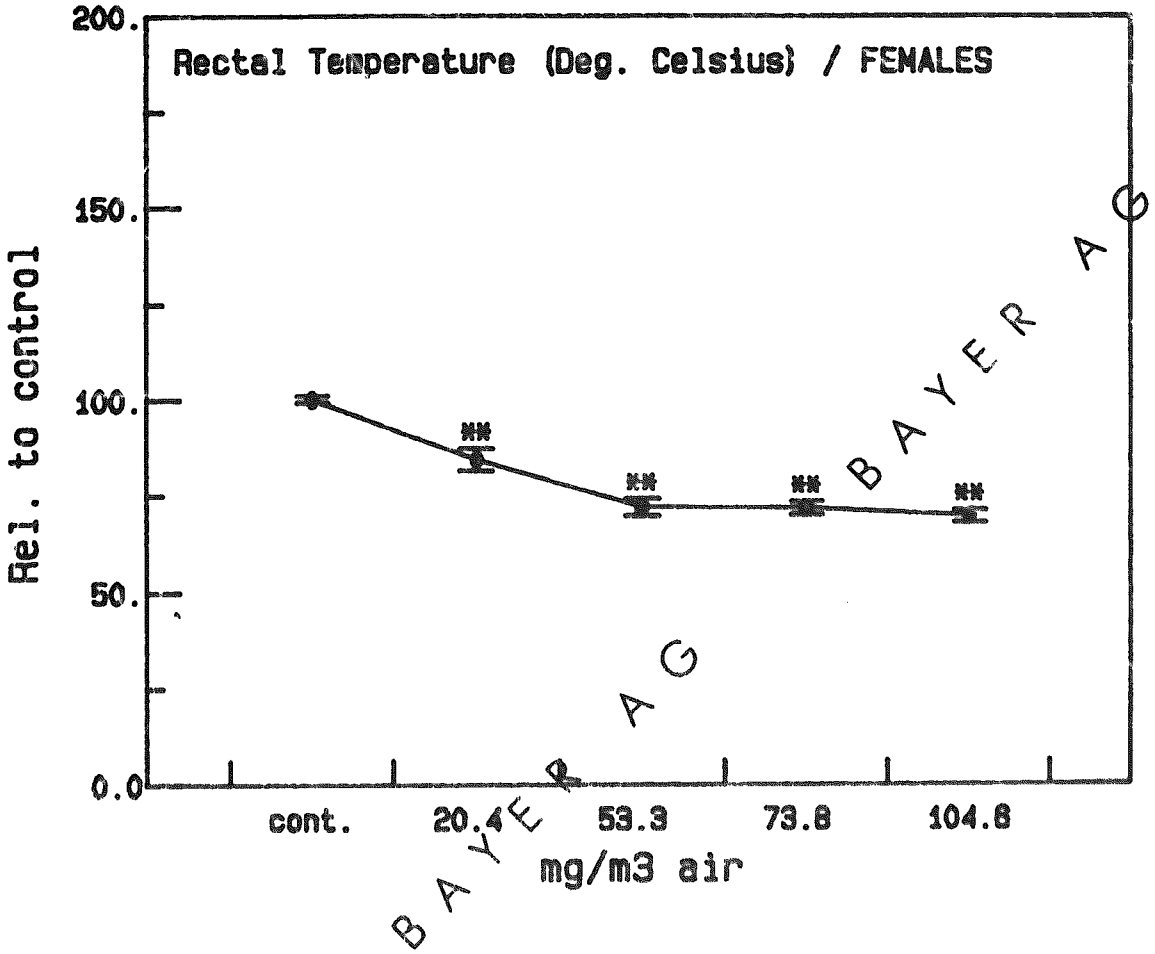
Isophorondiisocyanat

Study-no.: T0055415



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Incidence tables of signs

Translations of Clinical Signs:

Schlaffheit: Sluggishness
Nase und/oder Schnauze mit roten Verkrustungen: Nose and/or muzzle with red incrustations
Fell ungepflegt/verschmutzt: Ungroomed coat
Fell geträubt: Piloerection
Atmung verlangsamt: Bradypnea
Atmung beschleunigt: Tachypnea
Atemnot: Extreme breathing difficulties
Atmung erschwert: Labored breathing
Atmung unregelmäßig: Irregular breathing pattern
Atemgeraeusche: Respiratory sounds (rales)
Schnupfenähnliche Geräusche: Sneezing
Nasenausfluß serös: Serous nasal discharge
Nasenspiegel gerötet: Reddening of nose
Motilität vermindert: Motility reduced
Cyanose: Cyanosis
Abmagerung: Emaciation

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compound: Isophorondiisocyanat
y-no: 70035415

: Atmung beschleunigt

Analytical Concentration - mg/m3 air

Sex	0 M				20.4 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
ay	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0
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5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
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10	0	0	0	5	0	0	0	5	1	1	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
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12	0	0	0	5	0	0	0	5	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
13	0	0	0	5	0	0	0	5	2	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
14	0	0	0	5	0	0	0	5	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
15	0	0	0	5	0	0	0	5	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
16	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
17	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
18	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
19	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
20	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

nd: l = slight, m = moderate, s = severe, N = survivors, M = males, F = females

compound: Isophorondiisocyanat
-no: 70055615

Atmung beschleunigt

Analytical Concentration - mg/m3 air

Dau	0 M				20.4 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
y	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
4	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

nd: l = slight, m = moderate, s = severe, N = survivors, M = males, F = females

BAYER AG

compound: Isophorondiisocyanat
r-no: 10055415

: Atmung verlangsamt

Analytical Concentration - mg/m3 air

Sex	0 M				20.4 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
y	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
0	0	0	0	5	4	1	0	5	0	5	0	5	1	3	1	5	0	5	0	5	0	0	0	0	0	0	0	5	4	1	0	5	1	4	0	5	0	4	1	5	0	5	0	5	0	0	0	0
1	0	0	0	5	1	0	0	5	1	4	0	5	2	2	0	4	0	2	0	2	0	0	0	0	0	0	0	5	4	0	0	5	2	3	0	5	3	2	0	5	0	3	1	4	0	0	0	0
2	0	0	0	5	1	0	0	5	5	0	0	5	2	2	0	4	0	2	0	2	0	0	0	0	0	0	0	5	4	0	0	5	3	1	0	5	3	2	0	5	0	0	0	1	0	0	0	0
3	0	0	0	5	1	0	0	5	3	0	0	5	1	2	0	3	0	2	0	2	0	0	0	0	0	0	0	5	0	0	0	5	4	0	0	5	1	2	0	3	1	0	0	1	0	0	0	0
4	0	0	0	5	1	0	0	5	3	0	0	5	2	1	0	3	0	2	0	2	0	0	0	0	0	0	0	5	0	0	0	5	4	0	0	5	0	1	0	1	1	0	0	1	0	0	0	0
5	0	0	0	5	1	0	0	5	3	0	0	5	3	0	0	3	2	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	4	0	0	5	0	1	0	1	1	0	0	1	0	0	0	0
6	0	0	0	5	1	0	0	5	3	0	0	5	3	0	0	3	2	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	4	0	0	5	1	0	0	1	1	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	3	0	0	5	3	0	0	3	1	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	4	0	0	5	1	0	0	1	1	0	0	1	0	0	0	0
8	0	0	0	5	0	0	0	5	3	0	0	5	3	0	0	3	1	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	4	0	0	5	1	0	0	1	0	1	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	3	0	0	5	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	2	1	0	5	0	0	0	0	1	0	0	1	0	0	0	0
0	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	5	0	0	0	0	1	0	0	1	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
2	0	0	0	5	0	0	0	5	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	4	0	0	0	0	0	0	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	4	0	0	0	0	0	0	0	1	0	0	0	0
4	0	0	0	5	0	0	0	5	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	4	0	0	0	0	1	0	0	1	0	0	0	0
5	0	0	0	5	0	0	0	5	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	0	1	0	1	0	0	0	0
8	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	1	0	0	1	0	0	0	0
0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

nd: l = slight, m = moderate, s = severe, N = survivors, M = males, F = females

st compound: Isophorondiisocyanat
udy-no: T0055415

m: Atmung verlangsamt

Analytical Concentration - mg/m3 air

Sex	0 M				20.4 M				53.3 M				73.6 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.6 F				104.6 F				410.3 F			
Day	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
24	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0

nd: l = slight, m = moderate, s = severe, N = survivors, M = males, F = females

BAYER AG

compound: Isophorondiisocyanat
me: T9835415

Atemnot

Analytical Concentration - mg/m3 air

	0				20.4				53.3				73.8				104.6				410.3				0				20.4				53.3				73.8				104.6				410.3			
Sex	M				M				M				M				M				M				F				F				F				F				F				F			
/	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
0	0	0	0	5	0	0	0	5	0	0	0	5	0	1	0	5	1	3	1	5	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	1	1	0	5	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	5	0	1	0	4	1	1	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	2	0	5	1	1	0	4	0	0	0	0
2	0	0	0	5	0	0	0	5	0	0	0	5	0	1	0	4	0	0	0	[illegible]	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	2	0	5	0	1	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0
4	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	1	1	0	0	0	0
8	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	1	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0	0	[illegible]	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	[illegible]	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	[illegible]	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
2	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
4	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	[illegible]	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
8	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	[illegible]	1	0	0	0	0
0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	[illegible]	0	0	0	0	0	0	0	0	0	0

ds l = slight, m = moderate, s = severe, N = survivors, M = males, F = females

BAYER AG

compound: Isophorondiisocyanat

Atemrat

Analytical Concentration - mg/m3 air

Day	0 M				20.6 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
	l	m	s	S	l	m	s	S	l	m	s	S	l	m	s	S	l	m	s	S	l	m	s	S	l	m	s	S	l	m	s	S	l	m	s	S	l	m	s	S	l	m	s	S	l	m	s	S
4	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[illegible] l = [illegible], m = [illegible], s = [illegible], S = survivors, M = males, F = females

BAYER AG
BAYER AG
BAYER AG
BAYER AG

compound: Isopherone(?)isocyanate
-no: 70083413

Atmung erschwert

BAYER AG

Analytical Concentration - mg/m3 air

Day	0 M				20.4 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
0	0	0	0	5	4	1	0	5	1	4	0	5	0	2	2	5	0	0	1	5	0	0	0	0	0	0	0	5	5	0	0	5	3	2	0	5	1	4	0	5	0	4	0	5	0	0	0	0
1	0	0	0	5	0	0	0	5	2	3	0	5	0	2	1	4	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	2	3	0	5	0	3	0	5	0	2	0	4	0	0	0	0
2	0	0	0	5	0	0	0	5	1	0	0	5	0	2	1	4	0	2	0	2	0	0	0	0	0	0	0	5	0	0	0	5	2	1	0	5	0	3	0	5	0	0	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	0	0	0	5	1	2	0	3	2	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	5	0	3	0	3	1	0	0	1	0	0	0	0
4	0	0	0	5	0	0	0	5	0	0	0	5	3	0	0	3	2	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	5	1	0	0	1	1	0	0	1	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	5	3	0	0	3	2	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	5	1	0	0	1	1	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	5	3	0	0	3	2	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	2	0	0	5	1	0	0	1	1	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	1	2	0	3	2	1	0	3	1	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	3	0	5	0	1	0	1	0	0	1	1	0	0	0	0
8	0	0	0	5	0	0	0	5	1	1	0	5	0	3	0	3	1	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	3	0	0	5	0	1	0	1	0	0	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	3	0	0	5	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	5	0	0	0	5	3	0	0	5	0	0	0	0	0	1	0	1	0	0	0	0
10	0	0	0	5	0	0	0	5	0	4	0	5	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	5	0	0	0	0	0	1	0	1	0	0	0	0
11	0	0	0	5	0	0	0	5	0	4	0	5	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	4	0	0	0	0	1	0	0	1	0	0	0	0
12	0	0	0	5	0	0	0	5	1	3	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	2	4	0	0	0	0	1	0	0	1	0	0	0	0
13	0	0	0	5	0	0	0	5	1	3	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	2	4	0	0	0	0	0	1	0	1	0	0	0	0
14	0	0	0	5	0	0	0	5	1	3	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	2	4	0	0	0	0	0	1	0	1	0	0	0	0
15	0	0	0	5	0	0	0	5	2	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	1	4	0	0	0	0	0	1	0	1	0	0	0	0
16	0	0	0	5	0	0	0	5	1	3	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	1	4	0	0	0	0	1	0	0	1	0	0	0	0
17	0	0	0	5	0	0	0	5	1	3	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	1	4	0	0	0	0	0	1	0	1	0	0	0	0
18	0	0	0	5	0	0	0	5	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	1	1	0	0	0	0
19	0	0	0	5	0	0	0	5	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	1	1	0	0	0	0
20	0	0	0	5	0	0	0	5	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	5	0	0	0	5	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	5	0	0	0	5	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	5	0	0	0	5	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0

[illegible] l = slight, m = moderate, s = severe, N = survivors, M = males, F = females

Compound: Isophorondiisocyanat
...no. 70055415

Atmung erschwert

Sex:	0 M				20.4 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
[illegible]	0	0	0	5	0	0	0	5	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Analytical Concentration - mg/m3 air

l = slight, m = moderate, s = severe, N = survivors, M = males, F = females

BAYER AG
BAYER AG
BAYER AG
BAYER AG

Compound: Isophorondiisocyanat
No: 70005415

Atemgerätsche

Analytical Concentration - mg/m3 air

Sex	0 M				20.4 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
	0	0	0	5	0	0	0	3	0	0	0	3	4	0	0	5	1	2	0	5	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	1	1	0	5	0	0	0	0
	0	0	0	5	0	0	0	3	0	0	0	5	1	1	0	4	1	1	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	2	0	5	3	0	1	4	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	1	1	0	4	1	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	2	0	5	0	1	0	1	0	0	0	0
	0	0	0	3	0	0	0	3	1	0	0	5	0	0	0	3	1	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	3	1	0	0	1	0	0	0	0
	0	0	0	5	1	0	0	5	1	0	0	5	1	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	1	0	0	1	0	0	0	0
	0	0	0	5	1	0	0	3	0	0	0	5	1	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
	0	0	0	5	1	0	0	3	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	3	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	5	0	0	0	0	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	2	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	4	0	0	0	0	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	5	0	0	0	5	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

[illegible] l = [illegible], m = moderate, s = severe, N = survivors, M = males, F = females

compound: Isophorondiisocyanat
-no: [illegible]

Sex	0 M				20.4 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
Y	I	m	o	N	I	m	o	N	I	m	o	N	I	m	o	N	I	m	o	N	I	m	o	N	I	m	o	N	I	m	o	N	I	m	o	N	I	m	o	N	I	m	o	N	I	m	o	N
4	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Analytical Concentration - mg/m3 air

[illegible] I [illegible], m = [illegible], o [illegible], N = survivors; M = males, F = females

BAYER AG
BAYER AG
BAYER AG
BAYER AG
BAYER AG

compound: Isophorondiisocyanat
-nos 78659415

Atmung unregelmäßig

Analytical Concentration - mg/m3 air

Day	0 M				20.4 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0
2	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0
4	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
8	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	5	0	0	0	0	0	0	0	1	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
2	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
4	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
8	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

[redacted]

[redacted] l = [illegible], m = [illegible], s = severe, N = survivors, M = males, F = females

Compound: [illegible]

Among [illegible]

	Analytical Concentration - mg/m3 air																																															
	[illegible]				20.4				53.3				73.8				104.6				410.3				0				20.4				53.3				73.8				104.6				410.3			
Sex	[illegible]				M				M				M				M				M				F				F				F				F				F				F			
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	I	m	d	N	I	m	d	N	I	m	d	N	I	m	d	N	I	m	d	N	I	m	d	N	I	m	d	N	I	m	d	N	I	m	d	N
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[illegible] I = [illegible], d = [illegible], b = [illegible], N = survivors, M = males, F = females

Compound: Isophorondiisocyanat
Nr: 70000415

Mobilität vermindert

Analytical Concentration - mg/m3 air

	0				20.4				53.3				73.8				104.6				410.3				0				20.4				53.3				73.8				104.6				410.3			
Sex	M				M				M				M				M				M				F				F				F				F				F				F			
t	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
1	0	0	5	3	2	0	5	0	5	0	5	0	2	3	5	0	1	4	5	0	0	0	0	0	0	0	5	4	0	0	5	2	3	0	5	0	5	0	5	0	1	4	5	0	0	0	0
1	0	0	5	0	0	0	5	1	4	0	5	1	2	1	4	0	0	2	2	0	0	0	0	0	0	0	5	0	0	0	5	1	3	0	5	0	4	1	5	0	1	3	4	0	0	0	0
2	0	0	5	0	0	0	5	0	0	0	5	1	2	1	4	1	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	4	1	5	1	0	0	1	0	0	0	0
2	0	0	5	0	0	0	5	0	0	0	5	2	1	0	3	2	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	5	3	3	0	3	0	0	0	1	0	0	0	0
3	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	1	0	0	0	1	0	0	0	0
3	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
4	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
4	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	1	0	1	0	0	0	0
5	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	1	0	1	0	1	0	0	0	0
5	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	1	0	0	1	0	0	0	0
6	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	1	0	0	1	0	0	0	0
6	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
7	0	0	5	0	0	0	5	1	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
7	0	0	5	0	0	0	5	3	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
8	0	0	5	0	0	0	5	2	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
8	0	0	5	0	0	0	5	3	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
9	0	0	5	0	0	0	5	2	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
9	0	0	5	0	0	0	5	2	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	0	1	0	1	0	0	0	0
10	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0
10	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0
11	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

[illegible] = [illegible], m = [illegible], s = [illegible], N = survivors, N = males, F = females

Compound: Isophorondiisocyanat

No: 70[illegible]415

Methode: [illegible]

| | Analytical Concentration - mg/m3 air | | |

Compound: Isophorondiisocyanat
Nr: 70005415

Fall umgepflegt

Analytical Concentration - mg/m3 air

	0				20.4				53.3				73.8				104.6				410.3				0				20.4				53.3				73.8				104.6				410.3			
Sex	M				M				M				M				M				M				F				F				F				F				F				F			
	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0
	0	0	0	5	1	1	0	5	2	3	0	5	1	3	0	4	0	2	0	2	0	0	0	0	0	0	0	5	5	0	0	5	2	3	0	5	2	3	0	5	1	3	0	4	0	0	0	0
	0	0	0	5	1	1	0	5	2	1	0	5	1	3	0	4	1	1	0	2	0	0	0	0	0	0	0	5	5	0	0	5	1	3	0	5	2	2	0	5	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	1	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	1	2	0	5	0	3	0	3	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	2	0	0	5	0	1	0	1	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

[illegible] = [illegible], m = moderate, s = severe, N = survivors, M = males, F = females

BAYER AG

compound: Isophorondiisocyanat

Test description:

Analytical Concentration - mg/m3 air

Day	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
	M	M	M	M	M	M	F	F	F	F	F	F
	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N
4	0 0 0 3	0 0 0 3	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0
5	0 0 0 3	0 0 0 3	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0
6	0 0 0 3	0 0 0 3	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0
7	0 0 0 3	0 0 0 3	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0
8	0 0 0 3	0 0 0 3	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0

Key: l = lethal, m = moribund, s = severe, N = survivors, M = males, F = females

BEST COPY AVAILABLE

compound: Isophorondiisocyanat
[illegible]

Fell gesträubt

Analytical Concentration - mg/m3 air

Day	0 M l	0 M m	0 M s	0 M N	20.4 M l	20.4 M m	20.4 M s	20.4 M N	53.3 M l	53.3 M m	53.3 M s	53.3 M N	73.8 M l	73.8 M m	73.8 M s	73.8 M N	104.6 M l	104.6 M m	104.6 M s	104.6 M N	410.3 M l	410.3 M m	410.3 M s	410.3 M N
0	0	0	0	5	1	4	0	5	1	4	0	5	0	5	0	5	0	5	0	5	0	0	0	0
1	0	0	0	5	4	1	0	5	1	4	0	5	0	4	0	4	0	2	0	2	0	0	0	0
2	0	0	0	5	4	1	0	5	4	1	0	5	0	4	0	4	0	2	0	2	0	0	0	0
3	0	0	0	5	1	0	0	5	3	0	0	5	0	3	0	3	0	2	0	2	0	0	0	0
[illegible]	0	0	0	5	1	0	0	5	3	0	0	5	2	1	0	3	2	0	0	2	0	0	0	0
[illegible]	0	0	0	5	1	0	0	5	3	0	0	5	2	1	0	3	2	0	0	2	0	0	0	0
[illegible]	0	0	0	5	1	0	0	5	3	0	0	5	3	0	0	3	2	0	0	2	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	5	[illegible]	[illegible]	0	5	3	[illegible]	0	5	2	1	0	3	1	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	3	0	0	5	2	1	0	3	1	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	3	0	0	5	1	0	0	1	1	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	2	2	0	5	1	0	0	1	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	4	0	5	1	0	0	1	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	4	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	2	[illegible]	[illegible]	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	[illegible]	0	3	0	0	0	0	0	0	0	0	0	0	0	0

Day	0 F l	0 F m	0 F s	0 F N	20.4 F l	20.4 F m	20.4 F s	20.4 F N	53.3 F l	53.3 F m	53.3 F s	53.3 F N	73.8 F l	73.8 F m	73.8 F s	73.8 F N	194.6 F l	194.6 F m	194.6 F s	194.6 F N	410.3 F l	410.3 F m	410.3 F s	410.3 F N
0	0	0	0	5	5	0	0	5	1	4	0	5	0	5	0	5	0	4	0	5	0	0	0	0
1	0	0	0	5	5	0	0	5	2	3	0	5	0	5	0	5	1	3	0	4	0	0	0	0
2	0	0	0	5	5	0	0	5	2	3	0	3	0	5	0	5	0	1	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	1	3	0	5	0	3	0	3	1	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	4	0	0	5	0	1	0	1	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	4	0	0	5	0	1	0	1	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	4	0	0	5	1	0	0	1	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	4	0	0	5	0	1	0	1	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	4	0	0	5	0	1	0	1	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	4	0	0	5	0	0	0	0	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	4	0	0	5	0	0	0	0	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	2	0	4	0	0	0	0	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	2	0	4	0	0	0	0	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	2	0	4	0	0	0	0	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	2	0	4	0	0	0	0	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	3	0	0	4	0	0	0	0	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	3	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	3	0	0	4	0	0	0	0	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	[illegible]	[illegible]	0	3	0	0	0	0	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	2	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	1	1	0	3	0	[illegible]	0	0	0	0	0	0	0	0	0	0

l = slight, m = moderate, s = severe, N = survivors, M = males, F = females

BAYER AG
BAYER AG
BAYER AG

BEST COPY AVAILABLE

... compound: Isophorondiisocyanat

	Analytical Concentration - mg/m3 air																																															
	[illegible]				20.4				53.3				73.8				104.6				410.3				0				20.4				53.3				73.8				104.6				410.3			
Sex	[illegible]				M				M				M				M				M				F				F				F				F				F				F			
Day	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
24	0	0	0	5	0	0	0	5	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	5	0	0	0	5	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

l = [illegible], m = [illegible], s = [illegible], N = survivors, M = males, F = females

ompound: Isophorondiisocyanat
[illegible] T0888415

Schlaffheit

Analytical Concentration - mg/m3 air

	0				20.4				53.3				73.8				104.6				410.3				0				20.4				53.3				73.8				104.6				410.3			
Sex	M				M				M				M				M				M				F				F				F				F				F				F			
	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
	0	0	0	5	0	1	0	5	3	0	0	5	3	2	0	5	0	5	0	5	0	0	0	0	0	0	0	5	0	0	0	5	3	0	0	5	3	0	0	3	0	5	0	5	0	0	0	0
	0	0	0	5	0	0	0	5	2	0	0	5	2	1	0	4	1	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	3	0	0	5	3	1	0	5	0	0	0	4	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	2	1	0	4	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	3	1	0	5	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	2	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	1	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	1	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	1	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	1	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	2	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	2	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	2	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	1	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5	2	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	1	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	2	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	1	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	2	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	1	0	1	0	0	0	0
	[illegible]	[illegible]	0	5	[illegible]	[illegible]	[illegible]	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	[illegible]	[illegible]	0	5	[illegible]	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0

[illegible], m = moderate, s = severe, N = survivors, M = males, F = females

compound: Isophorondiisocyanat

-nos 1000000415

Schlußtheit

Analytical Concentration - mg/m3 air

Sex	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
	M	M	M	M	M	M	F	F	F	F	F	F
y	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N
4	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 1 0 3	0 0 0 0	0 0 0 0	0 0 0 0
5	0 0 0 0	0 0 0 0	0 1 0 5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0
6	0 0 0 0	0 0 0 0	0 1 0 5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0
7	0 0 0 0	0 0 0 0	0 1 0 5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0
8	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0

ndi l = [illegible], m = [illegible], s = [illegible], N = survivors, M = males, F = females

BAYER AG

BEST COPY AVAILABLE

Compound: Isopheromdifenacyanat
-nr: 7000415

Anmerkung

Analytical Concentration - mg/m3 air

Tag	0 M				20.4 M				33.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0
2	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0
4	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	0	1	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	3	0	5	0	0	0	1	0	1	0	1	0	0	0	0
8	0	0	0	5	0	0	0	5	0	1	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	3	0	5	0	0	0	1	0	1	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	0	1	0	5	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	3	0	5	0	0	0	0	0	1	0	1	0	0	0	0
10	0	0	0	5	0	0	0	5	0	1	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	5	0	0	0	0	0	1	0	1	0	0	0	0
11	0	0	0	5	0	0	0	5	0	1	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	4	0	0	0	0	0	1	0	1	0	0	0	0
12	0	0	0	5	0	0	0	5	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	4	0	0	0	0	0	1	0	1	0	0	0	0
13	0	0	0	5	0	0	0	5	0	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	4	0	0	0	0	0	1	0	1	0	0	0	0
14	0	0	0	5	0	0	0	5	0	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	4	0	0	0	0	0	1	0	1	0	0	0	0
15	0	0	0	5	0	0	0	5	2	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	4	0	0	0	0	0	1	0	1	0	0	0	0
16	0	0	0	5	0	0	0	5	1	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	4	0	0	0	0	0	1	0	1	0	0	0	0
17	0	0	0	5	0	0	0	5	1	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	4	0	0	0	0	0	1	0	1	0	0	0	0
18	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	1	0	1	0	0	0	0
19	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	1	0	1	0	0	0	0
20	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0

[redacted]

[redacted] = mortality, s = severe, N = survivers, M = males, F = females

BAYER AG

compound: Isophorondiisocyanat
y-no: T0026415

: Abmagerung

	Analytical Concentration - mg/m3 air																							
					20.4				53.3				73.8				104.6				410.3			
Sex					M				M				M				M				M			
ay	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
24	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Analytical Concentration - mg/m3 air																							
	0				20.4				53.3				73.8				104.6				410.3			
Sex	F				F				F				F				F				F			
ay	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
24	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[illegible] l = [illegible], m = [illegible], s = [illegible], N = survivors, M = males, F = females

BEST COPY AVAILABLE

BAYER AG
BAYER AG
BAYER AG

Compound: Isophorondiisocyanat
Test: 10000413

Rauchanfluß serie

Analytical Concentration - mg/m3 air

Day	0 M				20.4 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
3	0	0	0	5	0	0	0	5	0	0	0	5	0	2	0	5	0	0	0	5	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	5	0	5	0	5	0	2	0	5	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	1	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	5	0	0	0	5	0	3	0	4	0	0	0	0
2	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0
4	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
8	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
10	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
11	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
12	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
13	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
14	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
15	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
16	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
17	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
18	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
19	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

[illegible] = survivors, M = survivors, M = males, F = females

compound: Isophorondiisocyanat

T0078415

Day	[illegible]				20.4 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
4	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
8	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Analytical Concentration - mg/m3 air

[illegible] l = [illegible], m = [illegible], s = [illegible], N = survivors, M = males, F = females

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compound: Isophorondiisocyanat
-nr: 70005415

Nasenspiegel gerötet

Analytical Concentration - mg/m3 air

Day	0 M	20.4 M	53.3 M	73.8 M	104.6 M	410.3 M	0 F	20.4 F	53.3 F	73.8 F	104.6 F	410.3 F
	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N
0	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 0	0 0 0 5	0 2 0 5	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 0
1	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 2	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 0
2	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 2	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 1	0 0 0 0
3	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 2	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 1	0 0 0 0
4	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 2	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 1	0 0 0 1	0 0 0 0
5	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 2	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 1	0 0 0 1	0 0 0 0
6	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 2	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 1	0 0 0 1	0 0 0 0
7	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 1	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 1	0 0 0 1	0 0 0 0
8	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 1	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 1	0 0 0 1	0 0 0 0
9	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 1	0 0 0 1	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 0	0 0 0 1	0 0 0 0
10	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 1	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 0	0 0 0 1	0 0 0 0
11	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 1	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 0	0 0 0 1	0 0 0 0
12	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 0	0 0 0 1	0 0 0 0
13	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 0	0 0 0 1	0 0 0 0
14	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 0	0 0 0 1	0 0 0 0
15	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 0	0 0 0 1	0 0 0 0
16	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 0	0 0 0 1	0 0 0 0
17	0 0 0 5	0 0 0 5	0 0 0 4	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 1	0 0 0 0
18	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 1	0 0 0 0
19	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0
20	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0
21	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0

l = lost, m = moribund, s = survivors, N = survivors, M = males, F = females

Component: Isophorondiisocyanat

Analytical Concentration - mg/m3 air

Sex	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
	M	M	M	M	M	M	F	F	F	F	F	F
	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N
24	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
25	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
26	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
27	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
28	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0

Code: l = [illegible], m = moribund, s = sacrificed, N = survivors, M = males, F = females

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Compound: Isophorondiisocyanat
No: [illegible]

Nase und/oder Schnauze mit roten Verkrustungen

Analytical Concentration - mg/m3 air

Day	0				20.4				53.3				73.8				104.6				410.3				0				20.4				53.3				73.8				104.6				410.3			
	M				M				M				M				M				M				F				F				F				F				F				F			
	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
[illegible]	0	0	0	5	0	3	0	5	0	4	0	5	0	3	0	5	0	5	0	5	0	0	0	0	0	0	0	5	0	1	0	5	0	2	0	5	0	0	0	5	0	3	0	5	0	0	0	0
[illegible]	0	0	0	5	0	3	0	5	0	3	0	5	0	4	0	4	0	2	0	2	0	0	0	0	0	0	0	5	0	4	0	5	0	2	0	5	0	5	0	5	0	2	0	4	0	0	0	0
[illegible]	0	0	0	5	0	2	0	5	0	2	0	5	0	4	0	4	0	0	0	[illegible]	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	5	0	5	0	5	0	1	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	5	0	2	0	3	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	5	0	0	0	1	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0	0	[illegible]	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	[illegible]	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	[illegible]	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	[illegible]	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
[illegible]	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	[illegible]	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
[illegible]	0	0	0	[illegible]	0	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
[illegible]	[illegible]	[illegible]	0	3	0	[illegible]	[illegible]	3	0	[illegible]	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
[illegible]	0	0	0	[illegible]	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	6	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	0	0	[illegible]	[illegible]	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	0	[illegible]	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	[illegible]	0	0	0	0	0	0	0	0	0	0

[illegible] = severe, N = survivors, M = males, F = females

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compound: Isophorondiisocyanat

y-nos T0000415

x: Nase und/oder Schnauze mit roten Verkrustungen

Analytical Concentration - mg/m3 air

Day	0 M l	0 M m	0 M s	0 M N	20.4 M l	20.4 M m	20.4 M s	20.4 M N	53.3 M l	53.3 M m	53.3 M s	53.3 M N
24	0	0	0	5	0	0	0	5	0	0	0	3
25	0	0	0	5	0	0	0	5	0	0	0	3
26	0	0	0	5	0	0	0	5	0	0	0	3
27	0	0	0	5	0	0	0	5	0	0	0	3
28	0	0	0	[illegible]	0	0	0	0	0	0	0	0

Day	73.8 M l	73.8 M m	73.8 M s	73.8 M N	104.6 M l	104.6 M m	104.6 M s	104.6 M N	410.3 M l	410.3 M m	410.3 M s	410.3 M N
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0

Day	0 F l	0 F m	0 F s	0 F N	20.4 F l	20.4 F m	20.4 F s	20.4 F N	53.3 F l	53.3 F m	53.3 F s	53.3 F N
24	0	0	0	5	0	0	0	5	0	0	0	3
25	0	0	0	5	0	0	0	5	0	0	0	2
26	0	0	0	5	0	0	0	5	0	0	0	2
27	0	0	0	5	0	0	0	5	0	0	0	2
28	0	0	0	0	0	0	0	0	0	0	0	0

Day	73.8 F l	73.8 F m	73.8 F s	73.8 F N	104.6 F l	104.6 F m	104.6 F s	104.6 F N	410.3 F l	410.3 F m	410.3 F s	410.3 F N
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0

code: l = [illegible], m = [illegible], s = [illegible], N = survivors, M = males, F = females

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BAYER AG
BAYER AG

Compound: Isophorondiisocyanat
Prüf-Nr: 10005415

Schnupfenähnliche Geräusche

Day	0 M				20.4 M				53.3 M				73.8 M				104.6 M				410.3 M				0 F				20.4 F				53.3 F				73.8 F				104.6 F				410.3 F			
	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0
2	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0
4	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	2	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	1	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	1	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
7	[illegible]				[illegible]				[illegible]				0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
8	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	1	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
2	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
4	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0
8	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0
0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
2	[illegible]				[illegible]				0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
1	[illegible]				[illegible]				0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

[illegible] survivors, M = survivors, M = males, F = females

Compound: Isophorondiisocyanat

Proj. No. [illegible]

Salmonella/mammalian Mutagenicity

Analytical Concentration - mg/m3 air

Day	0 M	20.4 M	53.3 M	73.8 M	104.6 M	410.3 M	0 F	20.4 F	53.3 F	73.8 F	104.6 F	410.3 F
	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N	l m s N
4	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 3	0 0 0 0	0 0 0 0	0 0 0 0
5	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0
6	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0
7	0 0 0 5	0 0 0 5	0 0 0 5	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 5	0 0 0 5	0 0 0 2	0 0 0 0	0 0 0 0	0 0 0 0
8	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0

Note: l = lethal, m = moribund, s = sickness, N = survivors, M = Survivors, N = males, F = females

BAYER AG

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compound: Isophorondiisocyanat
-nr: 70080413

Dynamo

Analytical Concentration - mg/m3 air

	0				20.4				53.3				73.8				104.6				410.3				0				20.4				53.3				73.8				104.6				410.3			
Sex	M				M				M				M				M				M				F				F				F				F				F				F			
Y	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	0
1	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	5	0	0	0	4	0	0	0	0
2	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	5	0	0	0	1	0	0	0	0
3	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	1	0	0	0	0
4	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
5	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
6	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	1	0	0	0	1	0	0	0	0
7	0	0	0	5	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	3	0	0	5	1	0	0	1	0	1	0	1	0	0	0	0
8	0	0	0	5	0	0	0	5	3	0	0	5	2	1	0	3	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	3	0	0	5	0	1	0	1	1	0	0	1	0	0	0	0
9	0	0	0	5	0	0	0	5	3	0	0	5	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	3	0	0	5	0	0	0	0	1	0	0	1	0	0	0	0
10	0	0	0	5	0	0	0	5	3	0	0	5	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	2	0	0	5	0	0	0	0	1	0	0	1	0	0	0	0
11	0	0	0	5	0	0	0	5	3	0	0	5	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	4	0	0	0	0	1	0	0	1	0	0	0	0
12	0	0	0	5	0	0	0	5	1	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	4	0	0	0	0	1	0	0	1	0	0	0	0
13	0	0	0	5	0	0	0	5	1	1	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	2	0	4	0	0	0	0	1	0	0	1	0	0	0	0
14	0	0	0	5	0	0	0	5	1	1	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	1	4	0	0	0	0	0	1	0	1	0	0	0	0
15	0	0	0	5	0	0	0	5	2	1	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	4	0	0	0	0	0	1	0	1	0	0	0	0
16	0	0	0	5	0	0	0	5	1	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	4	0	0	0	0	0	0	0	1	0	0	0	0
17	0	0	0	5	0	0	0	5	1	1	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	1	0	4	0	0	0	0	0	0	0	1	0	0	0	0
18	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	1	0	0	1	0	0	0	0
19	0	0	0	5	0	0	0	5	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	1	0	1	0	0	0	0
20	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

[illegible] 0 = survivors, N = survivors, M = males, F = females

BAYER AG

[illegible] compound: [illegible]

Study-no. [illegible]

% Cyanose [illegible]

	Analytical Concentration - mg/m3 air																																															
	[illegible]				20.4				53.3				73.8				104.6				410.3				0				20.4				53.3				73.8				104.6				410.3			
Sex	M				M				M				M				M				M				F				F				F				F				F				F			
Day	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N	l	m	s	N
24	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	5	0	0	0	5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	5	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[illegible], N = survivors, M = males, F = females

BAYER AG
BAYER AG
BAYER AG
BAYER AG

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Atmung beschleunigt

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/ 0
1	0/ 5	0/ 5	0/ 5	0/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 4	0/ 0
2	0/ 5	0/ 5	0/ 5	0/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0
3	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0
4	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
5	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
6	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
7	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
8	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
9	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ 0
10	0/ 5	0/ 5	2/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ 0
11	0/ 5	0/ 5	5/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
12	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
13	0/ 5	0/ 5	2/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
14	0/ 5	0/ 5	1/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
15	0/ 5	0/ 5	1/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
16	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
17	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
18	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ 0
19	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ 0
20	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
21	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
22	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
23	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
24	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
25	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
26	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
27	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Atmung verlangsamt

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	5/ 5	5/ 5	5/ 5	5/ 5	0/ 0	0/ 5	5/ 5	5/ 5	5/ 5	5/ 5	0/
1	0/ 5	1/ 5	5/ 5	4/ 4	2/ 2	0/ 0	0/ 5	4/ 5	5/ 5	5/ 5	4/ 4	0/
2	0/ 5	1/ 5	5/ 5	4/ 4	2/ 2	0/ 0	0/ 5	4/ 5	4/ 5	5/ 5	0/ 1	0/
3	0/ 5	1/ 5	3/ 5	3/ 3	2/ 2	0/ 0	0/ 5	0/ 5	4/ 5	3/ 3	1/ 1	0/
4	0/ 5	1/ 5	3/ 5	3/ 3	2/ 2	0/ 0	0/ 5	0/ 5	4/ 5	1/ 1	1/ 1	0/
5	0/ 5	1/ 5	3/ 5	3/ 3	2/ 2	0/ 0	0/ 5	0/ 5	4/ 5	1/ 1	1/ 1	0/
6	0/ 5	1/ 5	3/ 5	3/ 3	2/ 2	0/ 0	0/ 5	0/ 5	4/ 5	1/ 1	1/ 1	0/
7	0/ 5	0/ 5	3/ 5	3/ 3	1/ 1	0/ 0	0/ 5	0/ 5	4/ 5	1/ 1	1/ 1	0/
8	0/ 5	0/ 5	3/ 5	3/ 3	1/ 1	0/ 0	0/ 5	0/ 5	4/ 5	1/ 1	1/ 1	[illegible]
9	0/ 5	0/ 5	3/ 5	1/ 1	1/ 1	0/ 0	0/ 5	0/ 5	3/ 5	0/ 0	1/ 1	
10	0/ 5	0/ 5	0/ 5	1/ 1	0/ 0	0/ 0	0/ 5	0/ 5	1/ 5	0/ 0	1/ 1	0/
11	0/ 5	0/ 5	0/ 5	1/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
12	0/ 5	0/ 5	1/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	0/ 1	0/
13	0/ 5	0/ 5	1/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	0/ 1	0/
14	0/ 5	0/ 5	1/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/
15	0/ 5	0/ 5	1/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/
16	0/ 5	0/ 5	1/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/
17	0/ 5	0/ 5	1/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/
18	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 1	0/
19	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	1/ 1	0/
20	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/
21	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/
22	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
23	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
24	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
25	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/
26	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/
27	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER AG

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Atemnot

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	0/ 5	0/ 5	1/ 5	5/ 5	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	2/ 5	0/ 0
1	0/ 5	0/ 5	0/ 5	1/ 4	2/ 2	0/ 0	0/ 5	0/ 5	0/ 5	2/ 5	2/ 4	0/ 0
2	0/ 5	0/ 5	0/ 5	1/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	1/ 5	1/ 1	0/ 0
3	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0
4	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
5	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
6	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
7	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	1/ 1	0/ 0
8	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	1/ 1	0/ 0
9	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ 0
10	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ 0
11	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
12	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
13	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
14	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
15	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
16	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
17	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
18	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ 0
19	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ 0
20	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
21	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
22	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
23	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
24	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
25	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
26	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
27	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER

Test compound: Isophorondiisocyanat
Study-no: T00F5415

Sign: Atemgeräusche

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.6	104.6	410.3
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	0/ 5	0/ 5	4/ 5	3/ 5	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	2/ 5	0/ [illegible]
1	0/ 5	0/ 5	0/ 5	2/ 4	2/ 2	0/ 0	0/ 5	0/ 5	0/ 5	2/ 5	4/ 4	0/ [illegible]
2	0/ 5	0/ 5	0/ 5	2/ 4	1/ 2	0/ 0	0/ 5	0/ 5	0/ 5	2/ 5	1/ 1	0/ [illegible]
3	0/ 5	0/ 5	1/ 5	0/ 3	1/ 2	0/ 0	0/ 5	0/ 5	0/ 5	1/ 3	1/ 1	0/ [illegible]
4	0/ 5	1/ 5	1/ 5	1/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	1/ 1	0/ [illegible]
5	0/ 5	1/ 5	0/ 5	1/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ [illegible]
6	0/ 5	1/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ [illegible]
7	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	1/ 1	0/ [illegible]
8	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	1/ 1	0/ [illegible]
9	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	1/ 1	0/ [illegible]
10	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	2/ 5	0/ 0	1/ 1	0/ [illegible]
11	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ [illegible]
12	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ [illegible]
13	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ [illegible]
14	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ [illegible]
15	0/ 5	0/ 5	2/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ [illegible]
16	0/ 5	0/ 5	1/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	0/ 1	0/ [illegible]
17	0/ 5	0/ 5	1/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	0/ 1	0/ [illegible]
18	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ [illegible]
19	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ [illegible]
20	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ [illegible]
21	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ [illegible]
22	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ [illegible]
23	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ [illegible]
24	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ [illegible]
25	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 2	0/ 0	0/ 0	0/ [illegible]
26	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 2	0/ 0	0/ 0	0/ [illegible]
27	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 2	0/ 0	0/ 0	0/ [illegible]
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ [illegible]

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Atmung unregelmäßig

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/ 0
1	0/ 5	0/ 5	0/ 5	0/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 4	0/ 0
2	0/ 5	0/ 5	0/ 5	0/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0
3	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0
4	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
5	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
6	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
7	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
8	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
9	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ 0
10	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	2/ 5	0/ 0	0/ 1	0/ 0
11	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	0/ 1	0/ 0
12	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	0/ 1	0/ 0
13	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	0/ 1	0/ 0
14	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
15	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
16	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
17	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
18	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ 0
19	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ 0
20	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
21	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
22	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
23	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
24	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
25	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
26	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
27	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER AG

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Motilität vermindert

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	5/ 5	5/ 5	5/ 5	5/ 5	0/ 0	0/ 5	4/ 5	5/ 5	5/ 5	5/ 5	0/ 0
1	0/ 5	0/ 5	5/ 5	4/ 4	2/ 2	0/ 0	0/ 5	0/ 5	4/ 5	5/ 5	4/ 4	0/ 0
2	0/ 5	0/ 5	0/ 5	4/ 4	1/ 2	0/ 0	0/ 5	0/ 5	0/ 5	5/ 5	1/ 1	0/ 0
3	0/ 5	0/ 5	0/ 5	3/ 3	2/ 2	0/ 0	0/ 5	0/ 5	1/ 5	3/ 3	0/ 1	0/ 0
4	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	1/ 1	0/ 1	0/ 0
5	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
6	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
7	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	1/ 1	0/ 0
8	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	1/ 1	1/ 1	0/ 0
9	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	1/ 1	0/ 0
10	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	1/ 1	0/ 0
11	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	1/ 1	0/ 0
12	0/ 5	0/ 5	2/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ 0
13	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ 0
14	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ 0
15	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ 0
16	0/ 5	0/ 5	3/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ 0
17	0/ 5	0/ 5	3/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ 0
18	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	1/ 1	0/ 0
19	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	1/ 1	0/ 0
20	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0
21	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0
22	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
23	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
24	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
25	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
26	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
27	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0

Legend: n = number of animals with signs, N = survivors [illegible]
M = males, F = females [illegible]

BAYER

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Fell ungepflegt

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/
1	0/ 5	2/ 5	5/ 5	4/ 4	2/ 2	0/ 0	0/ 5	5/ 5	5/ 5	5/ 5	4/ 4	0/
2	0/ 5	2/ 5	3/ 5	4/ 4	2/ 2	0/ 0	0/ 5	5/ 5	4/ 5	4/ 5	1/ 1	0/
3	0/ 5	0/ 5	0/ 5	0/ 3	1/ 2	0/ 0	0/ 5	0/ 5	3/ 5	3/ 3	0/ 1	0/
4	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	2/ 5	1/ 1	0/ 1	0/
5	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/
6	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/
7	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/
8	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	
9	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	
10	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/
11	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
12	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
13	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
14	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
15	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
16	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
17	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
18	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/
19	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/
20	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
21	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
22	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
23	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
24	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
25	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/
26	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/
27	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER AG

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Fell gestrubt

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	5/ 5	5/ 5	5/ 5	5/ 5	0/ 0	0/ 5	5/ 5	5/ 5	5/ 5	4/ 5	0/ 0
1	0/ 5	5/ 5	5/ 5	4/ 4	2/ 2	0/ 0	0/ 5	5/ 5	5/ 5	5/ 5	4/ 4	0/ 0
2	0/ 5	5/ 5	5/ 5	4/ 4	2/ 2	0/ 0	0/ 5	5/ 5	5/ 5	1/ 5	1/ 1	0/ 0
3	0/ 5	1/ 5	3/ 5	3/ 3	2/ 2	0/ 0	0/ 5	0/ 5	4/ 5	3/ 3	1/ 1	0/ 0
4	0/ 5	1/ 5	3/ 5	3/ 3	2/ 2	0/ 0	0/ 5	0/ 5	4/ 5	1/ 1	0/ 1	0/ 0
5	0/ 5	1/ 5	3/ 5	3/ 3	2/ 2	0/ 0	0/ 5	0/ 5	4/ 5	1/ 1	0/ 1	0/ 0
6	0/ 5	1/ 5	3/ 5	3/ 3	2/ 2	0/ 0	0/ 5	0/ 5	4/ 5	1/ 1	0/ 1	0/ 0
7	0/ 5	0/ 5	3/ 5	3/ 3	1/ 1	0/ 0	0/ 5	0/ 5	4/ 5	1/ 1	1/ 1	0/ 0
8	0/ 5	0/ 5	3/ 5	3/ 3	1/ 1	0/ 0	0/ 5	0/ 5	4/ 5	1/ 1	1/ 1	0/ 0
9	0/ 5	0/ 5	3/ 5	1/ 1	1/ 1	0/ 0	0/ 5	0/ 5	4/ 5	0/ 0	1/ 1	0/ 0
10	0/ 5	0/ 5	4/ 5	1/ 1	0/ 0	0/ 0	0/ 5	0/ 5	4/ 5	0/ 0	1/ 1	0/ 0
11	0/ 5	0/ 5	5/ 5	1/ 1	0/ 0	0/ 0	0/ 5	0/ 5	3/ 4	0/ 0	1/ 1	0/ 0
12	0/ 5	0/ 5	5/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	3/ 4	0/ 0	1/ 1	0/ 0
13	0/ 5	0/ 5	5/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	3/ 4	0/ 0	1/ 1	0/ 0
14	0/ 5	0/ 5	5/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	3/ 4	0/ 0	1/ 1	0/ 0
15	0/ 5	0/ 5	5/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	3/ 4	0/ 0	1/ 1	0/ 0
16	0/ 5	0/ 5	4/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	3/ 4	0/ 0	1/ 1	0/ 0
17	0/ 5	0/ 5	4/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	3/ 4	0/ 0	1/ 1	0/ 0
18	0/ 5	0/ 5	3/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 3	0/ 0	1/ 1	0/ 0
19	0/ 5	0/ 5	3/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 3	0/ 0	1/ 1	0/ 0
20	0/ 5	0/ 5	3/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0
21	0/ 5	0/ 5	3/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0
22	0/ 5	0/ 5	3/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0
23	0/ 5	0/ 5	3/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0
24	0/ 5	0/ 5	3/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0
25	0/ 5	0/ 5	3/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 2	0/ 0	0/ 0	0/ 0
26	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 2	0/ 0	0/ 0	0/ 0
27	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 2	0/ 0	0/ 0	0/ 0
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Schlaffheit

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	1/ 5	3/ 5	5/ 5	5/ 5	0/ 0	0/ 5	0/ 5	3/ 5	3/ 5	5/ 5	0/ [illegible]
1	0/ 5	0/ 5	2/ 5	3/ 4	1/ 2	0/ 0	0/ 5	0/ 5	3/ 5	4/ 5	0/ 4	0/ [illegible]
2	0/ 5	0/ 5	0/ 5	3/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	4/ 5	0/ 1	0/ [illegible]
3	0/ 5	0/ 5	0/ 5	2/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	2/ 3	0/ 1	0/ [illegible]
4	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ [illegible]
5	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ [illegible]
6	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ [illegible]
7	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	1/ 1	1/ 1	0/ [illegible]
8	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	1/ 1	1/ 1	[illegible]
9	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	1/ 1	[illegible]
10	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ [illegible]
11	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ [illegible]
12	0/ 5	0/ 5	2/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	0/ 1	0/ [illegible]
13	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	0/ 1	0/ [illegible]
14	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	0/ 1	0/ [illegible]
15	0/ 5	0/ 5	2/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	0/ 1	0/ [illegible]
16	0/ 5	0/ 5	2/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	0/ 1	0/ [illegible]
17	0/ 5	0/ 5	2/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	0/ 1	0/ [illegible]
18	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 1	0/ [illegible]
19	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	1/ 1	0/ [illegible]
20	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ [illegible]
21	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ [illegible]
22	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ [illegible]
23	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ [illegible]
24	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ [illegible]
25	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ [illegible]
26	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ [illegible]
27	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	[illegible]
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	[illegible]

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER AG

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Abmagerung

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/ 0
1	0/ 5	0/ 5	0/ 5	0/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 4	0/ 0
2	0/ 5	0/ 5	0/ 5	0/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0
3	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0
4	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
5	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
6	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
7	0/ 5	0/ 5	1/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	3/ 5	0/ 1	1/ 1	0/ 0
8	0/ 5	0/ 5	1/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	3/ 5	0/ 1	1/ 1	0/ 0
9	0/ 5	0/ 5	1/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	3/ 5	0/ 0	1/ 1	0/ 0
10	0/ 5	0/ 5	1/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	2/ 5	0/ 0	1/ 1	0/ 0
11	0/ 5	0/ 5	1/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ 0
12	0/ 5	0/ 5	3/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/ 0
13	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	1/ 1	0/ 0
14	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	1/ 1	0/ 0
15	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	1/ 1	0/ 0
16	0/ 5	0/ 5	3/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	1/ 1	0/ 0
17	0/ 5	0/ 5	3/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	1/ 1	0/ 0
18	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	1/ 1	0/ 0
19	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	1/ 1	0/ 0
20	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0
21	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0
22	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0
23	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0
24	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0
25	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
26	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
27	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER AG

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Nasenausfluß serös

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	0/ 5	0/ 5	2/ 5	0/ 5	0/ 0	0/ 5	0/ 5	2/ 5	5/ 5	2/ 5	0/ 0
1	0/ 5	0/ 5	0/ 5	0/ 4	1/ 2	0/ 0	0/ 5	0/ 5	1/ 5	0/ 5	3/ 4	0/ 0
2	0/ 5	0/ 5	0/ 5	0/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0
3	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0
4	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
5	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
6	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
7	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
8	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
9	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ 0
10	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ 0
11	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
12	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
13	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
14	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
15	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
16	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
17	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
18	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ 0
19	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ 0
20	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
21	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
22	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
23	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
24	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
25	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
26	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
27	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER AG

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Nasenspiegel gerötet

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/ 0	0/ 5	2/ 5	0/ 5	0/ 5	0/ 5	0/ 0
1	0/ 5	0/ 5	0/ 5	0/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 4	0/ 0
2	0/ 5	0/ 5	0/ 5	0/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0
3	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0
4	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
5	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
6	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
7	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
8	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0
9	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ 0
10	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ 0
11	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
12	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
13	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
14	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
15	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
16	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
17	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ 0
18	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ 0
19	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ 0
20	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
21	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
22	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
23	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
24	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0
25	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
26	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
27	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ 0
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER

Test compound: Isophorondiisocyanat
Study-no: T005S415

Sign: Nase und/oder Schnauze mit roten Verkrustungen

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	3/ 5	4/ 5	3/ 5	5/ 5	0/ 0	0/ 5	1/ 5	2/ 5	0/ 5	3/ 5	0/
1	0/ 5	3/ 5	3/ 5	4/ 4	2/ 2	0/ 0	0/ 5	4/ 5	2/ 5	5/ 5	2/ 4	0/
2	0/ 5	2/ 5	2/ 5	4/ 4	0/ 2	0/ 0	0/ 5	0/ 5	2/ 5	5/ 5	1/ 1	0/
3	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	1/ 5	2/ 3	0/ 1	0/
4	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	1/ 5	0/ 1	0/ 1	0/
5	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/
6	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/
7	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/
8	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/
9	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	
10	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	
11	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
12	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
13	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
14	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
15	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
16	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
17	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/
18	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/
19	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/
20	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
21	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
22	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
23	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
24	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/
25	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/
26	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/
27	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	

Legend: n = number of animals with signs, N = survivors
M = males, F = females

BAYER

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Schnupfenähnliche Geräusche

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.3
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/ [illegible]
1	0/ 5	0/ 5	0/ 5	0/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 3	0/ 4	0/ [illegible]
2	0/ 5	0/ 5	0/ 5	0/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 1	0/ [illegible]
3	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ [illegible]
4	0/ 5	0/ 5	0/ 5	0/ 3	2/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ [illegible]
5	0/ 5	0/ 5	0/ 5	0/ 3	1/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ [illegible]
6	0/ 5	0/ 5	0/ 5	0/ 3	1/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ [illegible]
7	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ [illegible]
8	0/ 5	0/ 5	0/ 5	0/ 3	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ [illegible]
9	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ [illegible]
10	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 5	0/ 0	0/ 1	0/ [illegible]
11	0/ 5	0/ 5	0/ 5	0/ 1	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ [illegible]
12	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ [illegible]
13	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ [illegible]
14	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ [illegible]
15	0/ 5	0/ 5	0/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ [illegible]
16	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ [illegible]
17	0/ 5	0/ 5	0/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 4	0/ 0	0/ 1	0/ [illegible]
18	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ [illegible]
19	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 1	0/ [illegible]
20	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ [illegible]
21	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ [illegible]
22	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ [illegible]
23	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ [illegible]
24	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ [illegible]
25	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ [illegible]
26	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ [illegible]
27	0/ 5	0/ 5	0/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/ [illegible]
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ [illegible]

Legend: n = number of animals with signs, N = survivors [illegible]
M = males, F = females [illegible] = X

BAYER

Test compound: Isophorondiisocyanat
Study-no: T0055415

Sign: Cyanose

	Analytical Concentration - mg/m3 air											
	0	20.4	53.3	73.8	104.6	410.3	0	20.4	53.3	73.8	104.6	410.
Sex	M	M	M	M	M	M	F	F	F	F	F	F
Day	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N	n/N
0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/ 0	0/ 5	0/ 5	0/ 5	0/ 5	0/ 5	0/
1	0/ 5	0/ 5	0/ 5	1/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	1/ 5	0/ 4	0/
2	0/ 5	0/ 5	0/ 5	1/ 4	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	1/ 5	0/ 1	0/
3	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	1/ 3	0/ 1	0/
4	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/
5	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/
6	0/ 5	0/ 5	0/ 5	0/ 3	0/ 2	0/ 0	0/ 5	0/ 5	0/ 5	0/ 1	0/ 1	0/
7	0/ 5	0/ 5	3/ 5	1/ 3	0/ 1	0/ 0	0/ 5	0/ 5	3/ 5	1/ 1	1/ 1	0/
8	0/ 5	0/ 5	3/ 5	3/ 3	0/ 1	0/ 0	0/ 5	0/ 5	3/ 5	1/ 1	1/ 1	0/
9	0/ 5	0/ 5	3/ 5	1/ 1	0/ 1	0/ 0	0/ 5	0/ 5	3/ 5	0/ 0	1/ 1	
10	0/ 5	0/ 5	3/ 5	1/ 1	0/ 0	0/ 0	0/ 5	0/ 5	2/ 5	0/ 0	1/ 1	0/
11	0/ 5	0/ 5	3/ 5	1/ 1	0/ 0	0/ 0	0/ 5	0/ 5	1/ 4	0/ 0	1/ 1	0/
12	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	1/ 1	0/
13	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	1/ 1	0/
14	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	1/ 1	0/
15	0/ 5	0/ 5	4/ 5	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	1/ 1	0/
16	0/ 5	0/ 5	3/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	0/ 1	0/
17	0/ 5	0/ 5	3/ 4	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	2/ 4	0/ 0	0/ 1	0/
18	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	1/ 1	0/
19	0/ 5	0/ 5	2/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	1/ 1	0/
20	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/
21	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/
22	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/
23	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/
24	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/
25	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/
26	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/
27	0/ 5	0/ 5	1/ 3	0/ 0	0/ 0	0/ 0	0/ 5	0/ 5	0/ 2	0/ 0	0/ 0	0/
28	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	(

Legend: n = number of animals with signs, N = survivors
M = males, F = females

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Reflex measurements

Day 1

Group	1	2	3	4	5	6
Actual Conc. (mg/m³)	Control	20.4	53.3	73.8	104.6	410.3
Sex	Male					
No. of Rats Investigated	(5)	(5)	(5)	(2)	(4)	(0)
Visual placing response	0	0	0	0	0	n.a.
Tonus	0	0	0	0	0	n.a.
Cornea reflex	0	0	0	0	0	n.a.
Light reflex	0	0	0	0	0	n.a.
Pinna reflex	0	0	0	0	0	n.a.
Startle reflex / sound	0	0	0	0	0	n.a.
Startle reflex / touch	0	0	0	0	0	n.a.
Tail-pinch response	0	0	0	0	0	n.a.
Righting response	0	0	0	1	1	n.a.
Grip strength	0	0	0	0	0	n.a.
Sex	Female					
No. of Rats Investigated	(5)	(5)	(5)	(4)	(5)	(0)
Visual placing response	0	0	0	0	0	n.a.
Tonus	0	0	0	0	0	n.a.
Cornea reflex	0	0	0	0	0	n.a.
Light reflex	0	0	0	0	0	n.a.
Pinna reflex	0	0	0	0	0	n.a.
Startle reflex / sound	0	0	0	0	1	n.a.
Startle reflex / touch	0	0	0	0	0	n.a.
Tail-pinch response	0	0	0	0	0	n.a.
Righting response	0	0	0	2	2	n.a.
Grip strength	0	0	0	0	0	n.a.

n.a. = not applicable

Number in table indicates incidence of abnormal reflexes (Positive responses: less susceptible to external stimuli or slower reactions)

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Reflex measurements (Cont.)

Day 3 (Group 5) / 5 (Group 4)

Group	4	5
Actual Conc. (mg/m³)	73.8	164.6
Sex	Male	
No. of Rats Investigated	(2)	(3)
Visual placing response	0	0
Tonus	0	0
Cornea reflex	0	0
Light reflex	0	0
Pinna reflex	0	0
Startle reflex / sound	0	0
Startle reflex / touch	0	0
Tail-pinch response	0	0
Righting response	0	0
Grip strength	0	0
Sex	Female	
No. of Rats Investigated	(1)	(3)
Visual placing response	0	0
Tonus	0	0
Cornea reflex	0	0
Light reflex	0	0
Pinna reflex	0	0
Startle reflex / sound	0	0
Startle reflex / touch	0	0
Tail-pinch response	0	0
Righting response	0	0
Grip strength	0	0

Number in table indicates incidence of abnormal reflexes (Positive response: less susceptible to external stimuli or slower reactions)

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Gross pathology report

Individual findings / male rats

Conc. (mg/m³)	Animal No.	Time of death	Sacrificed after	Gross pathology findings
0	1		28d	no observable findings
	2		28d	no observable findings
	3		28d	no observable findings
	4		28d	no observable findings
	5		28d	no observable findings
20.4	41		28d	no observable findings
	42		28d	no observable findings
	43		28d	no observable findings
	44		28d	lung with grey-red foci
	45		28d	lung with dark-red foci
53.3	51		28d	lung less collapsed, with dark-red foci
	52	28d		lung less collapsed, with dark-red foci other organs autolytic
	53		28d	lung less collapsed, with dark-red foci
	54	16d		lung less collapsed small intestine with reddenings
	55	18d		organs autolytic
73.8	61	12d		lung less collapsed small intestine with reddenings
	62	9d		lung less collapsed, with dark-red foci small intestine yellowish-reddish content liver spotted spleen pale pelvis of kidneys with reddenings
	63	1d		nose mucous membrane with reddenings pleural cavity with ca. 0.3 ml clear liquid lung with dark-red foci small intestine with yellowish content kidneys marbled
	64	3d		nose/muzzle with red incrustations pleural cavity with ca. 0.3 ml clear liquid lung less collapsed, with dark-red foci small intestine with yellowish content liver with distinct lobular pattern

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Gross pathology report (Cont.)

Individual findings / male rats

Conc. (mg/m³)	Animal No.	Time of death	Sacrificed after	Gross pathology findings
73.8	65	9d		lung less collapsed, with dark-red foci small intestine with reddening and reddish yellowish content pelvis of kidneys with reddenings
104.6	31	7d		lung less collapsed, with dark-red foci small intestine with reddening and reddish content kidneys pale pelvis of kidneys with reddenings
	32	1d		nose moucous membrane with reddenings pleural cavity with ca. 1 ml clear liquid lung less collapsed, diffusely dark-red, escape of liquid at the cut part
	33	10d		lung less collapsed, with dark-red foci small intestine with reddening and reddish content
	34	1d		pleural cavity with ca. 1 ml clear liquid lung less collapsed, diffusely dark-red, escape of liquid at the cut part
	35	1d		nose moucous membrane with reddenings pleural cavity with ca. 1 ml clear liquid lung less collapsed, with dark-red foci, escape of liquid at the cut part
410.3	21	≤4h		pleural cavity with ca. 1 ml clear liquid lung diffusely dark-red, escape of liquid at the cut part
	22	≤4h		nose/muzzle with reddenings and wet pleural cavity with ca. 1 ml clear liquid lung diffusely dark-red, spongy, escape of liquid at the cut part small intestine with reddenings
	23	≤4h		pleural cavity with ca. 1 ml red liquid lung diffusely dark-red, spongy, escape of liquid at the cut part small intestine with reddenings

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Gross pathology report (Cont.)

Individual findings / male rats

Conc. (mg/m³)	Animal No.	Time of death	Sacrificed after	Gross pathology findings
410.3	24	≤4h		pleural cavity with ca. 0.5 ml red liquid lung diffusely dark-red, solid
	25	≤4h		pleural cavity with ca. 1 ml clear liquid lung diffusely dark-red, spongy, escape of liquid at the cut part

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Gross pathology report (Cont.)

Individual findings / female rats

Conc. (mg/m³)	Animal No.	Time of death	Sacrificed after	Gross pathology findings
0	6		28d	no observable findings
	7		28d	no observable findings
	8		28d	no observable findings
	9		28d	no observable findings
	10		28d	lung with pale foci
20.4	46		28d	no observable findings
	47		28d	no observable findings
	48		28d	no observable findings
	49		28d	no observable findings
	50		28d	no observable findings
53.3	56		28d	lung dark-red
	57	18d		lung dark-red small intestine with reddenings
	58		28d	lung less collapsed, with dark-red foci
	59	11d		lung less collapsed, with dark-red foci other organs autolytic
	60	25d		lung less collapsed other organs autolytic
73.8	66	4d		lung less collapsed, with dark-red foci small intestine with yellowish content
	67	3d		nose with red incrustations, mucous membrane with reddenings pleural cavity with ca. 0.3 ml clear liquid lung less collapsed, with dark-red foci small intestine with yellowish content liver pale, with distinct lobular pattern
	68	4d		lung less collapsed, with dark-red foci small intestine with yellowish content liver pale, with distinct lobular pattern
	69	3d		nose/muzzle with red incrustations lung less collapsed, with dark-red foci small intestine with yellowish content liver with distinct lobular pattern

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Gross pathology report (Cont.)

Individual findings / female rats

Conc. (mg/m³)	Animal No.	Time of death	Sacrificed after	Gross pathology findings
73.8	70	9d		lung less collapsed, with dark-red foci liver pale, with distinct lobular pattern other organs autolytic
104.6	36	2d		nose with red incrustations pleural cavity with ca. 0.5 ml clear liquid lung with dark-red foci small intestine with yellowish-reddish content liver pale, with distinct lobular pattern spleen pale
	37	2d		lung less collapsed, with dark-red foci small intestine with yellowish-reddish content liver pale, with distinct lobular pattern
	38	1d		pleural cavity with ca. 0.5 ml clear liquid lung less collapsed, with dark-red foci, escape of liquid at the cut part
	39	20d		pleural cavity with ca. 0.3 ml clear liquid lung less collapsed, emphysematous, with dark-red foci small intestine with reddenings and reddish content
	40	2d		nose/muzzle with red incrustations lung less collapsed, with dark-red foci small intestine with yellowish-reddish content liver with distinct lobular pattern spleen pale
410.3	26	≤4h		fur near nose/muzzle red and wet nose mucous membrane with reddenings pleural cavity with ca. 1 ml clear liquid lung diffusely black-red, spongy, escape of liquid at the cut part small intestine with reddenings and reddish content
	27	≤4h		pleural cavity with ca. 1 ml clear liquid lung diffusely black-red, escape of liquid at the cut part small intestine with reddenings and reddish content

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Gross pathology report (Cont.)

Individual findings / female rats

Conc. (mg/m³)	Animal No.	Time of death	Sacrificed after	Gross pathology findings
410.3	28	≤4h		pleural cavity with ca. 1 ml clear liquid lung diffusely black-red, escape of liquid at the cut part small intestine with reddenings and reddish content
	29	≤4h		pleural cavity with ca. 1 ml clear liquid lung diffusely black-red, escape of liquid at the cut part small intestine with reddenings and reddish content
	30	6h		pleural cavity with ca. 1 ml clear liquid lung less collapsed, diffusely dark-red, escape of liquid at the cut part

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Chow specification

Nutrients: ALTROMIN Standard 1320 Rat & Mouse Maintenance Diet / Totally Pathogene Free TPF® has now been successfully used for in excess of 30 years and is normally fed to animals aged 8 weeks or over. The diet should be offered ad libitum together with an ample supply of fresh water. Sealed in polyethylene lined sacks, ALTROMIN 1320 can be passed directly into the SPF facility following surface disinfection. ALTROMIN 1324 consists of 10.0 mm pellets.

Specification of Maintenance Diet Rats/Mice

Nutrients (average % content in the diet)		Amino Acids (average % content in the diet)	
Crude protein	19.0	Lysine	0.90
Crude fat	4.0	Methionine	0.30
Crude fiber	6.0	Cystine	0.30
Ash	7.0	Phenylalanine	0.80
Moisture	13.5	Tyrosine	0.60
Nitrogen-free extract	50.5	Arginine	1.10
		Histidine	0.40
Metabolizable Energy (calculated)		Tryptophane	0.20
Kcal/kg	2850.0	Threonine	0.60
MJ/kg	11.9	Isoleucine	0.80
		Leucine	1.30
Minerals (average % content in the diet)		Valine	0.90
Calcium	0.9		
Phosphorus	0.7	Trace elements (average mg content in 1 kg diet)	
Magnesium	0.2	Manganese	75.0
Sodium	0.2	Iron	180.0
Potassium	1.0	Copper	13.0
		Zinc	70.0
		Iodine	0.9
		Fluorine	15.0

Vitamins (additive in 1 kg diet)	Standard-Diet	Standard-Diet (Stillbed)
Vitamin A	15000.0 IU	25000.0 IU
Vitamin D_3	600.0 IU	1000.0 IU
Vitamin E	75.0 mg	[illegible]
Vitamin K_3	3.0 mg	[illegible]
Vitamin B_1	18.0 mg	[illegible]
Vitamin B_2	12.0 mg	[illegible]
Vitamin B_6	9.0 mg	[illegible]
Vitamin B_{12}	24.0 mg	[illegible]
Nicotinic acid	[illegible] mg	[illegible]
Pantothenic acid	[illegible] mg	[illegible]
Folic acid	[illegible] mg	[illegible]
Biotin	[illegible] mg	[illegible]
Choline	[illegible] mg	[illegible]
Vitamin C	[illegible] mg	[illegible]

Chow Specification - Impurities:

Impurity	Max. acceptable value	LUFA - Limit of detection	Altromin *)
Aflatoxine B_1 / B_2	0.01	0.0025	nd
Aflatoxine G_1 / G_2	0.01	0.0025	nd
Antibiotic activity	± 0		nd
Arsenic	2.0	0.2	0.3
Fluoride	150.0	5.0	22.0
Mercury	0.1	0.01	0.08
Lead	5.0	0.1	0.37
Cadmium		0.01	0.10
Selenium		0.10	1.0
Tecnazene		0.001	< 0.001
Quintozene		0.001	< 0.001
HCB (Hexachlorbenzene)		0.001	< 0.001
α -HCH		0.001	< 0.001
β -HCH		0.002	< 0.002
γ -HCH	0.1	0.001	0.002
Heptachlor	0.03	0.005	< 0.005
Heptachlorepoxid	0.03	0.005	< 0.005
α - Chlordan	0.05	0.005	< 0.005
γ - Chlordan	0.05	0.005	< 0.005
Aldrin	0.02	0.005	< 0.005
Dieldrin	0.02	0.005	< 0.005
Endrin	0.02	0.01	< 0.01
o,p - DDE	0.05	0.005	< 0.005
p,p - DDE	0.05	0.005	< 0.005
o,p - DDD	0.05	0.005	< 0.005
o,p - DDT	0.05	0.005	< 0.005
p,p - DDD	0.05	0.01	< 0.01
p,p - DDT	0.05	0.01	< 0.01
Methoxychlor		0.01	< 0.01
PCB qual.			nd
Chlorthion		0.01	< 0.01
Disulfothion		0.005	< 0.005
Malathion		0.01	< 0.01
Methylparathion		0.005	< 0.005
Ethylparathion		0.01	< 0.01
Sulfotepp		0.002	< 0.002
Fenthion		0.005	< 0.005
Diazinon		0.01	< 0.01
Dibrom		0.02	< 0.02
Dimethoate		0.005	< 0.005
Trichlorphon		0.01	< 0.01
Fenitrothion		0.01	< 0.01

*) In this study Altromin 1324 was used. 4 is the [illegible] (pelletation.

Diagnostic firm

Max. detectable

Tap water specification

No.	Substance	Limit mg/l	computed as	equivalent mmol/m³	acceptable error of value (± mg/l)
1	Arsenic	0.04	As	0.5	0.015
2	Lead	0.04	Pb	0.2	0.02
3	Cadmium	0.005	Cd	0.04	0.002
4	Chrome	0.05	Cr	1	0.01
5	Cyanide	0.05	CN-	2	0.01
6	Fluoride	1.5	F-	79	0.2
7	Nickel	0.05	Ni	0.9	0.01
8	Nitrate	50	NO_3^-	806	2
9	Nitrite	0.1	NO_2^-	2.2	0.02
10	Mercury	0.001	Hg	0.005	0.0005
11	Polycyclic aromatic carbohyrates - Fluoranthene - Benzo-b-fluoranthene - Benzo-k-fluoranthene - Benzo-a-pyrene - Benzo-(ghi)-perylene - Indeno-(1,2,3-cd)-pyrene	sum 0.0002	C	0.02	0.00004
12	Organochlorine compounds - 1,1,1-Trichlorethane - Trichlorethylene - Tetrachlorethylene - Dichlormethane	sum 0.01	-	-	0.004
	- Tetrachlormethane	0.003	CCl_4	0.02	0.001
13	a. Pesticides	individual compound 0.0001	-	-	0.00005
	b. Polychlorinated Polybrominated biphenyles and terphenyles	sum 0.0005	-	-	0.0002
14	Antimony	0.01	Sb	0.08	[illegible]
15	Selenium	0.01	Se	0.13	[illegible]

According to Drinking Water Decree of 05.12.1990, Bundesgesetzblatt [illegible] 2012

BAYER AG
DEPARTMENT OF TOXICOLOGY
FRIEDRICH-EBERT-STR. 217-333
D-42096 WUPPERTAL

ISOPHORONDIISOCYANAT

CONCENTRATION DETERMINATIONS IN TEST ATMOSPHERES

Analytic Report

by

Dr. W. Rüngeler

Study-No.: T0055415

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2. SUMMARY

An analytical method is described that can be used to determine the concentration of the test material ISOPHORONDIISOCYANAT (IPDI) in test atmospheres.

The test material as an aerosol is adsorbed on glass powder loaded with N-4-nitrobenzyl-N-n-propylamine solution (nitro reagent). The isocyanate component reacts to form the corresponding urea derivative. After desorption with acetonitrile, the reaction product is quantified by high-performance liquid chromatography (HPLC; UV detection).
Standard solutions of the test material treated similary to test samples with the nitro reagent were used as basis for evaluation.

With a 10 litres atmosphere sample and an end solution volume of 50 ml, the limit of quantification for this test substance has been found to be 7,05 mg test material/m^3.

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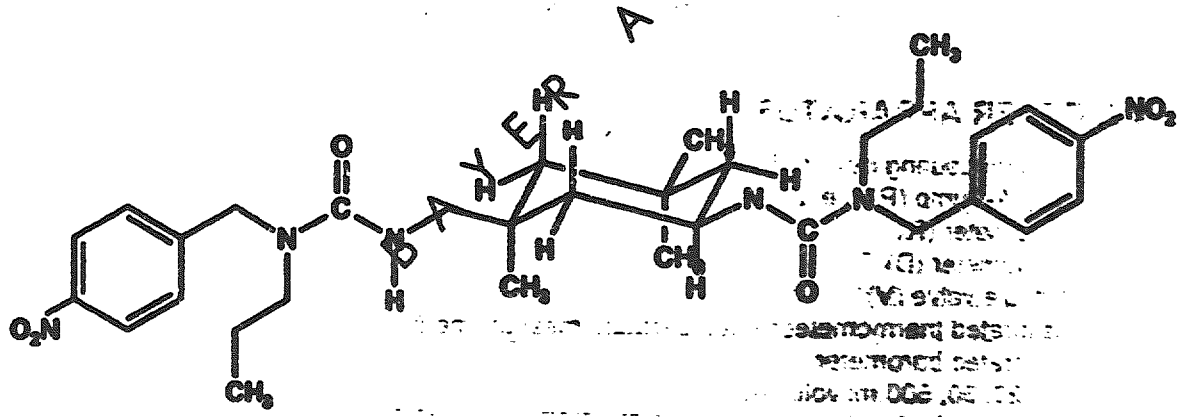
3. INTRODUCTION

An analytical method for the quantification of ISOPHORONDIISOCYANAT from test atmospheres was developed. This work was conducted in preparation for investigations on the inhalation toxicity of this test material. The method and its validation is described in this report.

In this method, developed by N. Kuck and modified by ourselves, the test material as an aerosol is allowed to react with N-4-nitrobenzyl-N-n-propylamine (nitro reagent) to form the corresponding urea compound (I), which is then determined by high-performance liquid chromatography (HPLC) with UV detection. The test material as an aerosol is adsorbed from the test atmosphere in two series-connected tubes packed with glass powder loaded with the nitro reagent solution. The IPDI urea derivative (I) was then desorbed with acetonitrile and the solution was injected, after appropriate dilution, onto the HPLC.

Standard solutions of the test material treated similary to test samples with the nitro-reagent were used as basis for evaluation.

ISOPHORONDIISOCYANAT-urea derivative (I):



Investigations necessary for drafting the Standard Operating Procedure were conducted in August 1993 at the Institute of Toxicology/Agriculture, Department of Toxicology of Bayer AG, D-42096 Wuppertal-Elberfeld, Friedrich-Ebert-Straße 217-333.

The study documentation is filed in the Archive of the Department of Toxicology.

Study-No.: T0055415

4. MATERIALS AND METHOD

4.1. HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

4.1.1. Apparatus

High performance liquid chromatograph HP1090 equipped with
- Autosampler
- DAD (diode array detector)
- Integration: HP 3365 DOS-WorkStation; (PHOENIX 3D; Vers. 2.0)

from Hewlett-Packard

4.1.2. Method

Column:	Nucleosil RP 18	5 µm; L: 125 mm; ID: 4mm; Macherey & Nagel
Oven temperature:		40°C
Mobile phase:	A:	50% buffer solution
	B:	50% acetonitrile
	gradient program:	time 3 min: 50%B --> time 7 min: 85%B
	buffer composition:	2ml H_3PO_4+4ml Triethylamine ad 1000 ml Milli-Q-water
Flow rate:		1,0 ml/min
Injection volume:		20,0 µl
Detector:	wavelength:	275 nm
	band width (BW):	8 nm
	reference:	400 nm / 100 nm BW

4.2. OTHER APPARATUS

Gas measuring device (Elster)
Mini A-Pump (P) (Leybold-Heräeus)
Rotameter (R)
Manometer (D)
Needle valve (V)
calibrated thermometer for temperature measurement
calibrated barometer
10, 20, 50, 500 ml volumetric flasks
Glasfunnel, diameter: about 7 cm

small adsorption tubes with ground-glass joints (L = 120 mm, ID = 12 mm)
Packing: each tube 4 g glass powder
small adsorption tubes with ground-glass joints (L = 65 mm, ID = 12 mm)
Packing: each tube 2 g glass powder

Gas tight syringes (25 µl; 100 µl; 250 µl; 10 ml ; Hamilton)

or equivalent

(The apparatus is regulary maintained and calibrated.)

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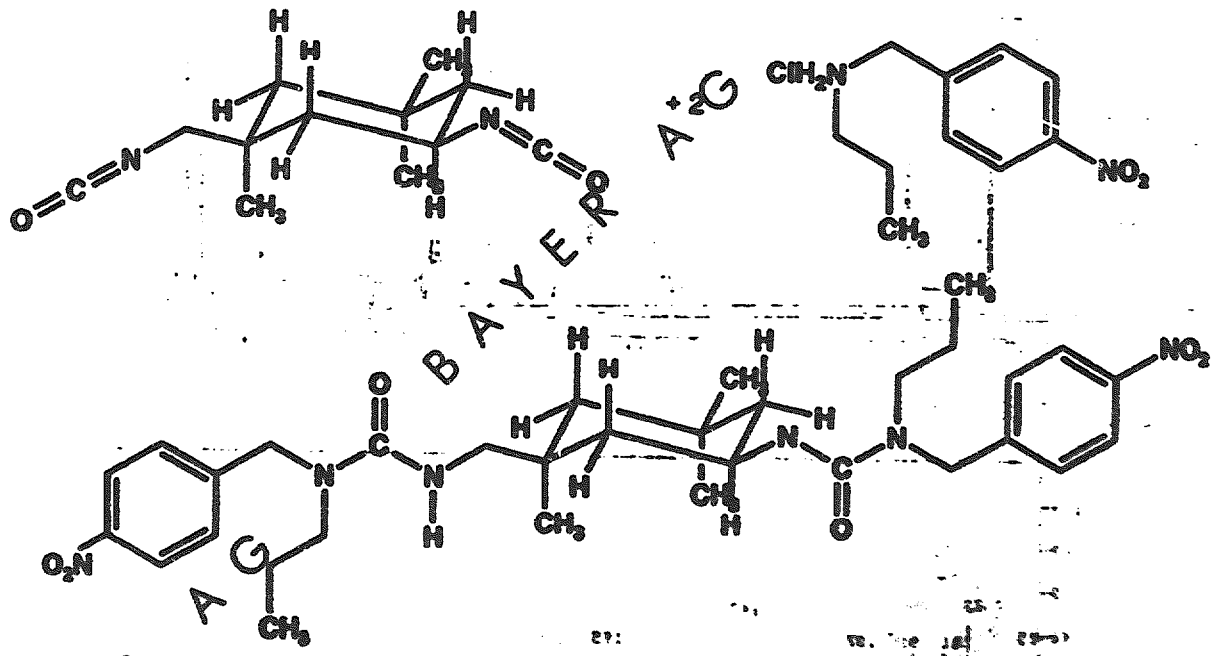
4.3. SOLVENTS AND CHEMICALS

Acetonitrile p.a.; Merck
Deionized water (Milli-Q-water), available from Milli-Q plus unit, Fa. Millipore
Dichloromethane p.A., Merck
N-4-Nitrobenzyl-N-n-propylammonium chloride p.A., Fa. Riedel de Haen, No. 33487
Glass powder 40/60 mesh; G. Karl, Part-No. GK 26-48004
sodium sulfate p.A., Merck
Phosphoric acid (85%ig)
Triethylamine

4.3.1. Nitro reagent solution (absorption solution)

1.6 g N-4-nitrobenzyl-N-n-propylammonium chloride (corresponding to 1.34 g free base) is dissolved in 100 ml of deionized water and 50 ml of 1 N sodium hydroxide solution is added. A white precipitate (free base) is formed. The aqueous suspension is transferred into a 500 ml separating funnel and extracted with 250 ml dichloromethane. The organic phase is separated off, dried over sodium sulfate, transferred into a 500 ml volumetric flask, and made up to the mark with dichloromethane. This solution contains 2.7 mg nitro reagent (free base)/ml dichloromethane. The solution can be used as an absorption solution in impinger-flasks as well as for sample collection with glass powder-packed tubes, the nitro reagent serving to load the adsorbent carrier material.



empirical formula of the urea derivative [illegible]
The structure of the reaction product formed from ISOPHORONDIISOCYANAT (IPDI) and nitro reagent is shown in the above equation. This urea derivative is analyzed in the HPLC (UV [illegible]) and is quantified, after recalculation, as free IPDI.

4.3.2. Calibration standards

30-50 mg of the test material is pipetted into a 50 ml volumetric flask and accurately weighed. The flask is then brought up to volume with nitro reagent solution (concentration [illegible]). Calibration standards in the desired concentrations are prepared from this [illegible] dichloromethane or acetonitrile.

4.4.3. Structure elucidation of IPDI urea-derivative (I):

ISOPHORONDIISOCYANAT urea-derivative was synthesized to check the component identity and for verification of chromatogram peaks.
ISOPHORONDIISOCYANAT is added slowly to an appropriate volume of nitro reagent solution. After the reaction has finished the solvent is evaporated and the residue of the desired product is separated, and dried overnight at 40°C. The product has a content of 95,5% (HPLC-area%). There are two isomeres in the reaction product depending from axial and equatorial positions of the CH_2CNO- and CH_3- groups. The spectra (^{1}H-NMR; ^{13}C-NMR; MS) shown below confirm the structure unambiguously. The structure elucidation was performed in the department: Bayer AG PH-AQ-F / Dr. Wünsche.

Figure 1a: ^{1}H-NMR spectrum

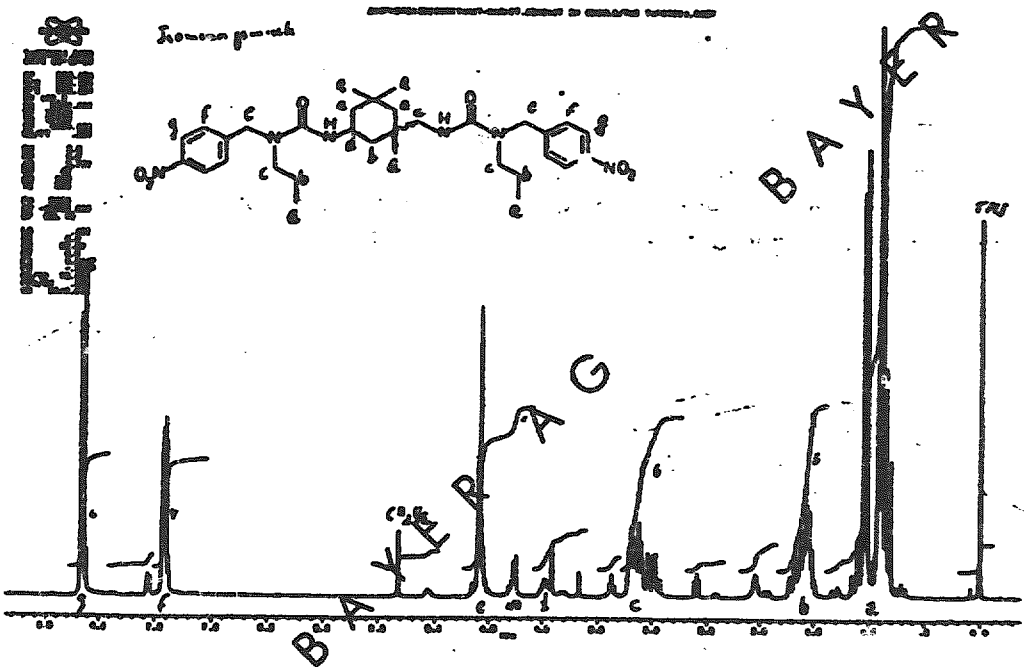
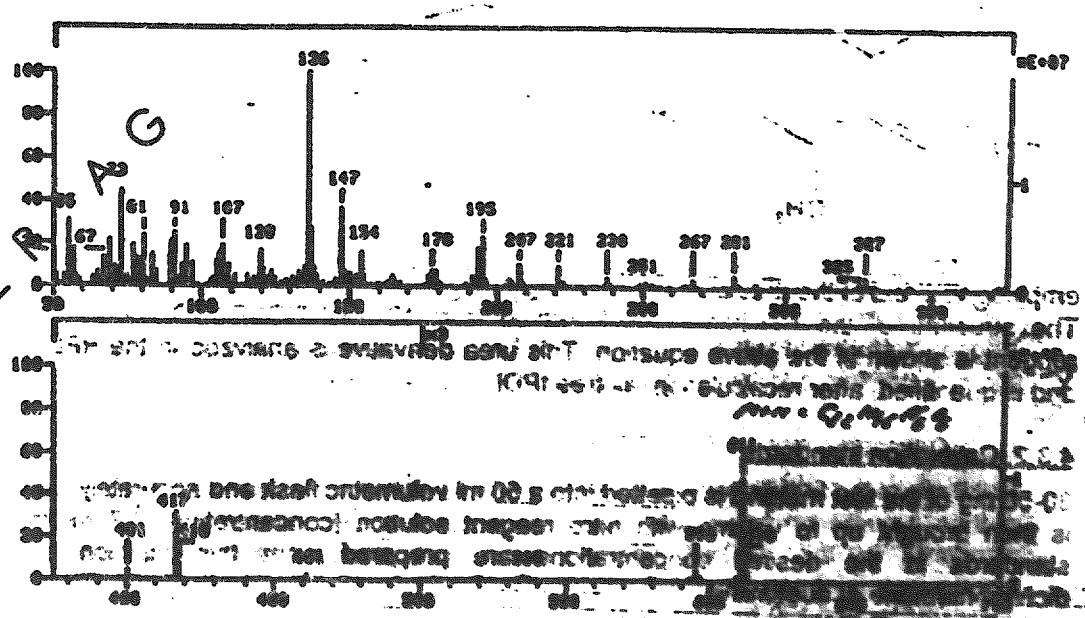


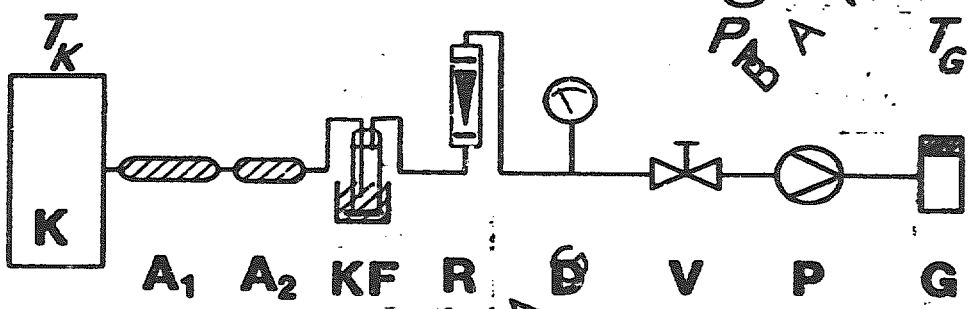
Figure 1b: MS spectrum



5. SAMPLE COLLECTION AND PREPARATION

The surface of the glass powder in each adsorption tube is first loaded with 1 ml of the nitro reagent solution. The solvent is collected and discarded. Two series-connected adsorption tubes pretreated in the described way (A_1: 4g; A_2: 2g) are connected to the sampling apparatus (air throughput 0,5 to 1,0 l/min) (Fig. 2). The total volume of sampled air (V_X) the temperature of the gas flowmeter (T_G) the chamber temperature (T_K) and the barometric pressure (P_A) are recorded. After the end of the sample collection adsorption tubes (A_1, A_2) are mounted against the flow direction on a 50 ml volumetric flask. To desorb the urea derivative a funnel is fitted and 45 ml of acetonitrile is passed slowly through the tubes. The contents of the volumetric flask are then made up to the mark with acetonitrile. Samples of low concentration (approx. 1 mg/m³) are eluted with 25 ml of acetonitrile. Solutions are then injected onto the HPLC after appropriate dilution.

Figure 2: Sample collection apparatus



K	Inhalation chamber	V	Needle valve
A_1	Adsorption tube; packing: 4 g glass powder	P	Pump
A_2	Adsorption tube; packing: 2 g glass powder	T_G	Temperature of Gas flow meter
KF	condenser (optional)	T_K	Temperature of chamber
R	Rotameter	P_A	Barometeric pressure
D	Manometer	G	Gas flow meter

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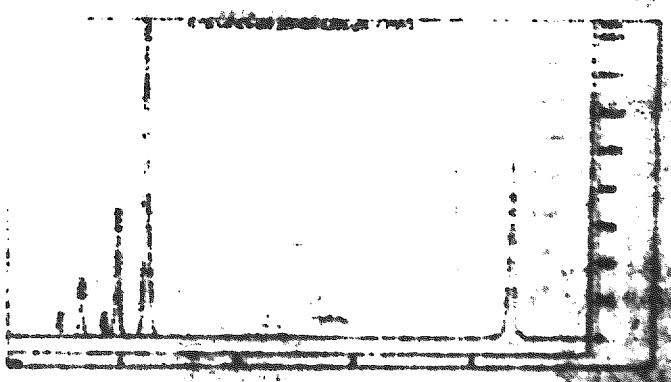


6. CALIBRATION OF THE ANALYTICAL METHOD

To set up the calibration series, test material solutions in nitro reagent solution were prepared with appropriate concentrations (see 4.4.2.). Method-specific adjustments were made on the HPLC and 20,0 µl of each calibration concentration was injected twice in succession.

Measurement wavelength: 275 nm (see the UV spectrum, Fig. 3).
Fig. 5 shows a typical chromatogram of these calibration solutions. The calibration line is plotted anew for each analysis sequence, thus deviations from the calibration range presented here are possible. The chromatograms were evaluated with reference to the urea derivative peak area of isomer I:

Retention time:	IPDI urea derivative (isomer I)	approx. 7,6 min
	IPDI urea derivative (isomer II)	approx. 8,1 min
	concentration range:	1,41 to 203,4 µg/ml

The statistically evaluated calibration curve is shown in Fig. 4. This curve was plotted by the integrator and was based upon the injected concentrations.

Figure 3: UV spectra of the IPDI urea derivative

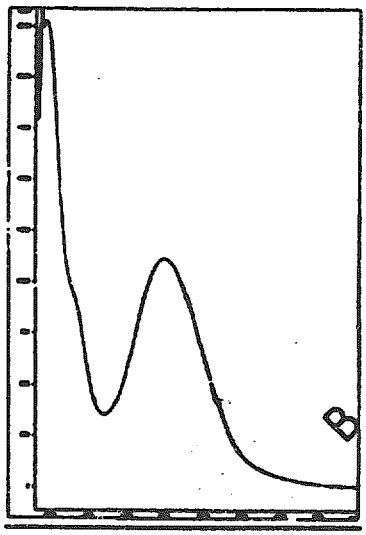
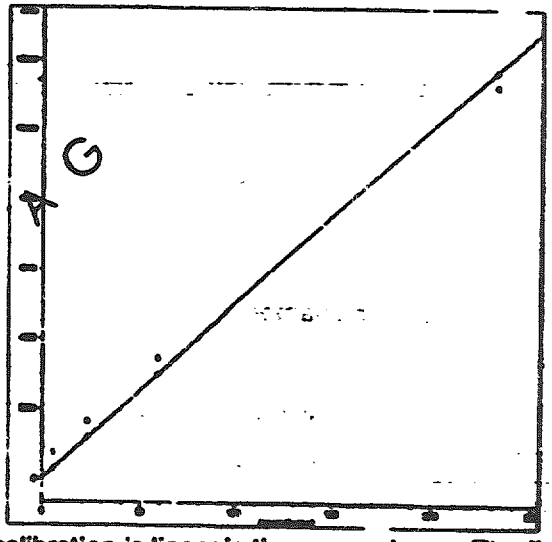
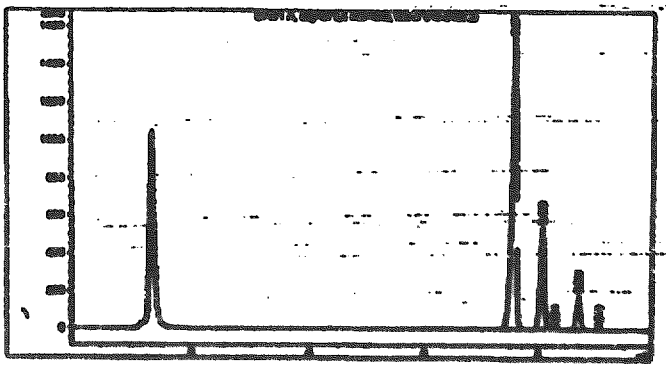


Figure 4: typical calibration curve for the analytical method



The calibration is linear in the range shown. The linear regression value: r^2 = 1,0000 .

Figure 5: LC chromatogram of the test substance urea derivative concentration: 203,4 µg/ml



7. CALCULATION OF THE ANALYTICAL RESULTS

Each sample within a sequence was injected twice. Since the sample and standard are treated identically, the concentration results do not need to be recalculated. The integrator evaluates each sample based on the plotted external standard calibration curve (see section 6.). The results are expressed in units of µg test material/ml solution.
The test material concentration in the test atmosphere is determined from the relationship:

$$\text{mg test material} / m^3 \text{ air} = \frac{X \cdot F}{V_x} \cdot \frac{(273 + T_G)}{(273 + T_K)}$$

F		dilution factor (= 50 for undiluted analytical solution)
X	[µg/ml]	test material concentration in the analytical solution
V_X	[l]	chamber atmosphere collected volume
T_G	[°C]	temperature of the gas flowmeter
T_K	[°C]	temperature of the inhalation chamber

8. STABILITY

Product	Period	Medium	Temperature	Source
test material urea derivative	4 days	acetonitrile	room temperature	Study No. T0055415
test material urea derivative	1 hour	packing material (glass powder)	room temperature	Study No. T0055415
test material	4 hours	Aceton (dried)	room temperature	Study No. T0055415

All solutions tested were found to be stable. No decrease in concentration was observed. The chromatographic sample preparation (elution of test material from glass powder, dilution, and injection) all are inducted during the tested time frames.

9. PRECISION

The precision of this analytical method was assessed by 10 separate injections for each of two different concentrations of the calibration standards. The area values obtained are presented in table 1. The precision of this method was found to satisfy the analytical requirements.

Table 1:

1,410 [µg/ml]	203,400 [µg/ml]
—	9210,446
67,410	9287,275
66,514	9301,448
64,145	9245,971
64,375	9237,607
71,017	9272,270
66,550	9222,041
67,420	9245,875
67,369	9166,107
65,871	9207,749
MEAN = 66,741	MEAN = 9239,879
V = 3,03%	V = 0,44%

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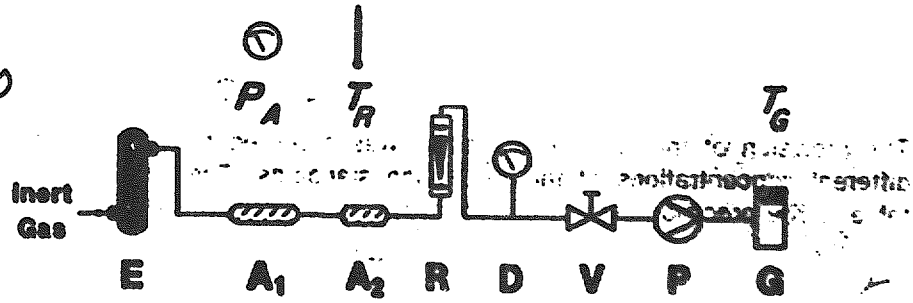
10. RECOVERY

To determine the recovery, a solution was prepared that contained 912,0 µg test material/ml acetonitrile. 1,0 ml portion of this solution (912,0 µg in absolute amounts) were added from a pipette to the glass powder (loaded with 1 ml of nitro reagent solution) of the first of two series-connected adsorption tubes (A_1).
The sampling was performed with the instrument shown in Fig. 6. The air throughput was 1.0 l/min and the volume was 10 l of dried air. At the end of the test the tubes were eluted jointly with 50 ml acetonitrile. The content quantification based on the plotted calibration curve (see section 6.) onto the HPLC.

The results are summarized in Table 2. The recovery was 102,3%. The total amount of test material was contained in the first adsorption tube (A_1) (no test material was detected in the eluate from A_2). This agrees with preliminary experiments conducted under conditions of inhalation toxicological testing.

Figure 6: Apparatus for the determination of the recovery



Inert Gas:	dried air	P	Pump
E	drying tower ($CaCl_2$)	G	Gas flow meter
A_1	4 g glass powder + test material	T_R, T_G	temperatures: room temp.; Gas flow meter
A_2	2 g glass powder	P_A	barometric pressure
V	needle valve		

Table 2: Transfer rate results

No.	RECOVERY		
	target-concentration [µg]	actual-concentration [µg]	actual-concentration [%]
1	912,0	934,6	102,5
2	912,0	930,5	102,0
mean (= recovery):			102,3%

11. DETECTION LIMIT

The lowest detection limit of this analytical method is 1,41 µg test material/ml in acetonitrile. With a sample collection volume of 10 litres and an end dilution volume of 50 ml, a concentration of 7,05 mg test material/m^3 can be accurately determined.

12. LITERATURE

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