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**CYCLOHEXANONE**  
***CAS N°: 108-94-1***

## Substance

<i>End Point</i>	:	<b>IDENTIFIERS, PHYSICAL AND CHEMICAL PROPERTIES</b>
<i>Chemical Name</i>	:	<b>Cyclohexanone</b>
<i>Common Name</i>	:	<b>Cyclohexanone</b>
<i>CAS Number</i>	:	<b>108-94-1</b>
<i>RTECS Number</i>	:	<b>GW1050000</b>

## Synonyms

<b>Anon</b>	<b>Anone</b>
<b>Cyclohexyl ketone</b>	<b>Hexanon</b>
<b>Hytrol O</b>	<b>Ketohexamethylene</b>
<b>Nadone</b>	<b>Pimelic ketone</b>
<b>Pimelin ketone</b>	<b>Sextone</b>

## Properties & Definitions

<i>Molecular Formula</i>	:	<b>C6H10O</b>
<i>Molecular Weight</i>	:	<b>98.14</b>
<i>Melting Point</i>	:	<b>-32.1C</b>
<i>Boiling Point</i>	:	<b>155.65C</b>
<i>State</i>	:	<b>Liquid, oily</b>
<i>Flash Point</i>	:	<b>63C (c-cup)*</b>
<i>Flamable Limit</i>	:	<b>1.1-9.4%; combustible</b>
<i>Density</i>	:	<b>0.9478 at 20C</b>
<i>Vapour Pressure</i>	:	<b>0.67 kPa (5 mmHg) at 25C</b>
<i>Octanol/Water Partition Coefficient</i>	:	<b>log Pow = 0.0805 calculated</b>
<i>Water Solubility</i>	:	<b>23 g/L at 25C</b>
<i>Solubility in other Solvents</i>	:	<b>Soluble in alcohol, ether, benzene and chloroform.</b>
<i>Odour</i>	:	<b>Reminiscent peppermint,acetone</b>
<i>Additives</i>	:	<b>None</b>
<i>General Comments</i>	:	<b>*For FP the value 44 (c-cup) is also reported. Composition of the feedstok is typically 38% cyclohexanone mixed with 44% adipic acid, 3-4% other materials (valeric acid, hexyl valerate, pentanol, hexyl formate, valeraldehyde, caproaldehyde) and water. Refractive index n<sub>20</sub>/D = 1.4507. Autoignition temperature = 420C. Freezing point = -16.4C. Vapour harmful.</b>

## Overall Evaluation

CURRENTLY OF LOW PRIORITY FOR FURTHER WORK

### SIDS INITIAL ASSESSMENT

Cyclohexanone is used in organic synthesis, particularly in the production of adipic acid and caprolactam (ca. 95%), polyvinyl chloride and its copolymers, and methacrylate ester polymers. Additional uses include wood stains, paint and varnish removers, spot remover, degreasing of metals, polishes, levelling agents, dyeing and delustering silk, lubricating oil additives, solvent for herbicides, cellulosics, natural and synthetic resins, waxes, fats, etc.

For processes involving closed systems, occupational and consumer exposure is expected to be minimal. Air monitoring at sites using closed systems has detected 1.5E-3 and 0.16 ppm cyclohexanone; personal monitoring values range from 0.07 to 0.5 ppm. Those values are significantly less than the international exposure standard for cyclohexanone which is 25 ppm (time weighted average). It is expected that occupational and consumer exposure may occur when cyclohexanone is used as a solvent; however, details regarding levels of use and exposure have not been provided by other countries.

This material degrades rapidly by reaction with sunlight and is biodegradable in water. On soil surfaces and in water, cyclohexanone is expected to be eliminated by volatilization, photolysis, and biodegradation. Based on the low Koc, this material is considered to be highly mobile in soil. Fugacity level Ib environmental modeling indicates that cyclohexanone will partition almost exclusively to the air (31%) and water (69%). Level III modeling for southern Ontario, Canada, indicates that emission of cyclohexanone will result in the partition of this material into air (16.3%) and water (83.6%) and that the concentrations in soil and sediment will be very low. Concentrations in ambient air in the vicinity of a U.S. industrial site ranged from 22 to 158 ng/m<sup>3</sup> (5.5E-6 to 3.9E-5 ppm). The low octanol/water coefficient suggests that cyclohexanone is unlikely to bioconcentrate in aquatic organisms; therefore, potential for secondary poisoning is low.

Experimentally, cyclohexanone has exhibited low acute toxicity towards freshwater fish species and the microcrustaceon *Daphnia magna*, slight acute toxicity to algae and protozoa, and moderate acute toxicity to bacteria. QSAR-derived estimates of fish, daphnia, and algal acute toxicity compare favorably with those derived experimentally. Experimental data for chronic studies was not available. In addition, cyclohexanone meets the criteria of a Class I non-polar chemical; therefore, QSAR was used to estimate the NOECs for chronic toxicity in fish and daphnia.

This material exhibited low to slight acute toxicity by the oral and inhalation routes and was moderately toxic by the dermal route. It is an eye and skin irritant; however, it did not induce skin sensitization. Upon repeated administration to rats in drinking water, the NOAEL was 4700 ppm after 25 weeks and the LOAEL was 3300 ppm after 2 years. Effects at higher concentrations were primarily body weight decreases. The NOAEL in published repeated dose inhalation studies was 100-190 ppm. Those values were based on either gray mottling of the lungs or ocular irritation and degenerative changes in the liver and kidney at higher concentrations. However, the NOAEL in those studies was not confirmed in more conclusive and GLP inhalation studies for reproductive and developmental effects (NOAEL = 650-1000 ppm). The majority of the experimental evidence indicates that cyclohexanone is not genotoxic, and this material was not considered to be carcinogenic in mice or rats following two years of exposure via the drinking water. In a two-generation reproduction study, decreased fertility was observed in rats exposed via inhalation at 1400 ppm but not at 500 ppm; however, the effect was found to be reversible following a post-exposure recovery period. The NOAEL of 500 ppm for this reproductive effect is 1000 times greater than the highest occupational personal monitoring value (0.5 ppm) reported. Developmental studies indicate that fetal toxicity was present only at concentrations which were maternally toxic, and no malformations were detected. There has been no consistent indication that cyclohexanone causes neurotoxicity, although signs of CNS depression were noted at doses near the LD50. Therefore, this material could not be classified regarding its potential neurotoxicity to humans.

## EXPOSURE

General Discussion: very little information was provided by the OECD National Authorities regarding production levels, percentages of use for various applications, emissions, or occupational exposure. It should be noted that differences in use patterns would result in different exposure scenarios.

## EMISSIONS

Germany - Air = 2.5 t/y during production  
150 kg/year during processing and handling  
- Water = 6.4 t/y during production, processing, and handling (effluent from waste water treatment plants)  
- 1800-1900 t/y through plant protection products to air, water, and soil

Note: for a production site near the River Rhine, at low flow (10-percentile = 550 m<sup>3</sup>/s), a PEC value of 0.3 ug/L was calculated for an emission level of 6.4 t/y.

Sweden - almost 100% recovered or destroyed

## ENVIRONMENTAL EXPOSURE

Biodegradability:

Cyclohexanone has been shown to biodegrade in natural water

Theoretical biological oxygen demand (BOD) = 2.61 mg O<sub>2</sub>/mg  
Measured BOD after 20 days = 57% of theoretical BOD

#### Hydrolysis:

No information was available regarding the hydrolysis of cyclohexanone. In water, the important environmental fate processes are expected to be biodegradation, photolysis, and volatilization.

#### Photolysis:

In air cyclohexanone degrades rapidly by reaction with sunlight ( $t_{1/2}$  ca. 1 day) and by direct photolysis ( $t_{1/2}$  ca. 4.3 days). Since cyclohexanone photolyses in ambient air, direct photolysis in water and on soil surfaces is expected to occur.

#### Volatilization:

Based on vapor pressure (5 mmHg at 25C), cyclohexanone should exist almost entirely in the vapor phase (Henry's law constant =  $1.2 \times 10^{-5}$  atm.m<sup>3</sup>/mol). Volatilization from shallow, rapidly moving water should be significant ( $t_{1/2}$  ca. 3.1 days). Volatilization from soil is also expected.

#### Sorption:

The calculated log<sub>10</sub>K<sub>oc</sub> for cyclohexanone is 1.823. This low value indicates that cyclohexanone is highly mobile in soil.

#### Environmental Fate Modeling:

The MacKay level Ib fugacity calculation indicates that approximately 69% of total cyclohexanone in the evaluative environment will partition into water and 31% into air. This is consistent with the moderate water solubility (23 g/L at 25C) and vapor pressure (5 mmHg at 25C) of this material. The Mackay Level III fugacity calculation for southern Ontario, Canada, indicates that emission of cyclohexanone will result in the partitioning of this material into air (16.3%) and water (83.6%) primarily and that the concentrations in soil and sediment will be very low.

#### Bioaccumulation:

The low K<sub>ow</sub> value (0.805) indicates that cyclohexanone is unlikely to bioconcentrate in aquatic organisms; therefore the potential for secondary poisoning is low.

#### Monitoring Data:

Concentrations measured in ambient air in the vicinity of the American Cyanamid Corporation site in the U.S. were from 22 to 158 ng/m<sup>3</sup> ( $5.5 \times 10^{-6}$  to  $3.9 \times 10^{-5}$  ppm). (Reference: Pellizari, E.D. Quantitation Chlorinated Hydrocarbons in Previously Collected Air Samples. EPA-450/3-78-112)

### CONSUMER EXPOSURE

For DuPont Canada, no consumer exposure is expected to occur when the raw material is used in a closed system. For other countries, no information was provided regarding exposure during agricultural and solvent applications.

### OCCUPATIONAL EXPOSURE

For DuPont Canada and DuPont US processes involving closed systems, occupational exposure is essentially zero. For other countries, no specific information was provided when cyclohexanone is utilized as a solvent or in agricultural formulations.

#### Monitoring Data:

Canada - For DuPont, personal monitoring = 0.07 - 0.5 ppm; air = 0.16 ppm

(0.5 ppm = ca. 0.3 mg/kg/day in humans assuming 100% absorption by a 70 kg man breathing 10 m<sup>3</sup>/8 hours and 1 ppm = 4.01 mg/m<sup>3</sup>)

Sweden - < 25 ppm (25 ppm = ca. 14 mg/kg/day in humans)

Italy - Indoor air 6 ug/m<sup>3</sup> ( $1.5 \times 10^{-3}$  ppm)

(Reference: DeBortoli et al., 1986. Concentration of selected organic pollutants in indoor air in northern Italy. *Environment International* 12:343-350)

Exposure Standards:

25 ppm TWA with skin notation (ACGIH TLV, OSHA PEL, Ontario TWAEV, Swedish TLV)

(25 ppm = ca. 14 mg/kg/day in humans)

CALCULATION OF MAXIMUM TOLERABLE CONCENTRATION (MTC):

Experimentally, cyclohexanone exhibited low acute toxicity towards freshwater fish species and the microcrustacean *Daphnia magna*. Applying an assessment factor of 100 to the lowest experimentally- or QSAR-derived LC50 or EC50 value for an algal, daphnid, or fish species, the MTC = 527 mg/L/100 or 5.3 mg/L.

No experimentally-derived chronic data for fish or daphnids are available. Since cyclohexanone meets the criteria of Class I non-polar narcotic chemicals and acute baseline toxicity values compared favorably with the experimental values for fathead minnow and daphnid (QSAR/experimental ca. 1.3), the appropriate QSAR.1 was used to estimate the NOECs for chronic toxicity. The QSAR-derived NOECs for *Ps. putida* and *Microcystis* were approximately eight and six times greater, respectively, than the NOECs calculated from the experimental threshold toxicity (TT) values (NOECs for bacterial and algal growth inhibition were calculated by dividing the TT, assumed to be synonymous with the LOEC, by 2). Applying an assessment factor of 10 to the lowest NOEC value, the MTC = 26/10 = 2.6 mg/L.

The potential for chronic exposure to cyclohexanone in the aquatic environment is greatest in situations where losses through biotic and abiotic degradative pathways are impeded such as in ground waters and in deep and/or slow-moving water bodies. The estimated MTC value is greater than 2 orders of magnitude less than the NOECs for growth and reproduction for *D. Magna* and *En. sucatum*, two of the species tested that represent organisms which commonly inhabit slow-moving or static waters. A MTC of 2.6 mg/L for cyclohexanone should be adequate to safeguard against long-term effects.

CONCLUSION AND RECOMMENDATIONS

Based on the breadth of the present data base for human health and aquatic toxicity effects, no additional testing is required for cyclohexanone. For processes involving closed systems, this material should be placed in the category of low concern; however, international information on exposure is needed to assess the significance of solvent and agricultural applications and to develop exposure scenarios specific to other uses identified.

## Production-Trade

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **CAN**

## Production

<u>Quantity</u>	<u>Year</u>
<b>30000-45000 t - P</b>	<b>1991</b>
<b>30000-45000 t - P</b>	<b>1992</b>
<b>350 t/y - IM</b>	

*General Comments* : The given quantities are produced by Du Pont, Canada. 350 tones/year imported by others. Very little information was provided by the OECD National Authorities regarding production levels.

## References

**!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Production-Trade

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **USA**

## Production

<u>Quantity</u>	<u>Year</u>
<b>45000-227000 t - P</b>	<b>1993</b>

*General Comments* : The given volumes are produced by Du Pont, United States.

## References

**!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Production-Trade

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **DNK**

## Production

<u>Quantity</u>	<u>Year</u>
<b>680 t - IM</b>	<b>1989</b>

## References

**!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
Production Volume Chemicals Programme, (1994)

## Production-Trade

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **FRG**

## Production

<u>Quantity</u>	<u>Year</u>
<b>&gt;163000 t - P</b>	<b>1990</b>
<b>&gt;=23000 t - EX</b>	<b>1990</b>

## References

**!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
Production Volume Chemicals Programme, (1994)

## Production-Trade

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **FIN**

## Production

<u>Quantity</u>	<u>Year</u>
50-100 t - IM	1990

## References

**!SIDSP\***

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Production-Trade

<i>Chemical Name</i>	:	<b>Cyclohexanone</b>
<i>CAS Number</i>	:	<b>108-94-1</b>
<i>Geographic Area</i>	:	<b>RUS</b>

## Production

<u>Quantity</u>	<u>Year</u>
>10000 t - EX	1990

*General Comments* : The reported quantity transported from Russia to western countries via Finland.

## References

**!SIDSP\***

OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)



## Processes

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Process

*Process comments* : Canada - for Du Pont, cyclohexanone is a site-limited reaction intermediate in the production of adipic acid. It is produced in a closed system and consumed during production process.

## References

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Uses

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **CAN**

## Use

<u>Quantity</u>	<u>Year</u>	<u>Comments</u>
99.2 %		Category: industrial - used as intermediate in the production of adipic acid.
0.5 %		Category: agricultural - used as solvent in herbicides.
0.2 %		Category: other - use: unknown

## References

*Secondary References* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Uses

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **FIN**

## Use

<u>Quantity</u>	<u>Year</u>	<u>Comments</u>
		Finland - Component of a "filling mass", glue hardener, equipment cleaner, activator, and solvent for cable marking paint.

## References

*Secondary References* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Uses

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **NOR**

## Use

<u>Quantity</u>	<u>Year</u>	<u>Comments</u>
		Norway - Component in deodorizing agents, accelerators, floor paint, anti-corrosive paint, varnishes, ship primers, solvents, printing inks, and viscosity reducers.

## References

*Secondary References* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
 Production Volume Chemicals Programme, (1994)

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## Uses

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **CAN**

## Use

<u>Quantity</u>	<u>Year</u>	<u>Comments</u>
60 %		For others (producers excluding Du Pont), sixty percent of imported quantities is used as a solvent in herbicides. Application rate is estimated to be 200 mL/hectare. However, cyclohexanone is being replaced by other solvents; therefore its use in this application is expected to be reduced. The remainder is for undetermined uses.

## References

*Secondary References* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
 Production Volume Chemicals Programme, (1994)

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## Uses

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **USA**

## Use

<u>Quantity</u>	<u>Year</u>	<u>Comments</u>
		For Du Pont, cyclohexanone is produced and further processed in a closed system as an intermediate in the production of adipic acid.

## References

*Secondary References* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
 Production Volume Chemicals Programme, (1994)

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## Uses

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **DNK**

## Use

<u>Quantity</u>	<u>Year</u>	<u>Comments</u>
100-1000 t/y		Contained in 385 products; mainly as a solvent in paints and inks.

## References

*Secondary References* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Uses

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **FRG**

## Use

<u>Quantity</u>	<u>Year</u>	<u>Comments</u>
119000 t/y		Intermediate for E. caprolactam Herbicides, insecticides, pharmaceuticals, polycondensates.
1800-1900 t/y		Used as solvent for plant protection agents Used as PVC dyes and varnish

## References

*Secondary References* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Uses

*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **SWE**

## Use

QuantityYearComments

When used in industrial coating processes, cyclohexanone is maintained within a closed vessel. Also used in such products as accelerators, developers, paints and lacquers, printing inks, laboratory chemicals, adhesives, regulators, cleaning agents and as diluents.

## References

*Secondary References* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **Pathway into the Environment and Environmental Fate.**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **CAN**

## Pathway and Transport

*Pathway description* : Cyclohexanone is released into southern Ontario  
*Mecanism* : Level III fugacity model of MacKay and Paterson (1991)

## Quantity Transported

<u>Medium</u>	<u>to Medium</u>	<u>Quantity</u>	<u>Time</u>	<u>Year</u>	<u>to Year</u>
	<b>to AIR</b>	<b>16.3 %</b>			
Partitioning of cyclohexanone into air (emissions mol/ hour = 17.45)					
	<b>to AQ</b>	<b>83.6 %</b>			
Partitioning of cyclohexanone into water (emissions mol/ hour = 17.45)					
	<b>to SOIL</b>	<b>0.08 %</b>			
Partitioning of cyclohexanone into soil (emission was 0%)					
	<b>to SED</b>	<b>0.01 %</b>			
Partitioning of cyclohexanone into sediment (emission was 0%)					

It was estimated that 30 tonnes/year of cyclohexanone were released in the proportions listed above.

*General Comments* : There are no "real" data on the environmental concentration and behaviour of cyclohexanone in the environment. This has necessitated the use of the Level III fugacity model of MacKay and Paterson (1991). The fugacity model for the region of southern Ontario accepts as input the following: the physical chemical properties of the chemical, its transformation half-lives and emission rates into the environmental media of air, water, soil, and sediment. It then calculates the prevailing steady state concentrations and the amounts and rates of degradation, advective flow, and intermedia transport. The concepts underlying this modelling approach are described in the text by MacKay (Multimedia Environmental models: The Fugacity Approach 1991).

## References

*Primary Reference* : **MMFAM\***  
 MacKay, D. Multimedia Models : the Fugacity Approach, (1991)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **Pathway into the Environment and Environmental Fate.**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **CAN**

## Test Method and Conditions

*Test method description* : MacKay Level 1b fugacity model  
*Temperature* : 25 C

## Quantity Transported

<u>Medium</u>	<u>to Medium</u>	<u>Quantity</u>	<u>Time</u>	<u>Year</u>	<u>to Year</u>
	<b>to AQ</b>	<b>69 %</b>			

The MacKay Level 1b fugacity calculation indicates that approximately 69% of the total (cyclohexanone in the evaluative environment will partition into water compartment).

	<b>to AIR</b>	<b>31 %</b>			
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Cyclohexanone which will partition into air (calculation as above). Both values (69 and 31%) are consistent with the moderate water solubilities and vapour pressure for cyclohexanone.

*General Comments* : A level 1b fugacity calculation was conducted to estimate the partitioning of cyclohexanone in the environment. This calculation simply estimates the equilibrated distribution of a substance in various compartments in an evaluative environment and does not address degradation pathways. It may be useful in identifying key environmental compartments to which a substance will partition.

## References

*Primary Reference* : **MMFAM\***  
 MacKay, D. Multimedia Models : the Fugacity Approach, (1991)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **CONCENTRATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**  
*Geographic Area* : **ITA**

## Test Subject

Organism Medium Specification Lifestage Sex

**AIR**      **INDOR**

## Test Method and Conditions

*Test method description* : Monitoring study

## Test Results

<u>Matrix</u>	<u>Concentrations</u>	<u>Spec.</u>	<u>Date</u>
<b>AIR</b>	<b>6 ug/m3</b>		
Indoor air 6 ug/m3 (1.5E-3 ppm)			

## References

*Primary Reference* : **ENVIDV**  
De Bortoli et al. Environment International, 12, 343-350, (1986)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **CONCENTRATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**  
*Geographic Area* : **USA**

## Test Subject

Organism Medium Specification Lifestage Sex

**AIR**      **AMBI**

*Species/strain/system* : Ambient air in the vicinity of the American Cyanide Corporation site in the U.S.A.



## Test Method and Conditions

*Test method description* : Monitoring study

## Test Results

*Matrix*      *Concentrations*                                      *Spec.*      *Date*

**22-158 ng/m3**

Measured concentrations (5.5E-6 to 3.9E-5 ppm)

## References

*Primary Reference* : **UEPEDY**  
Pellizari, E. D. U.S. Environmental Protection Agency Office of Air  
Quality Planning Standard  
(Technical Report), EPA-450/3-78(112)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **CONCENTRATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **CAN**

## Test Subject

*Organism*   *Medium*   *Specification*   *Lifestage*   *Sex*

**AIR**  
**AQ**  
**SOIL**

*Species/strain/system* : Southern Ontario, Canada

## Test Method and Conditions

*Test method description* : MacKay Level III fugacity model

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## Test Results

<u>Matrix</u>	<u>Concentrations</u>	<u>Spec.</u>	<u>Date</u>
<b>AIR</b> In air	<b>2.03E-4 ug/m3</b>		
<b>AQ</b> In water	<b>1.0E-1 ug/L</b>		
<b>SOIL</b> In soil	<b>2.0E-8 ug/g</b>		
<b>SED</b> In sediment	<b>5.3E-8 ug/L</b>		

## References

- Primary Reference* : **MMFAM\***  
Mackay, D. Multimedia Models : the Fugacity Approach, (1991)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **HUMAN INTAKE AND EXPOSURE**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **CAN**

## Test Method and Conditions

*Test method description* : Monitoring study

## Test Results

Intake Spec. Date

**0.5 ppm**

0.5 ppm = ca. 0.3 mg/kg/day in humans assuming 100% absorption by a 70 kg man breathing 10 m<sup>3</sup>/8 hours and 1ppm = 4.01 mg/m<sup>3</sup>.

## References

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **HUMAN INTAKE AND EXPOSURE**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **CAN**

## Test Subject

Organism Medium Specification Route Lifestage Sex

**AIR**

**SKN**

## Test Results

*General Comments* : Exposure standards: ACGIH TLV = 25 ppm (100 mg/m<sup>3</sup>) (5th edition, 1986). OSHA PEL = 25 ppm. Ontario TWAEV = 25 ppm = ca. 14 mg/kg/day in humans (Ontario TWAEV).

## References

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **HUMAN INTAKE AND EXPOSURE**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **SWE**

## Test Method and Conditions

*Test method description* : Monitoring study

## Test Results

Intake Spec. Date  
**<25 ppm**  
 25 ppm = ca. 14 mg/kg/day in humans

## References

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **HUMAN INTAKE AND EXPOSURE**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **WORLD**

## Test Subject

Organism Medium Specification Route Lifestage Sex  
**HUMAN AIR OCC ADULT**  
**CONSM**

## Test Results

*General Comments* : Consumer exposure: for other countries (countries other than Canada) no information was provided regarding exposure during agricultural and solvent applications. Occupational exposure: for other countries, no specific information was provided when cyclohexanone is utilized as a solvent or in agricultural formulations.

## References

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **HUMAN INTAKE AND EXPOSURE**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **USA**

## Test Subject

*Organism* *Medium* *Specification* *Route* *Lifestage* *Sex*  
**HUMAN AIR OCC IHL ADULT**

## Test Results

*General Comments* : For Du Pont US processes involving closed systems, occupational exposure is essentially zero.

## References

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **HUMAN INTAKE AND EXPOSURE**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Geographic Area* : **CAN**

## Test Subject

*Organism* *Medium* *Specification* *Route* *Lifestage* *Sex*  
**HUMAN AIR OCC IHL ADULT**

*Species/strain/system* : Du Pont (Canada) personal air monitoring at Maitland site

## Test Method and Conditions

*Test method description* : Monitoring study

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## Test Results

<u>Intake</u>	<u>Spec.</u>	<u>Date</u>
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**0.07-0.5 ppm**

Typical levels found by personal air monitoring at Maitland site, Du Pont.

**0.16 ppm**

The level yielded by area air monitoring.

*General Comments* : Consumer Exposure: for Du Pont, Canada, no consumer exposure is expected to occur when the raw material is used in a closed system.  
Occupational Exposure: for processes involving closed systems, occupational exposure is essentially zero.

## References

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **BIODEGRADATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**  
*Geographic Area* : **CAN**

## Test Subject

Organism Medium Specification

**AQ** **NATUR**  
**SOIL**

## Test Method and Conditions

*Test method description* : Biological screening studies

## Test Results

*General Comments* : In water, one important environmental process for cyclohexanone appears to be biodegradation. Biological screening studies have found that cyclohexanone is biodegradable in various test systems, including natural water; this suggests that biodegradation in soil is possible.

## References

*Primary Reference* : **HBEFE\***  
Handbook of Environmental Fate and Exposure Data for Organic Chemicals, 129-134, (1991)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **BIODEGRADATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**  
*Geographic Area* : **CAN**

## Test Subject

Organism Medium Specification

**AQ**

## Test Method and Conditions

*Test method description* : Biodegradation measurements were obtained using procedures which generally follow the biochemical oxygen demand (BOD), method published in Standard Methods for the Examination of Water and (for the following see the general comments).

*(An)aerobic* : **AEROB**

## Test Results

<u>Quantity</u>	<u>Time</u>	<u>Comments on result</u>
<b>2.61 mg/mg</b>		The theoretical oxygen demand (BOD) (based on empirical formula) was calculated as 2.61 mg O <sub>2</sub> /mg cyclohexanone.
<b>2.38-2.48</b>		Measured chemical oxygen demand (COD) was 2.43 + 0.05.
<b>48 %</b>	<b>5 d</b>	When the biological oxygen demand (BOD) determined on day 5, was divided by the theoretical oxygen demand, the BOD <sub>5</sub> value was 48%.
<b>57 %</b>	<b>20 d</b>	When BOD determined on day 20 was divided by the theoretical oxygen demand, the BOD <sub>20</sub> value was 57%.
<i>General Comments</i>	:	Wastewater. 15th ed. Am. Public Health Association Washington, DC, (1980). Based on the results it is concluded that cyclohexanone is readily biodegradable.

## References

*Primary Reference* : **NIPRO\***  
NIPRO/CNC TSEC laboratories, (1982)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)



## Study

*End Point* : **PHOTODEGRADATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **FIELD**  
*Medium* : **AIR AQ SOIL**  
*Geographic Area* : **CAN**

## Test Method and Conditions

*Test method description* : Not specified

## Test Results

<u>Quantity</u>	<u>Time</u>	<u>Comments on result</u>
50 %	1 d	In air, cyclohexanone will degrade by reaction with sunlight to produce hydroxyl radicals (half-life of about 1 day).
50 %	4.3 d	By direct photolysis (half-life of about 4.3 days).
<i>General Comments</i>	:	In water, one important environmental fate process for cyclohexanone appears to be photolysis. Since it photolyses in ambient air, direct photolysis in water and on soil surfaces is expected to occur; however, the photolysis rate in water will be slower. The following reference is also cited: Syracuse Research Corporation (Hazardous Substances Database).

## References

*Primary Reference* : **HBEFE\***  
 Handbook of Environmental Fate and Exposure Data for Organic Chemicals, 129-134, (1991)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **SORPTION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Specifications* : **SOIL**  
*Geographic Area* : **CAN**

## Test Results

*General Comments* : In soil, cyclohexanone has been classified as highly mobile based on its Koc value which is 1.823. If released to soil, it will be susceptible to significant leaching.

## References

*Primary Reference* : **CLOGP\***  
CLOGP Program, Medicinal Chemistry Project, 3.4.1, (1986)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

<i>End Point</i>	:	<b>EVAPORATION</b>
<i>Chemical Name</i>	:	<b>Cyclohexanone</b>
<i>CAS Number</i>	:	<b>108-94-1</b>
<i>Medium</i>	:	<b>AQ</b> <b>SOIL</b>
<i>Geographic Area</i>	:	<b>CAN</b>

## Test Results

<u>Quantity</u>	<u>Time</u>	<u>Comments on result</u>
<b>50 %</b>	<b>3.1 d</b>	<p>Volatilization from shallow, rapidly moving water should be significant (estimated half-life of 3.1 days for model stream 1 m deep).</p> <p>However, volatilization from deeper, less rapidly moving bodies of water, such as lakes and ponds, will be much slower.</p> <p>Volatilization from soil is also expected. Volatilization will occur on soil surface.</p>
<i>General Comments</i>	:	<p>In water, one important environmental fate process for cyclohexanone appears to be volatilization. Based on vapour pressure (5 mmHg at 25C), cyclohexanone should exist almost entirely in the vapour phase (Henry's law constant = 1.2E-5 atm. m<sup>3</sup>. mol) in the ambient atmosphere. The following reference is also cited: Syracuse Research Corporation (Hazardous Substances Database).</p>

## References

<i>Primary Reference</i>	:	<b>HBEFE*</b> Handbook of Environmental Fate and Exposure Data for Organic Chemicals, 129-134, (1991)
<i>Secondary Reference</i>	:	<b>!SIDSP*</b> OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **DISTRIBUTION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**DOG** **IVN** **M**

*Species/strain/system* : Beagle dogs

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **18-21 d**  
*Dose / Concentration* : **284 mg/kg BW/d**  
*Exposure comments* : Intravenous injection for 18 or 21 days. Rate of administration varied from 35.5 to 4200 mg/minutes.

## Test Results

<u>Organ</u>	<u>Quantity</u>	<u>Time</u>	<u>Comments on result</u>
PLSMA	140-220 ug/mL	5-30 mi	Peak cyclohexanol concentrations in plasma following an ivn (intravenous) bolus dose ranged from 140-220 ug/mL and occurred from 5-30 minutes after injection. Half-life was 6.6 minutes.
PLSMA			The apparent plasma elimination half-life of the metabolite was 99 minutes.

*General Comments* : There was neither accumulation of cyclohexanone or cyclohexanol nor evidence of enzyme induction on repeated administration.

## References

*Primary Reference* : **TXAPA9**  
 Martis, L. et al. Toxicology and Applied Pharmacology, 53(3), 545-553, (1980)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **BIOCONCENTRATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

*Organism* *Medium* *Specification* *Route* *Lifestage* *Sex* *Number exposed* *Number controls*

**AQ**

## Test Method and Conditions

*(An)aerobic* : **CAN**

## Test Results

*General Comments* : The low Kow value (0.805) indicate that cyclohexanone is unlikely to bioconcentrate in aquatic organisms; therefore the potential for secondary poisoning is low.

## References

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **METABOLISM**  
*Chemical Name* : **Cyclohexane**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**DOG** **IVN** **M**

*Species/strain/system* : Beagle dogs

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **18-21 d**  
*Dose / Concentration* : **284 mg/kg BW/d**  
*Exposure comments* : Intravenous injection of 248 mg/kg for 18 or 21 days. Rate of administration varied from 35.5 to 4200 mg/minute.

## Test Results

<u>Organ</u>	<u>Quantity</u>	<u>Time</u>	<u>Comments on result</u>
URINE	74-100 %	TOT	Metabolites: From 74-100% of the administered dose was converted to cyclohexanol, 50% of which was excreted in the urine as the glucuronide conjugate.

## References

*Primary Reference* : **TXAPA9**  
 Martis, L. et al. Toxicology and Applied Pharmacology, 53(3), 545-553, (1980)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **METABOLISM**  
*Chemical Name* : **Cyclohexane**  
*CAS Number* : **108-94-1**  
*Study type* : **CASE**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**HUMAN** **IVN** **JUV**

*Species/strain/system* : Human newborns

## Test Method and Conditions

*Test method description* : GLP: no data; measurement of urinary excretion of acids.

## Exposure

*Exposure comments* : The probable source of exposure was cyclohexanone which was found as a contaminant of intravenous dextrose and the parenteral feeding administration set. Cyclohexanone (0.89 mg) was recovered from 150 mL of (see general comments)

## Test Results

<u>Organ</u>	<u>Quantity</u>	<u>Time</u>	<u>Comments on result</u>
URINE			Metabolites: trans-1,2-cyclohexanediol was always most abundant, with small amounts of 1,3- and 1,4-cyclohexanediol, and sometimes, traces of cis-1,2-cyclohexanediol.
URINE			Glucuronide conjugates were not detected.

*General Comments* : dextrose pumped through the infusion apparatus of 24 hours.

## References

*Primary Reference* : **CLCHAU**  
Mills, G. A. and Walker, V. Clinical Chemistry (Winston-Salem, North Carolina), 36(6), 870-874, (1990)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **METABOLISM**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**MOUSE** **IPR**  
**GPIG**

*Species/strain/system* : Mice and guinea pigs

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure comments* : Dose not specified

## Test Results

<i>Organ</i>	<i>Quantity</i>	<i>Time</i>	<i>Comments on result</i>
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<b>URINE</b>			Metabolites: adipic acid was found in urine

## References

*Primary Reference* : **AFSPA2**  
 Fillipi, E. Archivio di Farmacologia Sperimentale e Scienze Affini (Archives of Experimental Pharmacology and Related Sciences), 18, 178, (1914)

*Secondary Reference* : **!SIDSP\***  
 OECS/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **METABOLISM**  
*Chemical Name* : **Cyclohexane**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RBT** **ORL**  
**RAT**

*Species/strain/system* : Rabbits and rats



## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure comments* : Dose not specified

## Test Results

<i>Organ</i>	<i>Quantity</i>	<i>Time</i>	<i>Comments on result</i>
URINE			Metabolites: trace amounts of hydroxycyclohexylmercapturic acid and cis-2-hydroxycyclohexylmercapturic acid were excreted in the urine.

## References

*Primary Reference* : **XENOBH**  
James, S. P. and Waring, R. H. Xenobiotica, the Fate of Foreign Compounds in Biological Systems, 1(6), 573-580, (1971)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **EXCRETION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**DOG** **IVN** **M**

*Species/strain/system* : Beagle dogs

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Dose / Concentration* : **284 mg/kg BW/d**  
*Exposure comments* : Intravenous injection of 284 mg/kg/day for 18 or 21 days. Rate of administration varied from 35.5 to 4200 mg/minute.

## Test Results

<u>Organ</u>	<u>Quantity</u>	<u>Time</u>	<u>Comments on result</u>
URINE	<1 %	TOT	Urinary excretion data suggested that less than 1% of the dose was excreted as cyclohexanone and cyclohexanol. The half-life and clearance values for cyclohexanone were 81 minutes and 27.4 mg/kg/minute, respectively.

## References

*Primary Reference* : **TXAPA9**  
 Martis, L. et al. Toxicology and Applied Pharmacology, 53(3), 545-553, (1980)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **EXCRETION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RAT** **IHL** **M**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **ACUTE**  
*Exposure Period* : **6 h**  
*Dose / Concentration* : **1405-5937 mg/m3 AIR**  
*Exposure comments* : Inhalation exposure at time-weight concentrations of 350 or 1479 ppm for 6 hours.

## Test Results

<i>Organ</i>	<i>Quantity</i>	<i>Time</i>	<i>Comments on result</i>
-----	-----	-----	-----
<b>URINE</b>		72 h	Total 72-hour urinary excretion volumes of free cyclohexanone and cyclohexanol were 16.16 and 14.55 ug, respectively, at the high dose.
<b>URINE</b>		72 h	By 72 hours, the excretion of conjugated cyclohexanol (primarily excreted during the first 24 hours) and another conjugated product, tentatively cyclohexanone, occurred at levels of 13, 306.15 and 546.69 ug, respectively, at the low dose and 72, 446.56 and 890.94 ug, respectively, at the high dose.

*General Comments* : The material was rapidly eliminated from the blood. Only trace quantities of free cyclohexanol were seen at 24 hours.

## References

*Primary Reference* : **TEGLA\***  
Tegeris Laboratories Inc. EPA/OTS, OTS0513079, (1987)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **EXCRETION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RBT** **ORL**

*Species/strain/system* : Rabbit

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure comments* : Dose not specified

## Test Results

<i>Organ</i>	<i>Quantity</i>		<i>Time</i>	<i>Comments on result</i>
-----	-----		-----	-----
<b>URINE</b>	<b>45-50 %</b>	<b>TOT</b>		From 45-50% of the administered dose was excreted in conjugation with glucuronic acid.
<b>URINE</b>	<b>66 %</b>	<b>TOT</b>		Rabbits given 248 mg/kg by stomach tube eliminated 66% of the dose as cyclohexylglucuronide in urine.

## References

*Primary Reference* : **BIJOAK**  
Elliot, T. H. et al. Biochemical Journal, 72, 193-200, (1958)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **1620 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>RAT</b>			<b>ORL</b>			<b>LD50</b>	Oral LD50 for rats was reported as 1620 mg/kg body weight

## References

*Primary Reference* : **AIHAAP**  
Smyth, H. F. American Industrial Hygiene Association Journal, 30(5), 470-476, (1969)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **1840 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>RAT</b>			<b>ORL</b>			<b>LD50</b>	Oral LD50 for rats was referred as 1840 mg/kg body weight.
<i>General Comments</i>		:	ALD for rats was reported as 1400 mg/kg (the same reference).				

## References

- Primary Reference* : **JIHTAB**  
Diechmann, W. B. and LeBlanc, T. J. Journal of Industrial Hygiene and Toxicology, 25(9), 415-417, (1943)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **1296 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>RAT</b>			<b>ORL</b>		<b>M</b>	<b>LD50</b>	Oral LD50 for male rats was established as 1296 mg/kg body weight.
<i>General Comments</i>	: At 900 mg/kg all rats survived; at 1350 mg/kg 3/5 rats died; at 2025 and 5000 mg/kg all rats died. Chemical burns and blood in the stomach and intestinal tract were observed in animals that died. Animals that survived to the end of the 14-day observation period appeared normal.						

## References

- Primary Reference* : **UCCYDF**  
Union Carbide Company. Union Carbide Co-operation
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **1800 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>RAT</b>			<b>ORL</b>		<b>M</b>	<b>LD50</b>	Oral LD50 for male rats was established as 1800 mg/kg body weight.
<i>General Comments</i>	:	Animals exhibited acute hypnotic signs and labored respiration, followed by death; the intensity of the responses were dose-related.					

## References

- Primary Reference* : **TXAPA9**  
Gupta, P. K. et al. Toxicology and Applied Pharmacology, 49(3), 525-533, (1979)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

- End Point* : **MAMMALIAN ACUTE TOXICITY**
- Chemical Name* : **Cyclohexanone**
- CAS Number* : **108-94-1**
- Dose / Concentration* : **1400 mg/kg BW**

## Test Method and Conditions

- Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>MOUSE</b>			<b>ORL</b>			<b>LD50</b>	Oral LD50 for mice was established as 1400 mg/kg body weight.
<i>General Comments</i>	:	MTD for mice was established as 1200 mg/kg body weight; the same reference.					

## References

- Primary Reference* : **PZVOAD**  
Novogorodova, L. G. et al. Promyshlennye Zagryazneniya Vodoemov (Industrial Pollutants of Reservoirs), 8, 101-111, (1967)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **2070-2110 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>MOUSE</b>			<b>ORL</b>		<b>M</b> <b>F</b>	<b>LD50</b>	Oral LD50 for male and female rats was established as 2070 and 2110 mg/kg body weight, respectively.
<i>General Comments</i>		: Animals exhibited acute hypnotic signs and labored respiration, followed by death; the intensity of these responses were dose-related.					

## References

*Primary Reference* : **TXAPA9**  
 Gupta, P. K. et al. Toxicology and Applied Pharmacology, 49(3), 525-533, (1979)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Exposure Period* : **4 h**  
*Dose / Concentration* : **32080 mg/m3 AIR**

## Test Method and Conditions

*Test method description* : Exposure: 8000 ppm; GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>RAT</b>			<b>IHL</b>			<b>LC50</b>	4-hour inhalation LC50 for rats was established as 32080 mg/m3 (8000 ppm).



## References

- Primary Reference* : **NPIRI\***  
Anon. NPIRI Raw Materials Data Handbook. Physical and Chemical Properties, Fire Hazard and Health Data, 1, 18, (1974)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

- End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**
- Species/strain/system* : Rabbit  
*Dose / Concentration* : **1000 mg/kg BW**  
*Exposure comments* : Dermal exposure, 24-hour covered contact.

## Test Method and Conditions

- Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>RBT</b>			<b>SKN</b>			<b>LD50</b>	Dermal LD50 for rabbits was established as 1000 mg/kg body weight.

## References

- Primary Reference* : **AIHAAP**  
Smyth, H. F. et al. American Industrial Hygiene Association Journal, 30(5), 470-476, (1969)
- Secondary Reference* : **!SIDSP\***  
OECD-SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

- End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**
- Species/strain/system* : Rabbit  
*Dose / Concentration* : **948 mg/kg BW**

## Test Method and Conditions

- Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RBT			SKN			LD50	Dermal LD50 for rabbits was reported as 948 mg/kg body weight.

## References

- Primary Reference* : **AIHAAP**  
Smyth, F. E. et al. American Industrial Hygiene Association Journal, 30(5), 470-476, (1969)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

- End Point* : **MAMMALIAN ACUTE TOXICITY**
- Chemical Name* : **Cyclohexanone**
- CAS Number* : **108-94-1**
- Dose / Concentration* : **1130 mg/kg BW**

## Test Method and Conditions

- Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RAT			IPR			LD50	Intraperitoneal LD50 for rats was referred as 1130 mg/kg body weight.
<i>General Comments</i>		: Animals exhibited acute hypnotic signs and labored respiration, followed by death; the intensity of these responses were dose-related.					

## References

- Primary Reference* : **TXAPA9**  
Gupta, P. K. et al. Toxicology and Applied Pharmacology, 49(3), 525-539, (1979)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

- End Point* : **MAMMALIAN ACUTE TOXICITY**
- Chemical Name* : **Cyclohexanone**
- CAS Number* : **108-94-1**
- Dose / Concentration* : **2170 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>RAT</b>			<b>SCU</b>			<b>LD50</b>	Subcutaneous LD50 for rats was referred as 2170 mg/kg body weight.
<i>General Comments</i>		: Subcutaneous ALD was reported as 2100 mg/kg, the same reference.					

## References

*Primary Reference* : **JIHTAB**  
Diechmann, W. B. and LeBlanc, T. J. Journal of Industrial Hygiene and Toxicology, 25(9), 415-417, (1943)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **1230 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>MOUSE</b>			<b>IPR</b>		<b>M</b>	<b>LD50</b>	Intraperitoneal LD50 for male mice was established as 1230 mg/kg body weight.
<i>General Comments</i>		: No significant changes were observed in the phenobarbital-induced sleeping time of male mice dosed with 48-240 mg/kg.					

## References

*Primary Reference* : **PHMCAA**  
Gupta, P. K. Pharmacologist, 19(2), 182, (1977)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Species/strain/system* : Rabbit  
*Dose / Concentration* : **794-3160 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RBT			SKN			LD50	Dermal LD50 for rabbits was reported as >794, <3160 mg/kg body weight.

## References

*Primary Reference* : **INBTL\***  
 Industrial Bio-Test Laboratories EPA/OTS, (1975)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **1500 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RAT			ORL			LD50	Oral LD50 for rats was established as 1500 mg/kg body weight.
<i>General Comments</i>		:	At 475 mg/kg to 950 mg/kg, rats only showed increased weight gain, no deaths. At 1900 or 3800 mg/kg, 4/5 or 5/5 rats died. Hemorrhage of lungs, congestion throughout abdominal viscera, and mottled liver were observed in gross pathology.				

## References

- Primary Reference* : **MELIN\***  
Mellon Institute EPA/OTS, (1967)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

- End Point* : **MAMMALIAN ACUTE TOXICITY**
- Chemical Name* : **Cyclohexanone**
- CAS Number* : **108-94-1**
- Species/strain/system* : Guinea pig
- Dose / Concentration* : **930 mg/kg BW**

## Test Method and Conditions

- Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>GPIG</b>			<b>IPR</b>		<b>M</b>	<b>LD50</b>	Intraperitoneal LD50 for male guinea pigs was established as 930 mg/kg body weight.
<i>General Comments</i>							: When injected intraperitoneal with lethal doses, sleepiness and respiratory difficulties were observed prior to death.

## References

- Primary Reference* : **TXAPA9**  
Gupta, P. K. et al. Toxicology and Applied Pharmacology, 49(3), 525-533, (1979)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

- End Point* : **MAMMALIAN ACUTE TOXICITY**
- Chemical Name* : **Cyclohexanone**
- CAS Number* : **108-94-1**
- Species/strain/system* : Rabbit
- Dose / Concentration* : **1540 mg/kg BW**

## Test Method and Conditions

- Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>RBT</b>			<b>IPR</b>			<b>LD50</b>	Intraperitoneal LD50 for rabbits was established as 1540 mg/kg body weight.
<i>General Comments</i>	:						When injected intraperitoneal with lethal doses, sleepiness and respiratory difficulties were observed prior to death. Cyclohexanone was a primary irritant when given intradermally to rabbits.

## References

<i>Primary Reference</i>	:	<b>TXAPA9</b> Gupta, P. K. et al. Toxicology and Applied Pharmacology, 49(3), 525-533, (1979)
<i>Secondary Reference</i>	:	<b>!SIDSP*</b> OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

<i>End Point</i>	:	<b>MAMMALIAN ACUTE TOXICITY</b>
<i>Chemical Name</i>	:	<b>Cyclohexanone</b>
<i>CAS Number</i>	:	<b>108-94-1</b>
<i>Species/strain/system</i>	:	Rabbit
<i>Dose / Concentration</i>	:	<b>950 mg/kg BW</b>

## Test Method and Conditions

<i>Test method description</i>	:	GLP: no data
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## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>RBT</b>			<b>SKN</b>			<b>LD50</b>	Dermal LD50 for rabbits was reported as 950 mg/kg body weight.
<i>General Comments</i>	:						4/4 rabbits died within hours when exposed to 1900 mg/kg (2 mL/kg) under a covering. Severe skin necrosis and edema were observed.

## References

<i>Primary Reference</i>	:	<b>MELIN*</b> Mellon Institute EPA/OTS, (1967)
<i>Secondary Reference</i>	:	<b>!SIDSP*</b> OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **674-2033 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RAT			IPR		M F	LD50	Intraperitoneal LD50 for male and female rats was established as 674 mg/kg and 2033 mg/kg body weight, respectively
<i>General Comments</i>		: Subcutaneous ALD for rats was reported as 2100 mg/kg					

## References

*Primary Reference* : **MELIN\***  
Mellon Institute EPA/OTS, (1967)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **1367 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
RAT			IPR			LD50	Intraperitoneal LD50 for rats was reported as 1367 mg/kg body weight.

## References

- Primary Reference* : **CRSBAW**  
Caujolle, D. et al. Comptes-Rendus des Seances de la Societe de Biologie et de ses Filiales, 261(7), 1781-83, (1965)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **1350 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

Organism Medium Spec. Route Lifestage Sex Effect Effect Comments

**MOUSE** **IPR** **LD50** Intraperitoneal LD50 for mice was reported as 1350 mg/kg body weight.  
*General Comments* : Non-lethal doses (unspecified) resulted in respiratory problems, hypothermia, restlessness, and aggression followed by torpor.

## References

- Primary Reference* : **CRSBAW**  
Caujolle, F. et al. Comptes-Rendus des Seances de la Societe de Biologie et de ses Filiales, 254, 2245-46, (1962)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **2277 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data



## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>MOUSE</b>			<b>IPR</b>			<b>LD50</b>	Intraperitoneal LD50 for mice was established as 2277 mg/kg body weight.

## References

*Primary Reference* : **CRSBAW**  
Caujolle, D. et al. Comptes-Rendus des Seances de la Societe de Biologie et de ses Filiales, 261(7), 1781-83, (1965)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Dose / Concentration* : **3460 mg/kg BW**

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<u>Organism</u>	<u>Medium</u>	<u>Spec.</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Effect</u>	<u>Effect Comments</u>
<b>RAT</b>			<b>ORL</b>			<b>LD50</b>	Oral LD50 for rats was established as 3460 mg/kg body weight.

## References

*Primary Reference* : **VNIIVS**  
Kan, P. T. et al. Vsesoyuznyi Nauchno-Issledovatel'skii Institut Veterinarnai Sanitarii, 39, 369-372, (1971)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**CAT** **IHL**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Period* : **1 h**  
*Dose / Concentration* : **15254 mg/m3 AIR**

## Test Results

Cats exposed for 1 hour to 3800 ppm (15254 mg/m3) cyclohexanone survived, but exhibited irritation, disturbances of equilibrium, and sleepiness.

## References

*Primary Reference* : **TOHIS\***  
Gross, E. Toxicology Hygiene for Industrial Solvents, 254-307, (1943)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**GPIG** **IHL**

*Species/strain/system* : Guinea pig

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Dose / Concentration* : **16057 mg/m3 AIR**

## Test Results

Guinea pigs exposed to 4000 ppm(16057 mg/m<sup>3</sup>) for 10 minutes exhibited marked tearing and squinting. A 6-hour exposure caused narcosis, lacrimation, salivation, hypothermia, decreased respiratory and heart rates and opacity of the corneas. Recovery from narcosis was very slow.

## References

- Primary Reference* : **XPHPAW**  
Specht, H. et al. US Public Health Service Bulletin(176), (1940)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

- End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**GPIG** **IHL**

*Species/strain/system* : Guinea pig

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Period* : **6 h**  
*Dose / Concentration* : **15480 mg/m<sup>3</sup> AIR**

## Test Results

Guinea pigs exposed to 15480 mg/m<sup>3</sup> in air for 6 hours showed no gross tissue changes attributable to the test compound after a 14-day observation period.

## References

- Primary Reference* : **INBTL\***  
Industrial Bio-Test Laboratories EPA/OTS, (1975)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

*Organism* *Medium* *Specification* *Route* *Lifestage* *Sex* *Number exposed* *Number controls*

**GPIG** **IHL**

*Species/strain/system* : Guinea pig

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Period* : **1 h**  
*Dose / Concentration* : **15254 mg/m3 AIR**

## Test Results

Guinea pigs exposed to cyclohexanone for 1 hour to 3800 ppm (15254 mg/m3) survived, but exhibited irritation, disturbances of equilibrium, and sleepiness.

## References

*Primary Reference* : **TOHIS\***  
Gross, E. Toxicology Hygiene for Industrial Solvents, 254-307, (1943)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

*Organism* *Medium* *Specification* *Route* *Lifestage* *Sex* *Number exposed* *Number controls*

**HUMAN** **IHL**

## Test Method and Conditions

*Test method description* : The human sensory-irritation threshold for cyclohexanone was determined.

*General Comments* : The human sensory-irritation threshold for cyclohexanone: data showed nasal irritation at 0.28 mg/L of air (about 70 ppm). Eye, nasal, and throat irritations were seconded at 0.362 mg/L of air (about 90 ppm). The second exposure 2 weeks after the initial series indicated an increase in the sensory irritation threshold. In this series, at 0.547 mg/L of air (about 136 ppm), throat irritation was the only response recovered.

## References

- Primary Reference* : **HAZLA\***  
Hazelton Laboratories America, Inc. Chemical and Biomedical Sciences Division, (1965)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

- End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>MOUSE</b>							
			<b>IHL</b>				

## Test Method and Conditions

- Test method description* : Concentrations of 184, 255, 282, 334, or 577 ppm cyclohexanone were used. GLP: no data

## Exposure

- Exposure Period* : **4 h**  
*Dose / Concentration* : **738-2316 mg/m3 AIR**  
*General Comments* : Mice exposed to 184, 255, 282, 334, or 577 ppm for 4 hours decreased their duration of immobility in a behavioral despoint swimming test when measured over 3 minutes by 20, 36, 47, 61 and 81%, respectively. LD50 (mean active atmospheric concentration associated with 50% decrease in immobility) was 308 ppm. A concentration of 184 ppm or higher resulted in CNS effects.

## References

- Primary Reference* : **TXAPA9**  
De Ceaurriz, J. et al. Toxicology and Applied Pharmacology, 67(3), 383-389, (1983)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**MOUSE**

**IPR**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **1-10 wk**  
*Frequency* : **5 d/wk**  
*General Comments* : At the end of one week, the LD50 was between 1/3rd and 1/4th of the acute LD50. After 10 weeks, the LD50 was about 1/10th the acute LD50. This indicated a significant cumulative toxicity.

## References

*Primary Reference* : **TXAPA9**  
Gupta, P. K. et al. Toxicology and Applied Pharmacology, 49(3), 525-533, (1979)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**MOUSE**

**IHL**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Period* : **6 h**  
*Dose / Concentration* : **15480 mg/m3 AIR**

## Test Results

Mice exposed to 15480 mg/m<sup>3</sup> in air for 6 hours showed no gross tissue changes attributable to the test compound after a 14-day observation period.

## References

- Primary Reference* : **INBTL\***  
Industrial Bio-Test Laboratories EPA/OTS, (1975)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**MOUSE**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Dose / Concentration* : **0.5 mL**  
*Exposure comments* : Mice were injected with 0.5 mL of cyclohexanone.  
*General Comments* : Mice injected with 0.5 mL of cyclohexanone exhibited excitation, paresis of hind quarters, marked hypothermia, muscular convulsions and death.

## References

- Primary Reference* : **JIHTAB**  
Treon, J.F. et al. Journal of Industrial Hygiene and Toxicology, 25(6), 199-214, (1943)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**MOUSE**

**IPR**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure comments* : Mice were injected with lethal doses.  
*General Comments* : When mice were injected intraperitoneal with lethal doses, sleepiness and respiratory difficulties were observed prior to death.

## References

*Primary Reference* : **TXAPA9**  
 Gupta, P. K. et al. Toxicology and Applied Pharmacology, 49(3), 525-533, (1979)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>MOUSE</b>			<b>IHL</b>				

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Period* : **1 h**  
*Dose / Concentration* : **15254 mg/m3 AIR**

## Test Results

Mice exposed for 1 hour to 3800 ppm (15254 mg/m3) survived, but exhibited irritation, disturbances of equilibrium, and spleenpiness.

## References

*Primary Reference* : **TOHIS\***  
 Gross, E. Toxicology Hygiene for Industrial Solvents, 254-307, (1943)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)



## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RAT** **IHL**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Dose / Concentration* : **16040-32080 mg/m3 AIR**

## Test Results

No rats died after a 4-hour exposure to 4000 ppm (16040 mg/m3). A 4-hour exposure to 8000 ppm (32080 mg/m3) resulted in deaths due to anesthesia.

## References

*Primary Reference* : **AIHQA5**  
Smyth, H. F., Jr. American Industrial Hygiene Association Quarterly, 17, 129-185, (1956)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RAT** **IHL**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Period* : **4 h**  
*Dose / Concentration* : **2986-6760 mg/m3 AIR**

## Test Results

Rats exposed to 744 - 1684 ppm (2986 - 6760 mg/m3) for 4 hours exhibited an increase in activity of certain liver enzymes, including cytochrome P450 enzymes.

## References

*Primary Reference* : **TOLED5**  
Brondeau, M. T. et al. Toxicology Letters, 49, 69, (1989)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RAT**

**IHL**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Period* : **1-3 h**  
*Dose / Concentration* : **15053 mg/m3 AIR**

## Test Results

In an interlaboratory study, all animals survived in 6/6 laboratories exposing groups of 10 rats to an atmosphere of approximately 3750 ppm (15053 mg/m<sup>3</sup>) for 1 hour. In 5/6 laboratories, deaths occurred if exposure was continued for 3 hours.

## References

*Primary Reference* : **ARTODN**  
Klimishch, H. J. et al. Archives of Toxicology, 61, 318, (1988)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RAT**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Dose / Concentration* : **0.2 mL**  
*Exposure comments* : Aspiration of cyclohexanone (0.2 mL).

## Test Results

When 0.2 mL cyclohexanone was aspired, rats died. Cause was attributed to respiratory arrest or cardiac failure or both, rather than pulmonary edema, as indicated by rapid cessation of respiratory or cardiac action after dosing, lung weights and the macroscopic appearance of the lungs.

## References

*Primary Reference* : **FADIU\***  
Fairleigh Dickinson University, (1968)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RAT**

**IHL**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Period* : **6 h**  
*Dose / Concentration* : **15480 mg/m3 AIR**

## Test Results

Rats exposed to 15.48 mg/L of cyclohexanone in air for 6 hours showed no gross tissue changes attributable to the test compound after a 14-day observation period.

## References

*Primary Reference* : **INBTL\***  
Industrial Bio-Test Laboratories EPA/OTS, (1975)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RAT**

**IHL**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **7 d**  
**6 mo**  
*Frequency* : **4 h/d**  
**4 h/d**  
*Dose / Concentration* : **6-11 mg/m3 AIR**  
*Exposure comments* : 7-day exposure at 0.011 and 0.006 mg/L for 4 hours per day and 6-month exposure at 0.011 and 0.006 mg/mL for 4 hours per day.  
*General Comments* : "Toxicity effects of cyclohexanone at low concentrations can be additive".

## References

*Primary Reference* : **21TEAA**  
Alfeeva, R. I. Materialy Nauchno-Prakticheskoi Konferentsii Molodykh Gigienistov i Sanitarnykh Vrachei (Materials of the Scientific-Practical Conference of Young Hygienists and Physicians), 11, 5-7, (1967)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

DOG

IVN

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **21 d**  
*Frequency* : **5 x/wk**  
*Dose / Concentration* : **142-284 mg/kg BW**  
*Exposure comments* : Single doses of 142 and 284 mg/kg were administered by intravenous injection over a 21-day period.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
-	<b>DEATH</b>				
<b>RESPI</b>	<b>INHIB</b>				

One dog died after 8 injections of 284 mg/kg; the death appeared to be the result of respiratory depression.

**CNS**      **FUNCT**

Clinical signs of CNS toxicity were observed.

**RBC**      **STRUC**  
**BMW**      **STRUC**  
**SPLN**      **STRUC**

Erythroid hyperplasia was the most significant finding in dogs. The bone marrow effects were accomplished by extramedullary hematopoiesis in the spleen.

## References

*Primary Reference* : **TXAPA9**  
 Koeferl, M. T. et al. Toxicology and Applied Pharmacology, 37, 115, (1976)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**DOG** **IVN** **4/GROUP**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **18-21 d**  
*Dose / Concentration* : **284 mg/kg BW/d**  
*Exposure comments* : Groups of dogs received the same dose level (284 mg/kg/day), however, dosing solution concentrations and rates of injection varied (group I - 0.6% solution at 75 mL/minute, group II - 0.6% solution at 5 mL/minute, group III - 0.75% solution at 75 mL/minute, group IV-0.75% solution at 5 mL/minute).

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>EYE</b>	<b>EXOC</b>				
<b>GIT</b>	<b>EXOC</b>				
Lacrimation Salivation					
<b>EYE</b>	<b>FUNCT</b>				
<b>EYE</b>	<b>FUNCT</b>				
Scleral vasodilation Mydriasis					
<b>URINE</b>	<b>INCR</b>				
<b>FECES</b>	<b>INCR</b>				
Urination Defecation					
-	<b>BEHAV</b>				
<b>CNS</b>	<b>FUNCT</b>				
<b>CNS</b>	<b>MUSCL</b>				
Restlessness Stupor Ataxia					



## References

- Primary Reference* : **TSPMA6**  
Caujolle, F. et al. Travaux de la Societe de Pharmacie de Montpellier, 14, 329-330, (1954)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

- End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>GPIG</b>			<b>SKN</b>			<b>11</b>	<b>11</b>
<i>Species/strain/system</i> : Guinea pig							

## Test Method and Conditions

- Test method description* : GLP: no data

## Exposure

- Exposure Type* : **SHORT**  
*Exposure Period* : **3 wk**  
*Frequency* : **3 d/wk**  
*Dose / Concentration* : **0.5 mL/ ANIMAL**  
*Exposure comments* : 0.5 mL of neat material or saline was applied dermally and left uncovered. Animals were observed for 6 months.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
<b>EYE</b>	<b>NEF</b>				

No statistically significant differences in occurrence/ development of cataracts between treated and salined group (7/11 animals affected in each group; the frequency for untreated animals was 20/93).

**NEF**

Cyclohexanone treatment produced no effect on growth or behavior during the treatment period.

- General Comments* : Authors concluded that cataracts observed were an inherent characteristic of the guinea pigs, making the animal an unsuitable model for the assessment of cataractogenic potential.



## References

- Primary Reference* : **FAATDF**  
Greener, Y. and Yorkilis, E. Fundamental and Applied Toxicology, 4, 1055, (1984)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

- End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

- Organism Medium Specification Route Lifestage Sex Number exposed Number controls
- GPIG** **SKN**  
**SCU**
- Species/strain/system* : Guinea pig

## Test Method and Conditions

- Test method description* : GLP: no data

## Exposure

- Exposure Type* : **SHORT**  
*Exposure Period* : **8 wk**  
*Exposure comments* : Small, multiple doses were administered either topically or subcutaneously on the backs of guinea pigs.

## Test Results

- | <i>Organ</i>   | <i>Effect</i>  | <i>Rev.</i> | <i>OnSet</i> | <i>Sex</i> | <i>Affected in Exposed - Controls</i> |
|--|--|-------------|--------------|------------|---------------------------------------|
| -----  | -----  | -----       | -----        | -----      | -----                                 |
| <b>EYE</b>   | <b>STRUC</b>   |             |              |            |                                       |
| Cataracts produced in 29 of 120 animals. Lens changes as early as 8 weeks and as late as 6 months. |  |             |              |            |                                       |
| <i>General Comments</i>  | : OECD/SIDS Comment: "EPA (1984) indicates that guinea pigs are prone to spontaneous cataract development. Early data not confirmed in more recent studies". |             |              |            |                                       |

## References

- Primary Reference* : **XADRCH**  
Rengstorff, R. H. et al. National Technical Information Service (AD Report), (1971)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls  
**GPIG** **IVN** **12/GROUP**  
**SCU**

## Test Method and Conditions

*Test method description* : Ophthalmic examinations were conducted monthly for 6 months; GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **3 wk**  
*Frequency* : **3 x/wk**  
*Dose / Concentration* : **0.5-5 mg/kg BW/d**  
*Exposure comments* : Intravenous injection at 0.5 and 5 mg/kg/day and precutaneous injection at 0.5 mg/kg/day. Treatments were 3 times a week for 3 consecutive weeks.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>EYE</b>	<b>STRUC</b>				
<b>EYE</b>	<b>CHNG</b>				

Cataracts and eye changes were found in all treated animals.

*General Comments* : The authors concluded that the guinea pig was not an appropriate model.

## References

*Primary Reference* : **FAATDF**  
 Greener, Y. and Youkilis, E. Fundamental and Applied Toxicology, 4(6), 1055-66, (1984)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**GPIG** **SCU** **6/GROUP**

*Species/strain/system* : Guinea pig

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **20-40 d**  
*Dose / Concentration* : **10-100 mg/kg BW/d**  
*Exposure comments* : Groups of guinea pigs were given increasing doses of cyclohexanone: 10 mg/kg/day for 20 days, followed by 50 mg/kg/day for 40 days and 100 mg/kg/day for 20-40 days.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
-----	-----	-----	-----	-----	-----
	<b>NEF</b>				

After 100 days, none of the animals developed tumors.

## References

*Primary Reference* : **MELAAD**  
 Ceresa, C. and Grazioli, C. Medicina del Lavoro, 42, 253-257, (1951)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**GPIG** **IPR**

*Species/strain/system* : Guinea Pig

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Dose / Concentration* : **760 mg/kg BW**

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>LDLo</b>					

LDLo for guinea pigs was reported as 760 mg/kg body weight.

## References

*Primary Reference* : **NTIS2\***  
National Technical Information Service, Conf-Number., AD-A066-307

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
-----	-----	-----	-----	-----	-----	-----	-----
<b>GPIG</b>							<b>SKN</b>

*Species/strain/system* : Guinea pig

## Test Substance

*Vehicle - Solvent* : Saline

## Test Method and Conditions

*Test method description* : GLP: yes

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **3 wk**  
*Frequency* : **3 d/wk**  
*Exposure comments* : A 2% solution of neat cyclohexanone in saline, saline alone, or a positive control (DMSO) was applied to shaved back of guinea pigs.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
	<b>NEF</b>				

No compound related ophthalmoscopic changes. Ophthalmoscopic changes were noted in all groups including saline controls. However, the type of changes (lens vacuoles) were identical regardless of material tested (including control) and incidences were also comparable.

## References

*Primary Reference* : **#WIRLA\***  
Wil Research Laboratory EPA/OTS, (1983)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>GPIG</b>			<b>SKN</b>			<b>12</b>	<b>500</b>

*Species/strain/system* : Guinea pig

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **8 wk**  
*Frequency* : **3 d/wk**  
*Dose / Concentration* : **0.5 mL /ANIMAL**

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
<b>EYE</b>	<b>STRUC</b>				<b>3/12      0/500</b>

3 of 12 guinea pigs developed cataracts 5 months after treatment of 500 untreated controls, none developed cataracts.

*General Comments* : OECD/SIDS Comment: "EPA (1984) indicates that guinea pigs are prone to spontaneous cataract development. Early data not confirmed in more recent studies".

## References

- Primary Reference* : **OVSCET**  
Rengstorff, R. H. et al. Optometry and Vision Science. Former Titles : American Journal of Optometry and Physiological Optics (until 1974) : American Journal of Optometry and Archives of American Academy of Optometry, 49, 308, (1972)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

- End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**HUMAN**

**IHL**

## Exposure

- Exposure Period* : **3-5 mi**  
*Dose / Concentration* : **200-301 mg/m3 AIR**  
*Exposure comments* : Humans exposed to 50 or 75 ppm cyclohexanone.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>EYE</b>	<b>IRRIT</b>		<b>3-5 mi</b>		
<b>NOSE</b>	<b>IRRIT</b>				

Humans exposed for 3-5 minutes found 50 and 75 ppm irritating to the eyes, nose and throat. A concentration of 25 ppm was unobjectionable.

- General Comments* : Cyclohexane is a strong irritant and a narcotic agent.

## References

- Primary Reference* : **JIHTAB**  
Nelson, K. W. et al. Journal of Industrial Hygiene and Toxicology, 25, 282-285, (1943)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **CASE**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

HUMAN

ORL

M

## Exposure

*Exposure comments* : A man ingested a mixture providing approximately 39 g cyclohexanone (about 640 mg/kg) as well as 28 g methyl ethyl ketone, 18 g acetone and 15 g polyvinyl chloride.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>CNS</b>	<b>FUNCT</b>				
<b>CNS</b>	<b>FUNCT</b>				

A man suffered anesthesia and coma

*General Comments* : It is not possible to conclude that cyclohexanone alone was responsible for the observed effects.

## References

*Primary Reference* : **CTOXAO**  
Sakata, M. et al. Clinical Toxicology, 27, 67, (1989)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

HUMAN

IHL

23

## Test Method and Conditions

*Test method description* : A battery of psychological tests were conducted.

## Exposure

*Exposure Type* : **OCC**  
*Exposure comments* : Workers occupationally exposed for at least 4 years (and possibly up to a mean of 21 years) to a mixture of solvents. This included cyclohexanone at concentrations of 150-630 mg/m<sup>3</sup> (38-158 ppm) and acetone, toluene and methyl ethyl ketone at concentrations ranging from 50-600 mg/m<sup>3</sup>.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
<b>CNS</b>	<b>FUNCT</b>				<b>23</b>

Some evidence of impaired cognitive performance (e.g., poorer memory and comprehension).

*General Comments* : It is not possible to conclude that cyclohexanone alone was responsible for the observed effects.

## References

*Primary Reference* : **NETEEC**  
 Milanovic, L. et al. Neurotoxicology and Teratology, 12, 657, (1990)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>HUMAN</b>					<b>F</b>		

*Species/strain/system* : Female workers

## Exposure

*Exposure Type* : **OCC**  
*Exposure comments* : Daily contact with cyclohexanone

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-	<b>NEF</b>			<b>F</b>	
-	<b>SUBJ</b>				
<b>RBC</b>	<b>DECR</b>				

No ill effects except drowsiness or hypochromic anemia in female workers were observed when in daily contact with cyclohexanone.



## References

- Primary Reference* : **BJOPAL**  
Carpenter, C. P. and Smyth, H. P. Jr. British Journal of Ophthalmology, 29, 1363-72, (1946)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

- End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

- Organism Medium Specification Route Lifestage Sex Number exposed Number controls
- MONKY** **IVN**
- Species/strain/system* : Monkey

## Test Method and Conditions

- Test method description* : GLP: no data

## Exposure

- Exposure Type* : **SHORT**  
*Exposure Period* : **21 d**  
*Frequency* : **5 x/wk**  
*Dose / Concentration* : **142-284 mg/kg BW**  
*Exposure comments* : Single doses of 142 and 284 mg/kg were administered over a 21-day period.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
-	<b>DEATH</b>				
<b>RESPI</b>	<b>INHIB</b>				

After the first injection of 284 mg/kg, one monkey died; the death appeared to be the result of respiratory depression.

- CNS** **FUNCT**  
Clinical signs of CNS toxicity were observed.

## References

- Primary Reference* : **TXAPA9**  
Koeferl, M. T. et al. Toxicology and Applied Pharmacology, 37, 115, (1976)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**MONKY** **IHL** **1**

*Species/strain/system* : Rhesus monkey

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **10 wk**  
*Frequency* : **6 h/d**  
**5 d/wk**  
*Dose / Concentration* : **2432 mg/m3 AIR**  
*Exposure comments* : 10-week exposure at a concentration of 608 ppm cyclohexanone.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>EYE</b>	<b>IRRIT</b>				
Conjunctival irritation					
<b>HEART</b>	<b>STRUC</b>				
<b>LUNG</b>	<b>STRUC</b>				
<b>LIVER</b>	<b>STRUC</b>				
Extensive injury to heart muscle, lungs, liver and kidney were observed.					
<b>KIDNY</b>	<b>STRUC</b>				

**NEF**

No hematological or pathological changes were observed.

*General Comments* : Author's remark: "Extensive injury to heart muscle, lungs, liver and kidney may not be attributable to exposure because the animal was suffering from bronchopulmonary injection".

## References

*Primary Reference* : **JHTAB**  
Treon, J. F. et al. Journal of Industrial Hygiene and Toxicology, 25(8), 323-347, (1943)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls  
**MOUSE** **ORL**

## Test Method and Conditions

*Test method description* : Not specified

## Exposure

*Dose / Concentration* : **1300 mg/kg BW**

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>LDLo</b>				

Oral LDLo for mouse was established as 1300 mg/kg body weight.

## References

*Primary Reference* : **AEXPBL**  
 Archiv fuer Experimentelle Pathologie und Pharmakologie, 50, 199, (1903)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls  
**MOUSE** **IHL**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Period* : **90 mi**  
*Dose / Concentration* : **19200 mg/m3 AIR**

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

### LCLo

Inhalation LCLo for mice amounted 19200 mg/m<sup>3</sup>/90 minutes.

*General Comments* : Mice exposed to 19200 mg/m<sup>3</sup> died within 90.9 minutes (mean). Histological examination showed acute congestion and edema of the lungs, focal to diffuse hemorrhage of the lung parenchyma, and hyperplasia in the spleen.

## References

*Primary Reference* : **TXAPA9**  
Gupta, P. K. et al. Toxicology and Applied Pharmacology, 49(3), 525-533, (1979)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>MOUSE</b>			<b>SCU</b>				

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Dose / Concentration* : **1300 mg/kg BW**

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

### LDLo

LDLo for mice was reported as 1300 mg/kg body weight.

## References

*Primary Reference* : **AEXPBL**  
Archiv fuer Experimentelle Pathologie und Pharmakologie, 50, 199, (1903)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

MOUSE

ORL

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **25 d**  
*Dose / Concentration* : **280 mg/kg BW/d**

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>BEHAV</b>				
	<b>NEF</b>				

No adverse effects were observed except decreased work efficiency.

## References

*Primary Reference* : **PZVOAD**  
 Novogorodova, L. G. et al. Promyshlennye Zagryazneniya Vodoemov (Industrial Pollutants of Reservoirs), 8, 101-111, (1967)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

MOUSE

ORL

M

10/GROUP

F

10/GROUP

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **13 wk**  
*Dose / Concentration* : **400-47000 mg/L AQ/DRINK**  
*Exposure comments* : Mice were exposed via drinking water to concentrations of 400, 2300, 6500, 13000, 25000, 34000 or 47000 ppm cyclohexanone for 13 weeks.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
	<b>DEATH</b>				<b>9/20</b>

47000 ppm was toxic to both sexes; 6/10 males and 3/10 females died during the treatment period.

	<b>DEATH</b>			<b>M</b>	<b>1/10</b>
--	--------------	--	--	----------	-------------

34000 ppm was lethal to 1/10 male mice.

At treatment levels less than 47000 ppm, pathological changes were minimal.

### **LOAEL**

LOAEL was determined to be 25000 ppm in females and 13000 ppm in males, based on weight gain data.

## References

*Primary Reference* : **JNCIAM**  
 Lijinsky, W. and Kovatch, R. M. Journal of the National Cancer Institute (United States), 77(4), 941-949, (1986)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>RAT</b>							
			<b>IHL</b>				

## Test Method and Conditions

*Test method description* : Exposure: 2000 ppm; GLP: no data

## Exposure

*Exposure Period* : **4 h**  
*Dose / Concentration* : **8020 mg/m3 AIR**

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
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### LCLo

4-hour Acute Lethal Concentration (ALC) for rats was established as 8020 mg/m<sup>3</sup> (2000 ppm).

*General Comments* : Rats exposed to a concentrated vapor of cyclohexanone died within 30 minutes. 1/6 rats exposed to 2000 ppm for 4 hours died; survivors were anesthetized within 2.5 hours. 6/6 rats exposed to 4000 ppm for 4 hours died. Gross pathology of non-survivors showed dark red color in liver, kidneys, and blood.

## References

*Primary Reference* : **AIHAAP**  
Smyth, H. F. et al. American Industrial Hygiene Association Journal, 30(5), 470-476, (1969)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

*Organism* *Medium* *Specification* *Route* *Lifestage* *Sex* *Number exposed* *Number controls*

**RAT** **IVN**

*Species/strain/system* : Wistar and Gunn rats

## Test Method and Conditions

*Test method description* : Parameters evaluated were: daily observations, weights, ophthalmology, hematology, clinical chemistry, gross pathology and histopathology. GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **28 d**  
*Dose / Concentration* : **50-100 mg/kg BW/d**  
*Exposure comments* : Groups of rats received 50 and 100 mg/kg/day of cyclohexanone in a constant dose volume of 20 mL/kg for 28 consecutive days.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

**CNS****FUNCT**

Subtle signs of CNS effects were observed in one strain at 100 mg/kg/day.

**NEF**

No other adverse effects were noted in either strain.

## References

*Primary Reference* : **JTEHD6**  
Greener, Y. et al. Journal of Toxicology and Environmental Health, 10(3), 385-396, (1982)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
RAT			IVN	3d		10/GROUP	

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **18 d**  
*Dose / Concentration* : **<25-25 mg/kg BW**  
*Exposure comments* : Doses of up to 25 mg/kg were administered to groups of rats for 18 consecutive days.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

**NEF**

No effects seen



## References

- Primary Reference* : **TJADAB**  
Greener, Y. et al. Teratology, Journal of Abnormal Development, 35(2), 187-194, (1987)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

- End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RAT** **IPR**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

- Exposure Type* : **SHORT**  
*Exposure Period* : **6-13 wk**  
*Frequency* : **2 x/d**  
**5 d/wk**  
*Dose / Concentration* : **200 mg/kg BW**  
*Exposure comments* : One group of rats received intraperitoneal injections of 200 mg/kg for a maximum of 6 weeks. Another group received the same doses for 13 weeks.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>PNS</b>	<b>NEF</b>				

No evidence of damage to peripheral nervous system, as measured by electrophysiological and neuropathological tests conducted during and after exposure.

## References

- Primary Reference* : **MELAAD**  
Perbellini, L. et al. Medicina del Lavoro, 72(2), 102-106, (1981)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RAT** **IVN** **10/GROUP**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **3 wk**  
*Frequency* : **5 d/wk**  
*Dose / Concentration* : **142-568 mg/kg BW/d**  
*Exposure comments* : Groups of rats were administered injections of 142, 254 and 568 mg/kg/day.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

**DEATH**

Immediately after the first injection of 568 mg/kg/day, 9/10 rats died.

**NEF**

There was 100% survival in the 254 mg/kg/day-treated group.

**CNS**            **FUNCT**  
**SKIN**         **STRUC**

Clinical signs of CNS toxicity and tissue damage at the injection site occurred.

## References

*Primary Reference* : **TXAPA9**  
 Koeferl, M. T. et al. Toxicology and Applied Pharmacology, 37, 115, (1976)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

RAT

ORL

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **3 mo**  
*Dose / Concentration* : **0.01-0.05 mg/kg BW**  
*Exposure comments* : Exposure to 0.01 or 0.05 mg/kg body weight cyclohexanone.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>NEF</b>				
No effects at 0.01 mg/kg.					
<b>CNS</b>	<b>FUNCT</b>				
Conditioned reflexes were affected at 0.05 mg/kg.					

## References

*Primary Reference* : **PZVOAD**  
 Novogorodova, L. G. et al. Promyshlennye Zagryazneniya Vodoemov (Industrial Pollutants of Reservoirs), 8, 101-111, (1967)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

RAT

ORL  
IHL

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **6 mo**  
*Exposure comments* : Combined oral and inhalation exposure. Rats were dosed with 0.005 mg/kg/day and simultaneously exposed to 1.5 ppm vapor (0.066 mg/L) for 4 hours/day.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>CNS</b>	<b>FUNCT</b>				
Increased latent period of conditioned reflexes					
<b>BLOOD</b>	<b>CHNG</b>				
Changes in blood morphology					
<b>LIVER</b>	<b>CHNG</b>				
Changes in liver functions					

## References

*Primary Reference* : **GISAAA**  
Pavlenko, S. M. Gigiena i Sanitariya (Hygiene and Sanitary), 37, 40, (1972)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>RAT</b>							
			<b>ORL</b>				
			<b>IHL</b>				

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **7 mo**  
*Exposure comments* : Combined oral and inhalation exposure.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
<b>CNS</b>	<b>CHNG</b>				
CNS effects (details not specified).					
<b>CNS</b>	<b>CHNG</b>				
CNS excitation during first 1.5 - 2 months, followed by inhibition processes (2-3 months) and normalisation (4-5 or 6-7 months).					

## References

<i>Primary Reference</i>	:	<b>GISAAA</b> Pavlenko, S. M. and Guseva, V. A. Gigiena i Sanitariya (Hygiene and Sanitary)(1), 15-20, (1973)
<i>Secondary Reference</i>	:	<b>!SIDSP*</b> OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

<i>End Point</i>	:	<b>MAMMALIAN TOXICITY</b>
<i>Chemical Name</i>	:	<b>Cyclohexanone</b>
<i>CAS Number</i>	:	<b>108-94-1</b>
<i>Study type</i>	:	<b>LAB</b>

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>RAT</b>			<b>ORL</b>		<b>M</b>	<b>5/GROUP</b>	
					<b>F</b>	<b>5/GROUP</b>	

## Test Method and Conditions

<i>Test method description</i>	:	GLP: no data
--------------------------------	---	--------------

## Exposure

<i>Exposure Type</i>	:	<b>SHORT</b>
<i>Exposure Period</i>	:	<b>25 wk</b>
<i>Dose / Concentration</i>	:	<b>190-6500 mg/L AQ/DRINK</b>
<i>Exposure comments</i>	:	25 weeks exposure via drinking water. Concentrations up to 6500 ppm were used.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
	<b>NEF</b>				

No effects on survival were observed.

<b>BW</b>	<b>DECR</b>
<b>BW</b>	<b>NEF</b>

Decreased weight gain was observed at 6500 ppm but not at 4700 ppm.

**NEF**

No histopathological changes were observed in the tissues examined.

**LOAEL**  
**NOAEL**

LOAEL = 6500 ppm; NOAEL = 4700 ppm

## References

*Primary Reference* : **JNCIAM**  
Lijinsky, W. and Kovatch, R. M. Journal of the National Cancer Institute (United States), 77(4), 941-949, (1986)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

*Organism* *Medium* *Specification* *Route* *Lifestage* *Sex* *Number exposed* *Number controls*

**RAT** **IHL**

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **81 d**  
*Dose / Concentration* : **0.042 mg/m3 AIR**  
*Exposure comments* : Exposure to a concentration of 0.01 ppm (0.042 mg/m3) for 81 days.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

**NEF**

No observable changes in muscular chronaxy, cholinesterase activity, sulfhydryl blood concentrations or ascorbic acid concentration in the brain and kidney.

## References

*Primary Reference* : **GISAAA**  
Dobrinskii, A. A. Gigiena i Sanitariya  
(Hygiene and Sanitary), 29(12), 8-13, (1964)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
RAT			IHL		F		

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Period* : **5-20 TDP**  
*Frequency* : **7 h/d**  
*Dose / Concentration* : **400-2000 mg/m3 AIR**  
*Exposure comments* : Pregnant rats were exposed to cyclohexanone on days 5-20 of gestation to concentrations of 0, 100, 250 or 500 ppm for 7 hours/day.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

**LUNG****STRUC**

Grey mottling of lungs in several animals in highest two levels.

**BW****RETAR**

Evidence of reduced weight gain in all groups.

**NOAEL**

NOAEL = 100 ppm (based on grey mottling of lungs at 250 and 500 ppm).

## References

- Primary Reference* : **TIHEEC**  
Samimi, B. S. et al. Toxicology and Industrial Health, 5, 1035, (1989)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
- 

## Study

- End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
RAT			IHL	JUV			

## Test Method and Conditions

- Test method description* : Olfactory bulbs were examined for development of spines on external dendrites of granule cells; GLP: no data

## Exposure

- Exposure Type* : **SHORT**  
*Exposure Period* : **3-7 wk**  
*Exposure comments* : Exposures for 3-7 weeks from post-natal day 1. Pups were exposed to either cyclohexanone vapors, deodorized air or rat odour.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
<b>SENSE</b>	<b>CHNG</b>				

After 3 weeks exposure, deodorized air reduced spine density on medial and lateral side of bulb; cyclohexanone decreased spine density on lateral side only. Reductions were evident in other animals at 7 weeks exposure.

With all treatments spine density was maximal at postnatal day 21 and decreased markedly during the next month.

## References

- Primary Reference* : **DBRRDB**  
Rehn, B. et al. Developmental Brain Research, 40(1), 143-147, (1988)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
-



## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>RAT</b>						<b>5</b>	

## Test Method and Conditions

*Test method description* : Olfactory bulbs were examined; GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **10 wk**  
*Dose / Concentration* : **32 mg/m3 AIR**  
*Exposure comments* : Continuous exposure for 10 weeks at a concentration of 8 ppm(32 mg/m3) cyclohexanone.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
	<b>NEF</b>				

Growth and overt behavior normal.

**SENSE CHNG**

Adult rats had significantly smaller mitral cells than controls.

*General Comments* : Authors suggest that exposure to single predominant odor has two effects: it directly deprives many mitral cells of excitation, and (via intraneurons) it reduces activity in others by inhibiting their excitatory afferents.

## References

*Primary Reference* : **DBRRDB**  
 Pahuber, H. et al. Developmental Brain Research, 31(2), 307-311, (1987)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

RAT

IHL

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **100 d**  
*Frequency* : **5-6 h/d**  
*Dose / Concentration* : **2000 mg/m3 AIR**

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>LUNG</b>	<b>FUNCT</b>				
<b>SERUM</b>	<b>BIOCH</b>				

Hypoxia and decreases in copper, iron and nickel levels in lungs and blood serum.

## References

- Primary Reference* : **29LJA7**  
 Voronin, A. P. and Usol'tseva, V. A. Sovremennye Problemy Biokhimii Dykhaniya i Klinika, Materialy Vsesoyuznoi Konferentsii (Current Problems of the Biochemistry of Respiration and its Clinical Aspects, Materials of the All-Union Conference), 1, 356-359, (1971)
- Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

RAT

SKN

## Test Method and Conditions

*Test method description* : GLP: yes

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **3-13 wk**  
*Exposure comments* : 3- or 13-week dermal exposure to neat cyclohexanone. Additional group received 2% cyclohexanone for 13 weeks. Animals were observed for 6 months.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>SKIN</b>	<b>IRRIT</b>				

The only cyclohexanone-related effect noted was skin irritation at the application site.

**CNS**      **BEHAV**      **RV**

Transient lethargy was observed immediately post-dosing.

**NEF**

No effects were noted on body weight and hematology.

**NEF**

No treatment-related cataracts or less vacuole formation were found.

## References

*Primary Reference* : **TOLED5**  
 Mayhew, D. A. et al. Toxicology Letters, 31 Suppl., 51, (1986)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>RBT</b>			<b>ORL</b>				
<i>Species/strain/system</i>		: Rabbit					

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Dose / Concentration* : **1600 mg/kg BW**

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>LDLo</b>					
Lowest Lethal Dose (ALD) for rabbits was referred as 1600 mg/kg body weight.					
<i>General Comments</i>	:	At 900-1600 mg/kg narcosis was seen. Doses from 10000 - 19000 mg/kg were fatal to 3 rabbits in 18-39 hours. Pathology of dead animals showed damage to lungs, hepatic cirrhosis, and nephritis. Widespread blood vessel damage occurred in heart muscle, liver, spleen, and kidneys; and severe damage occurred in lungs.			

## References

<i>Primary Reference</i>	:	<b>JIHTAB</b> Treon, J. F. et al. Journal of Industrial Hygiene and Toxicology, 25(6), 199-214, (1943)
<i>Secondary Reference</i>	:	<b>ISIDSP*</b> OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

<i>End Point</i>	:	<b>MAMMALIAN TOXICITY</b>
<i>Chemical Name</i>	:	<b>Cyclohexanone</b>
<i>CAS Number</i>	:	<b>108-94-1</b>

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
-----	-----	-----	-----	-----	-----	-----	-----
<b>RBT</b>							<b>SKN</b>
<i>Species/strain/system</i>	:	Rabbit					

## Test Method and Conditions

<i>Test method description</i>	:	GLP: no data
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## Exposure

<i>Dose / Concentration</i>	:	<b>10200 mg/kg BW</b>
<i>Exposure comments</i>	:	Applications of undiluted cyclohexanone to clipped, uncovered skin.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>LDLo</b>					
LDLo was 10200 mg/kg.					
<i>General Comments</i>	:	Rabbits died when exposed to a few applications of undiluted cyclohexanone (10200-23000 mg/kg). Results ranged from slight anesthesia to marked hypothermia, convulsions, narcosis and death.			

## References

- Primary Reference* : **JIHTAB**  
Treon, J. F. et al. Journal of Industrial Hygiene and Toxicology, 25(6), 199-214, (1943)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

- End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

- | <u>Organism</u>                       | <u>Medium</u> | <u>Specification</u> | <u>Route</u> | <u>Lifestage</u> | <u>Sex</u> | <u>Number exposed</u> | <u>Number controls</u> |
|---------------------------------------|---------------|----------------------|--------------|------------------|------------|-----------------------|------------------------|
| <b>RBT</b>                            |               |                      | <b>IVN</b>   |                  |            | <b>12/GROUP</b>       |                        |
|                                       |               |                      | <b>SCU</b>   |                  |            |                       |                        |
| <i>Species/strain/system</i> : Rabbit |               |                      |              |                  |            |                       |                        |

## Test Method and Conditions

- Test method description* : Ophthalmic examinations were conducted monthly for 6 months; GLP: no data

## Exposure

- Exposure Type* : **SHORT**  
*Exposure Period* : **3 wk**  
*Frequency* : **3 x/wk**  
*Dose / Concentration* : **0.5-5 mg/kg BW/d**  
*Exposure comments* : Intravenous injection at 0.5 and 5 mg/kg/day and precutaneous injection at 0.5 mg/kg/day. Treatments were 3 times a week for 3 consecutive weeks.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
-----	-----	-----	-----	-----	-----
	<b>NEF</b>				

No effects on growth, behavior or eye structure during a 6- month observation period were noted.

## References

- Primary Reference* : **FAATDF**  
Greener, Y. and Youkilis, E. Fundamental and Applied Toxicology, 4(6), 1055-66, (1984)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RBT** **IHL** **4/GROUP**

*Species/strain/system* : Rabbit

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **3-10 wk**  
*Frequency* : **6 h/d**  
**5 d/wk**  
*Dose / Concentration* : **760-12328 mg/m3 AIR**  
*Exposure comments* : 10-week exposure at 190, 309, 773, or 1414 ppm for 6 hours/day, 5 days/week; 3-week exposure at 3082 ppm, 6 hours/day, 5 days/week.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>BW</b>	<b>DECR</b>				
<b>ANS</b>	<b>TEMP</b>				
<b>CNS</b>	<b>MUSCL</b>				

Animals at 3082 ppm lost weight, showed decreased body temperature and incoordination.

**DEATH**

At 3082 ppm 50% mortality was observed.

<b>EAR</b>	<b>CIRC</b>
<b>GIT</b>	<b>EXOC</b>
<b>EYE</b>	<b>IRRIT</b>

At 3082 and 1414 ppm, rabbits had distended ear veins, excess salivation, and conjunctival irritation throughout, the daily exposures.

<b>EYE</b>	<b>IRRIT</b>
------------	--------------

Less ocular irritation was observed in 309 ppm and 773 ppm groups.

**NEF**

Exposure at 190 ppm for 300 hours produced no behavioral changes and induced barely demonstrable degenerative changes in livers and kidneys.

**NOAEL**

NOAEL = 190 ppm (762 mg/m3)

## References

- Primary Reference* : **JIHTAB**  
Treon, J. F. et al. Journal of Industrial Hygiene and Toxicology, 25(8), 323-347, (1943)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

- End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>RBT</b>			<b>SKN</b>			<b>3</b>	
<i>Species/strain/system</i> : Rabbit							

## Test Method and Conditions

- Test method description* : GLP: no data

## Exposure

- Exposure Type* : **SHORT**  
*Exposure Period* : **5 d**  
*Dose / Concentration* : **10-55 mL /ANIMAL**  
*Exposure comments* : 10 mL of cyclohexanone was applied daily to shaved belly for a total exposure over five days of 47000 mg/kg. Daily treatments consisted of 2x5 mL applications, given at one-half hour intervals; after 1 hour of contact, material was removed by washing. 2 additional animals were treated with 30 or 50 mL of cyclohexanone.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
<b>CNS</b>	<b>FUNCT DEATH</b>				
Animal treated with 10 mL of cyclohexanone for 5 days showed CNS effects (tremors, athetoid movements, and hypothermia). Death occurred 18 hours after last treatment.					
<b>SKIN</b>	<b>DEATH IRRIT</b>				
The rabbit treated with 55 mL died within 4 hours. Treated area was "greatly irritated".					

## References

- Primary Reference* : **JIHTAB**  
Treon, J. F. et al. Journal of Industrial Hygiene and Toxicology, 25(6), 199-214, (1943)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

- End Point* : **MAMMALIAN TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RBT** **SKN** **12**

*Species/strain/system* : Rabbit

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

- Exposure Type* : **SHORT**  
*Exposure Period* : **3 wk**  
*Frequency* : **3 d/wk**  
*Dose / Concentration* : **0.5 mL /ANIMAL**  
*Exposure comments* : 0.5 mL of cyclohexanone was applied dermally, uncovered, to rabbits. Animals were observed for 6 months.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
	<b>NEF</b>				

No effects on growth, behavior or eye structure were observed.

## References

- Primary Reference* : **FAATDF**  
Greener, Y. J. and Yorkilis, E. Fundamental and Applied Toxicology, 4, 1055, (1984)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **CARCINOGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>MOUSE</b>			<b>ORL</b>		<b>M</b>	<b>47-52</b>	
					<b>F</b>	<b>41-52</b>	

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **LONG**  
*Exposure Period* : **104 wk**  
*Dose / Concentration* : **6500-25000 mg/L AQ/DRINK**  
*Exposure comments* : Male: 4752/group; female: 41-52/group. Two-year exposure via drinking water at concentrations of 0, 6500, or 13000 ppm for males and 0, 6500, 1300 or 25000 ppm for females.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
	<b>DEATH</b>				

Survivality of females at 13000 and 25000 ppm was poor. Fewer than 20% at 25000 ppm and approximately 50% at 13000 ppm were alive at 75 weeks. 80% of the males in the 13000 ppm group were alive at week 90.

<b>LYMPH</b>	<b>CAR</b>			<b>F</b>	
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A increase in the incidence of malignant lymphoma was noted in the females treated with 6500 ppm but not at 13000 ppm.

<b>LIVER</b>	<b>NEO</b>			<b>M</b>	
--------------	------------	--	--	----------	--

Increased hepatocellular neoplasms were observed in males at 6500 ppm but not at 13000 ppm.

	<b>NEO</b>			<b>M</b>	
	<b>CAR</b>				

In males, combined adenomas and carcinomas were increased at the low but not the high dose.

<b>LIVER</b>	<b>CHNG</b>			<b>M</b>	
<b>LUNG</b>	<b>CHNG</b>				

The most significant histological findings in male mice involved proliferative lesions of liver and lung.

**LOAEL**  
-  
**NOAEL**

LOAEL = 13000 ppm (based on 18% decrease in body weight in males, and decreased survival in females).  
NOAEL = 6500 ppm.

*General Comments* : Lack of a dose response for increased numbers of tumours already having a high background incidence prompted the authors to conclude that evidence of carcinogenicity was marginal and the effects, if any, were weak.

## References

- Primary Reference* : **JNCIAM**  
Lijinsky, W. and Kovatch, R. Journal of the National Cancer Institute (United States), 74(4), 941-949, (1986)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

- End Point* : **CARCINOGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
RAT			ORL		M	52/GROUP	52
					F	52/GROUP	52

## Test Method and Conditions

- Test method description* : GLP: no data

## Exposure

- Exposure Type* : **LONG**  
*Exposure Period* : **104 wk**  
*Dose / Concentration* : **3300-5600 mg/L AQ/DRINK**  
*Exposure comments* : Two year exposure via drinking water at concentrations of 0, 3300 or 6500 ppm.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
	<b>NEF</b>				

No marked effects on survival were observed.

**BW RETAR**

A dose-related decrease in weight gain was evident in both male and female rats.

Many neoplasms were seen in the treated animals; however, few neoplasms differed in incidences from the controls.

**ADREN NEO M**

Only adenoma of the adrenal cortex in males at 3300 ppm occurred a statistically higher incidence than the controls. In the absence of a dose response, it is doubtful that this was a carcinogenic effect.

**LOAEL**

LOAEL = 3300 ppm (based on ca. 13% decrease in body weight).

- General Comments* : Lack of a dose response for increased numbers of tumors already having a high background incidence prompted the authors to conclude that evidence of carcinogenicity was marginal and the effects, if any, were weak.

## References

- Primary Reference* : **JNCIAM**  
Lijinsky, W. and Kovatch, R. M. Journal of the National Cancer Institute  
(United States), 77(4), 941-949, (1986)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
Production Volume Chemicals Programme, (1994)
-

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**BACT**

**VTR**

*Species/strain/system* : Salmonella typhimurium strains TA1535, TA1537, TA98

## Test Method and Conditions

*Test method description* : Ames Test; GLP: no data

## Exposure

*Exposure comments* : Test was performed with and without metabolic activation.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
	<b>NEF</b>				

Negative results with and without metabolic activation.

## References

*Primary Reference* : **TXCYAC**  
Florin, I. et al. Toxicology, 15(3), 219-232, (1980)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**BACT**

**VTR**

*Species/strain/system* : Salmonella typhimurium strains TA1535, TA1537, TA98, TA100

## Test Method and Conditions

*Test method description* : Ames Test; GLP: no data

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>GENE</b>	<b>MUT</b>				
Positive results without metabolic activation.					

## References

*Primary Reference* : **MUREAV**  
Massoud, A. et al. Mutation Research, 74(3), 174, (1980)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
-----	-----	-----	-----	-----	-----	-----	-----
<b>BACT</b>							<b>VTR</b>
<i>Species/strain/system</i> : Bacillus subtilis							

## Test Method and Conditions

*Test method description* : Unspecified; GLP: no data

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>GENE</b>	<b>MUT</b>				
Positive results without metabolic activation. Mutants obtained required different amino acids, and leucine-requiring mutants had the maximum percentage of all. Functional mutants were obtained for leucine, methionine, phenylalanine, uracil and tryptophan; a large number of					

revertants also appeared.

### **CELL**

Severe effects on survival were shown.

## References

- Primary Reference* : **MUREAV**  
Massoud, A. et al. Mutation Research, 74(3), 174, (1980)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
- 

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>BACT</b>							<b>VTR</b>
<i>Species/strain/system</i> : Escherichia coli							

## Test Method and Conditions

*Test method description* : E. coli, polA assay; GLP: no data

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
<b>GENE</b>	<b>MUT</b>				
DNA damage occurred					

## References

- Primary Reference* : **CMMUAO**  
Rosenkranz, H. S. and Leifer, Z. Chemical Mutagens. Principles and Methods for their Detection, 6, 109, (1980)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**HAMST**

**VTR**

*Species/strain/system* : Chinese hamster ovary cells

## Test Method and Conditions

*Test method description* : Gene mutation at the HGPRT locus; GLP: no data

## Exposure

*Exposure Period* : **1 h**  
*Dose / Concentration* : **2.5-12.5 uL/mL**

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>GENE</b>	<b>MUT</b>				
Positive result without metabolic activation.					

**CELL**

In a separate experiment, exposure to 6-10 uL/mL proved cytotoxic.

## References

*Primary Reference* : **ENMUDM**  
 Aaron, C. S. et al. Environmental Mutagenesis, 7 Suppl.3, 60-61, (1985)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**HAMST**

**VTR**

*Species/strain/system* : Chinese hamster ovary cells

## Test Method and Conditions

*Test method description* : Sister Chromatid Exchange Assay; GLP: no data

## Exposure

*Exposure Period* : 1 h  
*Dose / Concentration* : 2.5-12.5 uL/mL  
*Exposure comments* : Cells were exposed for one hour at 2.5 to 12.5 uL/mL with and without metabolic activation.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>CHROM</b>	<b>RECOM</b>				
Positive genotoxic effects without metabolic activation.					
	<b>NEF</b>				
Negative effects with metabolic activation.					

## References

*Primary Reference* : **ENMUDM**  
 Aaron, C. S. et al. Environmental Mutagenesis, 7 Suppl.3, 60-61, (1985)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
-----	-----	-----	-----	-----	-----	-----	-----
<b>HAMST</b>							
			<b>VTR</b>				
<i>Species/strain/system</i> : Chinese hamster ovary cells							

## Test Method and Conditions

*Test method description* : Cytogenetic Assay (for detection of chromosome aberrations); GLP: no data

## Exposure

*Exposure Period* : 1 h  
*Dose / Concentration* : 2.5-12.5 uL/mL  
*Exposure comments* : Test was performed with and without metabolic activation.



## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>NEF</b>				

No genotoxic effects with and without metabolic activation.

## References

*Primary Reference* : **ENMUDM**  
Aaron, C. S. et al. Environmental Mutagenesis, 7 Suppl.3, 60-61, (1985)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>HUMAN</b>			<b>VTR</b>				
<i>Species/strain/system</i> : Human lymphocytes							

## Test Method and Conditions

*Test method description* : Cytogenetic Assay for Chromosomal Aberrations; GLP: no data

## Exposure

*Dose / Concentration* : **9.8-980 mg/L**  
*Exposure comments* : Concentrations of 10-2 M, 10-3 M and 10-4 M were used.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>CHROM</b>	<b>STRUC</b>				

Achromatic regions, breaks, and deletions were observed in human lymphocytes.

## References

*Primary Reference* : **DIAEAZ**  
Collin, V. P. Diabetes, 19(4), 215-221, (1971)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**HUMAN** **VTR**

*Species/strain/system* : Human lymphocytes

## Test Method and Conditions

*Test method description* : Cytogenetic Assay for Chromosomal Aberrations; GLP: no data

## Exposure

*Dose / Concentration* : **0.005-0.1 mg/L**  
*Exposure comments* : Concentrations of 0.005, 0.01 and 0.1 mg/L were tested.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>CHROM</b>	<b>CHNG</b>				

The yield of chromosome aberrations (single fragments) showed a 2.2 - 4 fold increase compared with the spontaneous frequency of aberrations.

## References

*Primary Reference* : **GISAAA**  
 Dyshlovoi, V. D. et al. Gigiena i Sanitariya (Hygiene and Sanitary), 46(5), 76-77, (1981)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**HUMAN** **VTR**

*Species/strain/system* : Human cells

## Test Method and Conditions

*Test method description* : Unscheduled DNA synthesis; GLP: no data

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>NEF</b>					

Negative results for genotoxicity with and without metabolic activation.

## References

*Primary Reference* : **INTPSE\***  
National Toxicology Program. Technical Report Series, (1983)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>HUMAN</b>			<b>VTR</b>				

*Species/strain/system* : Human fibroblasts

## Test Method and Conditions

*Test method description* : Unscheduled DNA synthesis; GLP: no data

## Exposure

*Exposure Period* : **3 h**  
*Dose / Concentration* : **<9.48-9.48 mg/mL**  
*Exposure comments* : Exposures for 3 hours at concentrations up to 9.48 mg/mL.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>NEF</b>					

Negative results for genotoxicity with and without metabolic activation.

## References

- Primary Reference* : **TOLED5**  
Pevocco, P. et al. Toxicology Letters, 16(1-2), 69-76, (1983)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>INSEC</b>							<b>IHL</b>
<i>Species/strain/system</i> : Drosophila melanogaster							

## Test Method and Conditions

*Test method description* : Sex-Linked Recessive Lethal Assay; GLP: no data

## Exposure

*Dose / Concentration* : **200-1600 mg/m3 AIR**  
*Exposure comments* : Flies were exposed to 50 ppm for 7 hours or 400 ppm for 40 minutes.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
-----	-----	-----	-----	-----	-----
	<b>NEF</b>				

Negative effects of genotoxicity. Signs of toxicity were evident at 400 ppm.

## References

- Primary Reference* : **#XPBRCA**  
McGregor, D. B. National Technical Information Service (PB number), PB-83-127571, (1980)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**INSEC**

**M**

*Species/strain/system* : Drosophila melanogaster

## Test Method and Conditions

*Test method description* : Phenocopies of tumor mutations; GLP: no data

## Exposure

*Exposure Period* : **3 d**  
*Exposure comments* : Exposure of male fruit flies to 0.1 mL cyclohexanone/100 mL for 3 days.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>NEF</b>				

No genotoxic effects

*General Comments* : A study of larvae reported the production of phenocopies of tumor mutations; however, other studies observed no effects.

## References

*Primary Reference* : **TGANAK**  
 Goncharova, R. I. Tsitologiya i Genetika (Cytology and Genetics), 137-142, (1970)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**INSEC**

*Species/strain/system* : Drosophila melanogaster

## Test Method and Conditions

*Test method description* : Sex-Linked Recessive Lethal Assay; GLP: yes

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>NEF</b>					

Negative result. Male sterility was only slightly increased over the controls.

## References

*Primary Reference* : **WISUM\***  
Wisconsin University

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>MAMM</b>			<b>VTR</b>				

## Test Method and Conditions

*Test method description* : Cell transformation; GLP: no data

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>NEF</b>					

Cyclohexanone did not cause behavior of cells to move closely resemble the cancerous state. (It is not clear if metabolic activation was used).

## References

*Primary Reference* : **JNCIAM**  
Lijinsky, W. and Kovatch, R. M. Journal of the National Cancer Institute (United States), 77(4), 941-949, (1986)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**MOUSE**

**VTR**

*Species/strain/system* : L51784 th+/tk- mouse lymphoma cells

## Test Method and Conditions

*Test method description* : Forward mutation assay; GLP: no data

## Exposure

*Exposure comments* : Concentrations up to 5000 ug/mL were used.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
	<b>NEF</b>				

No significant reductions in survival or increases in mutant fractions occurred at concentration up to 5000 ug/mL with and without metabolic activation.

## References

*Primary Reference* : **EMMUEG**  
 McGregor, D. B. et al. Environmental and Molecular Mutagenesis, 12, 85-154, (1988)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**MOUSE**

**IHL**

**M**

## Test Method and Conditions

*Test method description* : Dominant Lethal Assay; GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **5 d**  
*Frequency* : **7 h/d**  
*Dose / Concentration* : **200-1600 mg/m3 AIR**  
*Exposure comments* : Exposure to cyclohexanone vapors of 50 or 400 ppm for 5 days.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
	<b>NEF</b>				

No effects on pregnancy frequency, numbers of corpora lutea and implantations, or the frequency of early deaths.

*General Comments* : Noted were some problems relating to reproducibility, the response of the positive indicators, and viral infection of the animals.

## References

*Primary Reference* : **#XPBRCA**  
 McGregor, D. B. National Technical Information Service (PB number), PB83-127571, (1980)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>MOUSE</b>				<b>IHL</b>	<b>M</b>		

## Test Method and Conditions

*Test method description* : Sperm morphology; GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **5 d**  
*Frequency* : **7 h/d**  
*Dose / Concentration* : **200-1600 mg/m3 AIR**  
*Exposure comments* : Mice were exposed to vapors of 50 or 400 ppm cyclohexanone for 5 days.



## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

**NEF**

Negative result. Abnormal sperm frequency was not affected.

*General Comments* : Noted were some problems relating to reproducibility, the response of the positive indicators, and viral infection of the animals.

## References

*Primary Reference* : **#XPBRCA**  
McGregor, D. B. National Technical Information Service (PB number), PB83-127571, (1980)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
RAT							

## Test Method and Conditions

*Test method description* : In vivo Cytogenetic Assay; Chromosome Aberrations in Bone Marrow; GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **1-5 d**  
*Frequency* : **7 h/d**  
*Dose / Concentration* : **200-1600 mg/m3 AIR**  
*Exposure comments* : Animals were sacrificed 6, 24, and 48 hours following inhalation exposure to vapors of 50 or 400 ppm for 50 or 400 ppm for 1 or 5 days.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

**NEF**

Negative result. The frequency of chromosome aberrations were not increased.

*General Comments* : Noted were some problems relating to reproducibility, the response of the positive indicators, and viral infection of the animals.

## References

- Primary Reference* : **#XPBRCA**  
McGregor, D. B. National Technical Information Service (PB number), PB83-127571, (1980)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
- 

## Study

- End Point* : **MUTAGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
RAT			SCU		M		

## Test Method and Conditions

- Test method description* : Cytogenetic Assay In vivo; Chromosome Aberrations in Bone Marrow; GLP: no data

## Exposure

- Exposure Type* : **ACUTE**  
*Dose / Concentration* : **100-1000 mg/kg BW**  
*Exposure comments* : Animals were sacrificed 6, 24, and 48 hours following subcutaneous injection of 100, 500 or 1000 mg/kg of cyclohexanone.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
-----	-----	-----	-----	-----	-----
<b>CHROM</b>	<b>STRUC</b>				

Chromosome aberrations were induced at all doses and time intervals. Incidence of abnormalities increased with dose and decreased with time. They consisted of chromatid gaps and break, centric fusions, centrometric attenuation, chromatid exchanges and polyploidy.

## References

- Primary Reference* : **EJGCA9**  
De Hondt, H. A. et al. Egyptian Journal of Genetics and Cytology, 12(1), 31-40, (1983)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **NEUROTOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

## Evaluations

*Evaluation text* : The neurotoxicity of cyclohexanone has been examined in several animals species (rats, dogs, mice, guinea pigs). However , there has been no consistent indication of specific neurotoxic effects. At highest doses near the LD50, signs of CNS depression occurred. Behavioral changes may be due to general anesthetic effects of cyclohexanone. On the basis of the existing data, this material could not be classified as having potential neurotoxicity to humans. (Criteria Document for Evaluation of Existing Data, Nordic Council of Ministers and National Institute of Occupational Health, Denmark, 1992).

## References

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **SENSITIZATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**GPIG**

**SKN**

*Species/strain/system* : Guinea pig

## Test Method and Conditions

*Test method description* : "Buehler-style" closed patch assay; GLP: no data

## Exposure

*Exposure comments* : Multiple skin applications of neat cyclohexanone (used in both the inductions and challenge phases).

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>NEF</b>				

Multiple skin applications of neat cyclohexanone did not cause local reactions in guinea pigs.

## References

*Primary Reference* : **TXAPA9**  
 Gad, S. C. et al. Toxicology and Applied Pharmacology, 84, 93, (1986)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **SENSITIZATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**GPIG**

**SKN**

**15**

**SCU**

*Species/strain/system* : Guinea pig

## Test Method and Conditions

*Test method description* : Maximization test; GLP: no data

## Exposure

*Exposure comments* : A maximization procedure involving covered skin applications and injections of neat cyclohexanone, along with an adjuvant known to stimulate the immune system, was used.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>NEF</b>					
No sensitization was induced					

## References

*Primary Reference* : **TXAPA9**  
Gad, S. C. et al. Toxicology and Applied Pharmacology, 84, 93, (1986)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **SENSITIZATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>GPIG</b>						<b>20</b>	
			<b>SKN</b>				
			<b>SCU</b>				

*Species/strain/system* : Guinea pig

## Test Method and Conditions

*Test method description* : Maximization test; GLP: no data

## Exposure

*Exposure comments* : The induction phase consisted of covered skin applications of 25% cyclohexanone and injection of 8% cyclohexanone along with an adjuvant known to stimulate the immune system and the challenge phase was covered skin application of 20% cyclohexanone.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
	<b>NEF</b>				
No sensitization was induced					

## References

- Primary Reference* : **CODEDG**  
Bruze, M. et al. Contact Dermatitis, 18, 46, (1988)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **SENSITIZATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>GPIG</b>							
			<b>SKN</b>				
<i>Species/strain/system</i> : Guinea pig							

## Test Method and Conditions

*Test method description* : Maximization test; GLP: no data

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
	<b>NEF</b>				
Cyclohexanone did not induce skin allergy in the guinea pig maximization test.					

## References

- Primary Reference* : **!IARMB8**  
IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, 47, 157-169, (1989)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **SENSITIZATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**MOUSE**

**SKN**

## Test Method and Conditions

*Test method description* : An ear swelling test; GLP: no data

## Exposure

*Exposure comments* : The mice were treated with 2 injections of adjuvant and three uncovered skin applications of neat cyclohexanone during the 1 week induction period. 1 week later 1 uncovered application of neat cyclohexanone was made to the left ear of each mouse.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>NEF</b>				
No sensitization was induced					

## References

*Primary Reference* : **TXAPA9**  
 Gad, S. C. et al. Toxicology and Applied Pharmacology, 84, 93, (1986)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**GPIG** **IHL**

*Species/strain/system* : Guinea pig

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **ACUTE**  
*Exposure Period* : **6 h**  
*Dose / Concentration* : **16057 mg/m3 AIR**  
*Exposure comments* : Exposure to 4000 ppm cyclohexanone vapor for 6 hours.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>EYE</b>	<b>STRUC</b>				
<b>EYE</b>	<b>EXOC</b>				

Exposure to 4000 ppm cyclohexanone vapor for 6 hours resulted in eye watering and corneal opacity.

## References

*Primary Reference* : **XPHPAW**  
 Specht, H. et al. US Public Health Service Bulletin, 176, (1940)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**MONKY** **IHL**



## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **10 wk**  
*Frequency* : **6 h/d**  
**5 d/wk**  
*Dose / Concentration* : **2440 mg/m3 AIR**  
*Exposure comments* : Exposure to 608 ppm cyclohexanone vapor for 10 weeks.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>EYE</b>	<b>IRRIT</b>				

Exposure to 608 ppm cyclohexanone vapor for 10 weeks resulted in slight eye irritation in a monkey.

## References

*Primary Reference* : **JIHTAB**  
 Treon, J. F. et al. Journal of Industrial Hygiene and Toxicology, 25(8), 323-347, (1943)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>RBT</b>			<b>SKN</b>				
<i>Species/strain/system</i> : Rabbit							

## Test Substance

*Vehicle - Solvent* : Cottonseed oil

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **ACUTE**  
*Exposure Period* : **24 h**  
*Exposure comments* : A 21.4% solution of cyclohexanone in cottonseed oil was applied to rabbit skin and covered.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
<b>SKIN</b>	<b>IRRIT</b>				
A slight transient irritation was observed					
<i>General Comments</i>	: Covered exposure to neat solution for 24 hours resulted in severe irritation.				

## References

*Primary Reference* : **TXAPA9**  
 Gupta, P. K. et al. Toxicology and Applied Pharmacology, 49(3), 523-533, (1979)

*Secondary Reference* : **ISIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>RBT</b>			<b>SKN</b>			<b>6/GROUP</b>	
<i>Species/strain/system</i> : Rabbit							

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **ACUTE**  
*Dose / Concentration* : **0.5 mL**  
*Exposure comments* : Application of 0.5 mL cyclohexanone under a covering. Two different samples of 0.5 mL cyclohexanone were applied.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>SKIN</b>	<b>COR</b>				
<b>SKIN</b>	<b>IRRIT</b>				

5/6 rabbits exhibited necrosis within 5 hours, 2/6 rabbits had also minor to moderate erythema, 4/6 rabbits had minor to moderate erythema after application of one sample of cyclohexanone.

**SKIN IRRIT**

In a second test with a different 0.5 mL sample of cyclohexanone, 3/6 rabbits exhibited minor to moderate erythema, and 1/6 rabbits had minor edema. No rabbits had necrosis.

*General Comments* : One product was classified as corrosive. The second sample was not considered corrosive.

## References

*Primary Reference* : **UCCYDF**  
Union Carbide Co-operation, (1982)

*Secondary Reference* : **ISIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

*Organism* *Medium* *Specification* *Route* *Lifestage* *Sex* *Number exposed* *Number controls*

**RBT** **SKN**

*Species/strain/system* : Rabbit

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **ACUTE**  
*Exposure comments* : One application of neat cyclohexanone with 24-hour open contact.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>SKIN</b>	<b>NEF</b>				

One application of neat chemical with 24-hour open contact was non-irritating to rabbit skin.

## References

- Primary Reference* : **AIHAAP**  
Smyth, J. F. Jr. et al. American Industrial Hygiene Association Journal, 30, 470, (1969)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>RBT</b>							<b>SKN</b>
<i>Species/strain/system</i> : Rabbit							

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure comments* : 11 open applications of neat chemical made at 20-minute intervals.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
<b>SKIN</b>	<b>IRRIT</b>				
Severe irritation					

## References

- Primary Reference* : **JIHTAB**  
Treon, J. F. et al. Journal of Industrial Hygiene and Toxicology, 25(6), 139-214, (1943)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
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## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

RBT

OCU

*Species/strain/system* : Rabbit

## Test Substance

*Vehicle - Solvent* : Cottonseed oil

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **ACUTE**  
*Exposure comments* : 2.5, 5, and 40% solutions of cyclohexanone diluted in cottonseed oil were applied to the eye.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
<b>EYE</b>	<b>IRRIT</b>				
<b>EYE</b>	<b>NEF</b>				

5 and 40% solutions of cyclohexanone were very slightly irritating and markedly irritating, respectively, to rabbit eyes.

**EYE**      **NEF**

2.5% solution of cyclohexanone was non-irritating to rabbit eyes.

## References

*Primary Reference* : **TXAPA9**  
 Gupta, P. K. et al. Toxicology and Applied Pharmacology, 49(3), 525-533, (1979)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RBT** **OCU**

*Species/strain/system* : Rabbit

## Test Substance

*Vehicle - Solvent* : Water

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **ACUTE**  
*Exposure comments* : 0.1 mL of 10, 15, or 25% solution of cyclohexanone was applied to the eye.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>EYE</b>	<b>IRRIT</b>				
<b>EYE</b>	<b>COR</b>				

0.1 mL of 10, 15 and 25% solutions of cyclohexanone were mildly irritating, severely irritating or corrosive, respectively, to rabbit eyes.

## References

*Primary Reference* : **FCTOD7**  
 Treon, J. F. et al. Food and Chemical Toxicology, 25(8), 323-347, (1943)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RBT** **IHL** **4/DOSE**

*Species/strain/system* : Rabbit

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **10 wk**  
*Frequency* : **6 h/d**  
**5 d/wk**  
*Dose / Concentration* : **763-1240 mg/m3 AIR**  
*Exposure comments* : Groups of rabbits were exposed to 190 or 309 ppm cyclohexanone vapor.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>EYE</b>	<b>NEF</b>				
<b>EYE</b>	<b>IRRIT</b>				

Groups of rabbits exposed to 190 or 309 ppm cyclohexanone exhibited no irritation or slight irritation of the eyes, respectively.

## References

*Primary Reference* : **JIHTAB**  
 Treon, J. F. et al. Journal of Industrial Hygiene and Toxicology, 25(8), 323-347, (1943)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RBT** **OCU**

*Species/strain/system* : Rabbit

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **ACUTE**  
*Dose / Concentration* : **0.01 mL**  
*Exposure comments* : 0.01 mL of undiluted cyclohexanone was applied to the eye.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>EYE</b>	<b>COR</b>				

0.01 mL of undiluted cyclohexanone produced moderate corneal necrosis; a grade of 5 on a scale of 1 to 10.

## References

*Primary Reference* : **WGTOE\***  
Grant, M. W. Toxicology of the Eye, 3rd ed., 296, (1986)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RBT** **OCU**

*Species/strain/system* : Rabbit



## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **ACUTE**  
*Exposure Period* : **24 h**  
*Dose / Concentration* : **250 ug**  
*Exposure comments* : A 24-hour exposure of rabbit eyes to 250 ug of cyclohexanone

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
<b>EYE</b>	<b>IRRIT</b>				

A 24-hour exposure of rabbit eyes to 250 ug of cyclohexanone resulted in severe irritation.

## References

*Primary Reference* : **85JCAE**  
 Marhold, J. Prehled Prumyslove Toxikol. Org. Latky, 289, (1986)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**RBT** **OCU**

*Species/strain/system* : Rabbit

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **ACUTE**  
*Dose / Concentration* : **0.1 mL**

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
<b>EYE</b>	<b>COR</b>				
<b>EYE</b>	<b>IRRIT</b>				

0.1 mL of undiluted cyclohexanone produced generalized moderate but penetrating corneal injury, mild iritis, and conjunctivitis in rabbit eyes. Corneal injury was reversible in all treated eyes. 14 days after dosing, the treated unwashed eyes showed generally mild corneal damage, washing

the treated eyes 20 seconds after exposure did reduce ocular effects somewhat, but the eyes still showed very mild to microscopic corneal changes at 14 days.

## References

*Primary Reference* : **#HASLR\***  
H8-88-69. Haskell Laboratory Report, (1969)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

*Organism* *Medium* *Specification* *Route* *Lifestage* *Sex* *Number exposed* *Number controls*

**RBT** **SKN**

*Species/strain/system* : Rabbit

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Dose / Concentration* : **200-794 mg/kg**

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

**SKIN IRRIT**

Cyclohexanone was severely irritating to rabbits skin at doses of 200 and 794 mg/kg.

**SKIN IRRIT**  
**SKIN COR**

Pale red erythema and moderate edema were observed after 24 hours at 200 mg/kg dose; second-degree burns, focal escharosis and mild desquamation at day 7 and focal escharosis and mild desquamation at day 14 were observed.

**SKIN IRRIT**  
**SKIN COR**

At 794 mg/kg dose pale red to red well-defined erythema, severe edema, subdermal hemorrhaging, and focal second- and third-degree burns were observed at 24 hours and escharosis and moderate desquamation at days 7 and 14.

*General Comments* : Necropsy showed gastroenteritis and hemorrhaging in the colon of 1 rabbit dosed with 200 mg/kg; red lungs in 2 rabbits at 794 mg/kg; and focal discoloration of the liver and red lungs in 2 rabbits in the high dose. 4/4 rabbits died when dosed with 3160 mg/kg.

## References

*Primary Reference* : **INBTL\***  
Industrial Bio-Test Laboratories EPA/OTS, (1975)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
-----	-----	-----	-----	-----	-----	-----	-----

**RBT SKN**

*Species/strain/system* : Rabbit

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

**NEF**

Cyclohexanone produced no irritation to rabbit skin

## References

- Primary Reference* : **MELIN\***  
Mellon Institute EPA/OTS, (1967)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>RBT</b>			<b>SKN</b>		<b>M</b> <b>F</b>		

*Species/strain/system* : Rabbit

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in</u> <u>Exposed - Controls</u>
<b>SKIN</b>	<b>NEF</b>				
<i>General Comments</i>		: In an evaluation for corrosiveness in male and female rabbits, no erythema, edema, other dermal effects or deaths occurred in any rabbit.			

## References

- Primary Reference* : **HAZLA\***  
Hazelton Laboratories America, Inc. Chemical and Biomedical Sciences  
Division, (1982)
- Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **IRRITATION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>RBT</b>			<b>SKN</b>				
<i>Species/strain/system</i>		: Rabbit					

## Test Method and Conditions

*Test method description* : GLP: no data

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>SKIN</b>	<b>IRRIT</b>				
Cyclohexanone produced slight irritation to rabbit skin.					

## References

*Primary Reference* : **VNIIVS**  
 Kan, P. T. et al. Vsesoyuznyi Nauchno-Issledovatel'skii Institut Veterinarnai Sanitarii, 39, 362-372, (1971)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **REPRODUCTION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>MOUSE</b>			<b>IPR</b>		<b>F</b>	<b>8</b>	

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **28 d**  
*Dose / Concentration* : **50 mg/kg BW/d**  
*Exposure comments* : Intraperitoneal injection of 8 females at 50 mg/kg/day for 28 days; animals were mated on day 10 with untreated males.

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
<b>FETUS</b>	<b>DEATH</b>				

All females became pregnant and yielded 83% viable fetuses/ litter with 46% resorptions/litter.

*General Comments* : No clear effect on fertility or on the numbers of early fetal deaths and live offsprings per litter.

## References

*Primary Reference* : **JMCMAR**  
Hall, J. H. et al. Journal of Medicinal Chemistry, 17(12), 1253-57, (1974)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **REPRODUCTION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>RAT</b>			<b>IHL</b>		<b>M</b>	<b>10/GROUP</b>	

## Test Method and Conditions

*Test method description* : Females were sacrificed on gestation day 20, and the uterine contents were examined; GLP: yes

## Exposure

*Exposure Type* : **LONG**  
*Exposure Period* : **160-168 d**  
*Dose / Concentration* : **1000-5600 mg/m3 AIR**  
*Exposure comments* : 10 males from a second F1 generation were selected from each treatment group from the above study. Each group consisted of 4 fertile and 6 non-fertile males. They had received 160-168 exposures to 0, 250, 500 or 1400 ppm. They were mated weekly to 2 untreated virgin females for 4 consecutive weeks.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>NEF</b>				

Exposure prenatally, post-natally, and throughout sexual maturity did not result in adverse effects on reproductive performance during a post-exposure recovery period. Treatment-related depressions in fertility of the F1 males exposed to 1400 ppm were considered reversible.

## References

*Primary Reference* : **AMEBC\***  
American Biogenics Corporation, (1986)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **REPRODUCTION**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
-----	-----	-----	-----	-----	-----	-----	-----
<b>RAT</b>			<b>IHL</b>		<b>M</b>	<b>30/GROUP</b>	<b>30</b>
					<b>F</b>	<b>30/GROUP</b>	<b>30</b>

## Test Method and Conditions

*Test method description* : Neurotoxicological/neuropathological evaluations were done pre-weaning and post-weaning in each F1 litter; GLP: yes

## Exposure

*Exposure Type* : **LONG**  
*Exposure Period* : **2 GN**  
*Frequency* : **6 h/d**  
*Dose / Concentration* : **1000-5600 mg/m3 AIR**  
*Exposure comments* : Groups of rats were exposed to 0, 250, 500, or 1000 ppm during the first (F0) generation. Selected F1 generation animals were exposed similarly to 0, 250, 500, or 1400 ppm.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

### NEF

Exposure to 1000 ppm for one generation and 250 or 500 ppm for two consecutive generations did not adversely effect the growth, development, and reproductive performance.

### NEF

There were no consistent differences in the behavioral/ neurotoxicologic development of selected F1 progeny.

### REPRO

### DECR

### M

Exposure of the F1 generation to 1400 ppm resulted in reduced male fertility.

### OFSPR

### DEATH

Exposure of the F1 generation to 1400 ppm resulted in reduced progeny survival and body weight.

### NOAEL

NOAEL for P generation: 1000 ppm; NOAEL for F1 generation: 500 ppm; NOAEL for F2 generation: 500 ppm.

*General Comments* : To be continued

## References

*Primary Reference* : **AMEBC\***  
 American Biogenics Corporation, (1986)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)



## Study

*End Point* : **TERATOGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

BIRD

IHL

*Species/strain/system* : Chicken eggs

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Period* : **3-12 h**  
*Exposure comments* : Chicken eggs were exposed at the 0- or 96-hour incubation age to vapors of cyclohexanone for 3, 6, or 12 hours (levels unspecified). Embryos sacrificed at 13-day incubation age.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>EMBRY</b>	<b>SIZE</b>				
<b>EMBRY</b>	<b>NEF</b>				

Embryos displayed a significant lower weight than controls, but no changes in gross morphology or blood biochemistry were seen.

Newly hatched chicks, however, did exhibit "severe locomotor difficulties" and excessive toxic symptoms.

## References

*Primary Reference* : **TJADAB**  
 Weller, E. M. and Griggs, J. H. Teratology, Journal of Abnormal Development, 7(3), A-30, (1973)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **TERATOGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>MOUSE</b>			<b>ORL</b>		<b>F</b>		

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Dose / Concentration* : **10 g/kg DIET**  
*Exposure comments* : Pregnant animals were fed a diet containing 1% cyclohexanone (approximately 1500 mg/kg/day).

## Test Results

<u>Organ</u>	<u>Effect</u>	<u>Rev.</u>	<u>OnSet</u>	<u>Sex</u>	<u>Affected in Exposed - Controls</u>
<b>OFSPR</b>	<b>DEATH</b>				

Mortality rate of the young during the first 21 days of live was increased.

## References

*Primary Reference* : **JETOAS**  
 Gondry, E. European Journal of Toxicology and Environmental Hygiene. Former title (until 1976) : European Journal of Toxicology and Hygiene of the Environment (Until 1974) : Journal Europeen de Toxicologie, 5(4), 227-238, (1973)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **TERATOGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
<b>MOUSE</b>			<b>ORL</b>		<b>F</b>		

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **8-12 TDP**  
*Dose / Concentration* : **1100-2200 mg/kg BW/d**  
*Exposure comments* : Administration of 1100 and 2200 mg/kg/day cyclohexanone by gavage on gestation days 8-12.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>BW</b>	<b>RETAR</b>				
Average weight gain of dams was significantly reduced at 2200 mg/kg/day.					
<b>OFSPR</b>	<b>SIZE</b>				
A significant reduction in birth weight of the pups occurred at both doses.					

## References

*Primary Reference* : **TCMUD8**  
 Seidenberg, J. M. and Becker, R. A. Teratogenesis, Carcinogenesis, Mutagenesis, 7(1), 17-28, (1987)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **TERATOGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
-----	-----	-----	-----	-----	-----	-----	-----
<b>MOUSE</b>			<b>ORL</b>		<b>F</b>		

## Test Method and Conditions

*Test method description* : Dams were allowed to deliver; offspring assessed for post-natal viability, growth, and morphology on day 1 and 3 of age. On days 1, 3, 21, 50 and 210 day of age, offspring were observed for locomotor activity. GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **8-12 TDP**  
*Dose / Concentration* : **800 mg/kg BW/d**  
*Exposure comments* : 800 mg/kg/day of cyclohexanone was administered by gavage on gestation days 8-12.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>NEF</b>				

Number of live pups on day 3 were not reduced more than 10% and no subsequent mortality of pups occurred.

**OFSPR**      **NEF**

Reactive locomotor activity levels in mazes were not altered .

## References

*Primary Reference* : **PCBRD2**  
Gray, L. F. Jr. et al. Progress in Clinical and Biological Research, 140, 39-62, (1983)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **TERATOGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>MOUSE</b>			<b>IHL</b>		<b>F</b>		

## Test Method and Conditions

*Test method description* : GLP: yes

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **6-17 TDP**  
*Frequency* : **6 h/d**  
*Dose / Concentration* : **5620 mg/m3 AIR**  
*Exposure comments* : Whole-body inhalation exposure to 0 or 1400 ppm cyclohexanone on gestation days 6-17.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-	<b>NEF</b>				
<b>BW</b>	<b>DECR</b>				

No effect on maternal mortality. Statistical differences between treated and controls for mean body weights and mean weight gains.

**NEF**

No effect on pregnancy data, and mean number of viable fetuses/pregnant female.

**FETUS**      **SIZE**  
**NEF**

Fetuses exhibited a significant decrease in mean body weight . No external malformations were reported.

**FETUS**      **STRUC**

The incidence of visceral malformations was significantly greater in the treated group compared to control; however, treatment-related effect was not indicated based on the nature of the malformations. The incidence of skeletal malformations was comparable between controls and treated

animals.

**LOAEL**

LOAEL for Maternal Toxicity: 1400 ppm; LOAEL for Fetal Toxicity: 1400 ppm; LOAEL for Fetal Malformations >1400 ppm (no malformations).

## References

*Primary Reference* : **BIDSA2**  
Bio-Dynamics, (1984)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **TERATOGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>RAT</b>			<b>IHL</b>		<b>F</b>		

## Test Method and Conditions

*Test method description* : GLP: no data

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **5-20 TDP**  
*Frequency* : **7 h**  
*Dose / Concentration* : **400-2000 mg/m<sup>3</sup> AIR**  
*Exposure comments* : Inhalation exposure to 100, 250 or 500 ppm on days 5-20 of pregnancy.

## Test Results

Maternal weight gain at 250 and 500 ppm was only slightly lower than control. Gray mottling of the lung was seen in a few of the cyclohexanone-exposed dams.

### **NEF**

No significant differences between the treated and control groups in fetal weight, resorption sites, fetal death or sex ratio.

### **FETUS NEF**

External and soft-tissue examinations revealed no significant incidence of malformations or variations in the treated animals.

### **FETUS STRUC**

-

### **NEF**

A slight increase in the mean percent of rudimentary ribs/ litter was seen in the 250 and 500 ppm groups. However, no significant numbers of skeletal malformations were noted.

## References

*Primary Reference* : **TIHEEC**  
 Samini, B. S. et al. Toxicology and Industrial Health, 5(6), 1035-43, (1989)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **TERATOGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<u>Organism</u>	<u>Medium</u>	<u>Specification</u>	<u>Route</u>	<u>Lifestage</u>	<u>Sex</u>	<u>Number exposed</u>	<u>Number controls</u>
RAT			IHL		F		

## Test Method and Conditions

*Test method description* : GLP: yes

## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **6-19 TDP**  
*Dose / Concentration* : **803-6423 mg/m3 AIR**  
*Exposure comments* : Administration of cyclohexanone on gestation days 6-19 at target levels of 200, 400, 800 or 1600 ppm (cumulative mean- exposure levels were 100, 224, 473, and 1400 ppm).

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

### NEF

No adverse treatment-effect on maternal gross post-mortem observations.

Mean body weight data during gestation in the 800 and 1600 ppm groups were lower than controls on days 15 and 20. Lacrimation was noted with increased frequency in the 1600 ppm group; miosis was seen in 2 dams at 1600 ppm.

### NEF

No adverse treatment-effect was noted on mortality, corpora lutea, uterine implantation data.

### FETUS NEF

No adverse treatment-effect on fetal sex distribution data or fetal external examination data.

### FETUS SIZE

Mean fetal weight data was lower than controls at 1600 ppm.

## References

*Primary Reference* : **BIDSA2**  
 Bio-Dynamics, (1983)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **TERATOGENICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**

## Test Subject

<i>Organism</i>	<i>Medium</i>	<i>Specification</i>	<i>Route</i>	<i>Lifestage</i>	<i>Sex</i>	<i>Number exposed</i>	<i>Number controls</i>
<b>RAT</b>			<b>IHL</b>		<b>F</b>	<b>26/DOSE</b>	<b>26</b>

## Test Method and Conditions

*Test method description* : GLP: yes

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## Exposure

*Exposure Type* : **SHORT**  
*Exposure Period* : **6-19 TDP**  
*Frequency* : **6 h/d**  
*Dose / Concentration* : **1204-5620 mg/m3 AIR**  
*Exposure comments* : Whole-body inhalation exposure to groups of animals at nominal concentrations of 0, 300, 650, or 1400 ppm cyclohexanone on gestation days 6-19.

## Test Results

No effect on maternal mortality. Maternal body weight and body weight gain in the high-dose group were statistically different from control.

### **NEF**

No effect on pregnancy rate and uterine implantation data.

### **FETUS SIZE FETUS STRUC**

Fetuses derived from the high-dose group exhibited significantly lower body weights. At 1400 ppm, the incidence of fetuses with at least one ossification variation was increased.

### **FETUS NEF**

No increases in external, visceral, or skeletal malformations occurred at any concentration.

### **NOAEL**

NOAEL for Maternal Toxicity: 650 ppm; NOAEL for Fetal Toxicity: 650 ppm; NOAEL for Fetal Malformations: 1400 ppm (no malformations).

## References

*Primary Reference* : **BIDSA2**  
Bio-Dynamics, (1984)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
Production Volume Chemicals Programme, (1994)

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## Study

*End Point* : **AQUATIC ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Species/strain/system* : Golden orfe(*Idus idus melanotous*)  
*Dose / Concentration* : **96 h**

## Test Method and Conditions

*Test method description* : Static, aerated system; chlorine-free drinking water used as dilution water; dissolved oxygen > 54%; calcium - magnesium ion conc. of 2.7 +- 0.5 mmol/L; ten 1-year old fish per 10 liter of test solution.  
*Temperature* : **19-21 C**  
*Dissolved Oxygen* : **>5**

## Test Results

Organism Medium Spec. Route Lifestage Sex Effect Effect Comments

**FISH** **AQ** **FRESH** **LC50** LC50 for 96 hours = 536 - 752 mg/L;  
LC100 for 96 hours = 564 - 940 mg/L;  
*General Comments* : The acute toxicity of cyclohexanone to golden orfe is low.

## References

*Primary Reference* : **ZWABAQ**  
Juhnke, I. and Luedemann, D. Zeitschrift fuer Wasser und Abwasser  
Forschung, 11(5), 161-164, (1978)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High  
Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **AQUATIC ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Species/strain/system* : Fathead minnow (*Pimephales promelas*)  
*Dose / Concentration* : **96 h**

## Test Method and Conditions

*Test method description* : Flow-through system; the test method conforms to OECD Guideline 203 with the exception that the pH and dissolved oxygen were not measured daily as required. Lake Superior water used as dilution water (see general comments).  
*Temperature* : **24-26 C**  
*pH* : **7.5**  
*Hardness of Water* : **45.5 mg/L**

## Test Results

Organism Medium Spec. Route Lifestage Sex Effect Effect Comments

**FISH**      **AQ**              **FRESH**                              **LC50** LC50 for 96 hours = 527 mg/L.  
*General Comments* : Dissolved oxygen (DO) > 60%. Five concentrations plus control, two replicates per concentration, twenty five 30-day old fish per replicate. The acute toxicity of cyclohexanone to fathead minnow is low.

## References

*Primary Reference* : **CJFSDX**  
 Veith, G. D. et al. Canadian Journal of Fishery and Aquatic Science, 40(6), 743-748, (1983)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **AQUATIC ACUTE TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**

*Species/strain/system* : Fathead minnow (*Pimephales promelas*)  
*Exposure Period* : **96 h**

## Test Method and Conditions

*Test method description* : Flow-through system. The test method conforms to OECD Guideline 203 with the exception that the pH and dissolved oxygen were not measured daily as required (see general comments).

*Temperature* : **24-26 C**  
*pH* : **7.5**  
*Hardness of Water* : **45.5**

## Test Results

Organism Medium Spec. Route Lifestage Sex Effect Effect Comments

**FISH**      **AQ**              **FRESH**                              **LC50** LC50 for 96 hours = 732 mg/L.  
*General Comments* : Lake Superior water used as dilution water; dissolved oxygen (DO) > 60%. Five concs. plus control, two replicates per conc.; twenty five 30-day old fish per replicate. The acute toxicity of cyclohexanone to fathead minnow is low. Test concentrations are calculated.

## References

*Primary Reference* : **CLSES\***  
 Center for Lake Superior Environment Studies. Wisconsin Univ. - Superior, (1984)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **AQUATIC TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**  
*Geographic Area* : **SWE**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**ALGAE AQ FRESH**

*Species/strain/system* : Blue-green algae (Microcystis)

## Test Method and Conditions

*Test method description* : Seven-day exposure; constant lighting; test vessels shaken once per day.  
*Temperature* : **27 C**  
*pH* : **7**

## Exposure

*Exposure Period* : **7 d**  
*Exposure comments* : 10-day old cultures

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----

**SIZE  
INHIB**

Toxic limit concentration (TGKmi) = TT = 52 mg/L.

**NOEC**

NOEC (no observed effect concentration) = TT/2 = 26 mg/L.

*General Comments* : The concentrations are calculated. Cyclohexanone is moderately toxic to Microcystis. Algal growth inhibition estimated by change in turbidity compared to control.

## References

*Primary Reference* : **GWWAAQ**  
 Bringmann, G. and Kuehn, R. GWF, Das Gas - und Wasserfach: Wasser/Abwasser, 117, 410-413, (1976)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **AQUATIC TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**  
*Geographic Area* : **SWE**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**ALGAE** **AQ** **FRESH**

*Species/strain/system* : Green algae (Scenedesmus quadricauda)

## Test Method and Conditions

*Test method description* : Seven-day exposure; constant lighting; test vessels shaken once per day.  
*Temperature* : **27 C**  
*pH* : **7**

## Exposure

*Exposure Period* : **7 d**  
*Exposure comments* : 10-day old cultures

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
	<b>SIZE</b>				
	<b>INHIB</b>				
	Toxicity threshold = 370 mg/L.				
	<b>CHNG</b>				

### NOEC

NOEC (no observed effect concentration) = TT/2 = 185 mg/L.

*General Comments* : Test concentration are calculated. Cyclohexanone is slightly toxic to S. quadricauda. Algal growth inhibition estimated by change in turbidity compared to control.

## References

*Primary Reference* : **WATRAG**  
 Bringmann, G. and Kuehn, R. Water Research, 14(3), 231-241, (1980)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **AQUATIC TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**  
*Geographic Area* : **SWE**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**CRUS** **AQ** **FRESH** **JUV** **10**

*Species/strain/system* : Water flea (Daphnia magna)

## Test Method and Conditions

*Test method description* : Static; unaerated system; reconstituted water used as dilution water; dissolved oxygen < 22%; calcium - magnesium ion concentration of 2.5 mmol/L.  
*Temperature* : **20 C**  
*pH* : **7.8-8.2**  
*Dissolved Oxygen* : **<2**

## Exposure

*Exposure Period* : **24 h**  
*Exposure comments* : Ten(24-hour) neonate daphnids at the maximum test concentration in a volume of 50 mL, two replicater per concentration. 2 replicates per concentration.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>LC100</b> <b>BEHAV</b>				
	LC100 for 24 hours = 1540 mg/L (immobilization)				
	<b>LC50</b> <b>BEHAV</b>				
	LC50 for 24 hours = 800 mg/L (immobilization)				
	<b>LC0</b> <b>BEHAV</b>				
	LC0 for 24 hours = 540 mg/L (immobilization)				

## References

*Primary Reference* : **ZWABAQ**  
 Bringmann, G. and Kuehn, R. Zeitschrift fuer Wasser und Abwasser Forschung, 10(5), 161-166, (1977)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **AQUATIC TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**  
*Geographic Area* : **SWE**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**CRUS** **AQ** **FRESH** **JUV** **10**

*Species/strain/system* : Water flea (Daphnia magna Straus)

## Test Method and Conditions

*Test method description* : Static; unaerated system; reconstituted water used as dilution water; dissolved oxygen < 22%; calcium - magnesium ion concentration of 2.5 mmol/L.  
*Temperature* : **20 C**  
*pH* : **7.8-8.2**  
*Dissolved Oxygen* : **<2 mg/L**

## Exposure

*Exposure Period* : **24 h**  
*Exposure comments* : Ten (24-hour) neonate daphnids at the maximum test concentration in a volume of 50 mL, two replicates per concentration.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>EC100 BEHAV</b>				
	EC100 for 24 hours = 1240 mg/L (immobilization)				
	<b>EC50 BEHAV</b>				
	EC50 for 24 hours = 820 mg/L (immobilization)				
	<b>EC0 BEHAV</b>				
	EC0 for 24 hours = 526 mg/L (immobilization)				
<i>General Comments</i>	: Test concentrations are calculated. Acute toxicity of cyclohexanone of D. magna is low.				

## References

*Primary Reference* : **ZWABAQ**  
 Bringmann, G. and Kuehn, R. Zeitschrift fuer Wasser und Abwasser Forschung, 15(1), 1-6, (1982)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **AQUATIC TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**  
*Geographic Area* : **SWE**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**PROTO AQ FRESH**

*Species/strain/system* : Protozoa flagellate (Entosiphon sulcatum)

## Test Method and Conditions

*Test method description* : Inhibition of cell multiplication estimated from differences in cell number between test solutions and control at the end of 72-hour exposure period.

## Exposure

*Exposure Period* : **72 h**  
*Exposure comments* : 72-hour cultures

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
<b>CELL</b>	<b>TCLO INCR INHIB</b>				

Toxicity threshold = 545 mg/L

**NOEC**

NOEC (no observed effect concentration) = TT/2 = 273 mg/L

*General Comments* : Cyclohexanone exhibited moderate toxicity to E. sulcatum. Test concentrations are calculated.

## References

*Primary Reference* : **WATRAG**  
Bringmann, G. and Kuehn, R. Water Research, 14(3), 231-241, (1980)

*Secondary Reference* : **!SIDSP\***  
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

## Study

*End Point* : **TERRESTRIAL TOXICITY**  
*Chemical Name* : **Cyclohexanone**  
*CAS Number* : **108-94-1**  
*Study type* : **LAB**  
*Geographic Area* : **SWE**

## Test Subject

Organism Medium Specification Route Lifestage Sex Number exposed Number controls

**BACT** **SOIL**

*Species/strain/system* : Soil bacteria (*Pseudomonas putida*)

## Test Method and Conditions

*Test method description* : Minimal medium containing glucose and trace elements used as dilution water.  
*Temperature* : **25 C**  
*pH* : **7**

## Exposure

*Exposure Period* : **16 h**  
*Exposure comments* : 24-hour cultures on agar slants.

## Test Results

<i>Organ</i>	<i>Effect</i>	<i>Rev.</i>	<i>OnSet</i>	<i>Sex</i>	<i>Affected in Exposed - Controls</i>
-----	-----	-----	-----	-----	-----
	<b>TCLC</b>				
	<b>INHIB</b>				
	<b>BIOMA</b>				

Toxicity threshold = 180 mg/L

**NOEC**

NOEC (no observed effect concentration) = TT/2 = 90 mg/L.

*General Comments* : Growth inhibition estimated by change in turbidity compared to control. Cyclohexanone is moderately toxic to *P. putida*. The given concentrations are calculated. In similar test the toxicity limit concentration obtained was (TGKmi) = 180 mg/L. Reported in: Briggmann, G. and Kuehn, R. GWF Wasser/Abwasser, 117:410-413 (1976).

## References

*Primary Reference* : **WATRAG**  
 Briggmann, G. and Kuehn, R. Water Research, 14(3), 231-241, (1980)

*Secondary Reference* : **!SIDSP\***  
 OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)



## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

ARG	REG	AIR	OCC	MPC	8H-TWA: 100MG/M3 (25PPM). SKIN ABSORPTION.
<p><b>Title</b> : LIMIT VALUES FOR CHEMICAL SUBSTANCES IN THE WORKING ENVIRONMENT-RESOLUTION NO. 444/1991 OF THE MINISTRY OF WORK AND SOCIAL SECURITY (AMENDING REGULATION DECREE NO. 351/1979 UNDER LAW NO. 19587/1972: HYGIENE AND SAFETY AT WORK)</p>					
<p><b>Reference</b> : <b>ARGOB*, 24170, I, 1, 1979</b> <b>Effective Date</b> : 29MAY1991            Boletin Oficial de la Republica Argentina            (Argentinian Official Bulletin)</p>					
<p><b>Last Amendment</b> : <b>ARGOB*, 27145, I, 4, 1991</b> <b>Entry / Update</b> : OCT1991            Boletin Oficial de la Republica Argentina            (Argentinian Official Bulletin)</p>					

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

CAN	REG	AIR	OCC	TLV	TWA: 25 PPM, 100 MG/M3; SKIN ABSORPTION. PRESCRIBED BY THE CANADA OCCUPATIONAL SAFETY AND HEALTH REGULATIONS, UNDER THE CANADA LABOUR CODE (ADMINISTERED BY THE DEPARTMENT OF LABOUR). THE REGULATIONS STATE THAT NO EMPLOYEE SHALL BE EXPOSED TO A CONCENTRATION OF AN AIRBORNE CHEMICAL AGENT IN EXCESS OF THE VALUE FOR THAT CHEMICAL AGENT ADOPTED BY ACGIH (AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS) IN ITS PUBLICATION ENTITLED: "THRESHOLD LIMIT VALUE AND BIOLOGICAL EXPOSURE INDICES FOR 1985-86".
<p><b>Title</b> :</p>					
<p><b>Reference</b> : <b>CAGAAK, 120, 6, 1105, 1986</b> <b>Effective Date</b> : 13MCH1986            Canada Gazette Part II</p>					
<p><b>Last Amendment</b> : <b>CAGAAK, 120, 6, 1105, 1986</b> <b>Entry / Update</b> : MAY1991            Canada Gazette Part II</p>					

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

CAN	REG	TRNSP LABEL PACK	-	CLASS RQR	<p>PIN (PRODUCT IDENTIFICATION NO.): UN1915. CLASS (3.3): FLAMMABLE LIQUID. PACKING GROUP III, (I=GREAT DANGER, III=MINOR DANGER). MAXIMUM AMOUNT PER PACKAGE THAT MAY BE TRANSPORTED ON A PASSENGER AIRCRAFT OR VEHICLE: 60 L. MAXIMUM AMOUNT PER PACKAGE THAT MAY BE TRANSPORTED ON A CARGO AIRCRAFT: 220 L. PRESCRIBED BY THE TRANSPORTATION OF DANGEROUS GOODS REGULATIONS, UNDER THE TRANSPORTATION OF DANGEROUS GOODS ACT (ADMINISTERED BY THE DEPARTMENT OF TRANSPORT). THE ACT AND REGULATIONS ARE INTENDED TO PROMOTE SAFETY IN THE TRANSPORTATION OF DANGEROUS GOODS IN CANADA, AS WELL AS PROVIDE ONE COMPREHENSIVE SET OF RULES APPLICABLE TO ALL MODES OF TRANSPORT ACCROSS CANADA. THESE ARE BASED ON UNITED NATIONS RECOMMENDATIONS. THE ACT AND REGULATIONS SHOULD BE CONSULTED FOR DETAILS. RECORDS ARE ENTERED UNDER THE PROPER SHIPPING NAME FOUND IN THE REGULATIONS; THIS MAY INCLUDE VERY GENERAL GROUPS OF CHEMICAL SUBSTANCES.</p>
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Title :

Reference :

Effective Date : 06DEC1990

Last Amendment : CAGAAK, 124, 26, 5523, 1990  
Canada Gazette Part II

Entry / Update : OCT1991

## Substance

Chemical Name : **CYCLOHEXANONE**  
Reported Name : **CYCLOHEXANONE**  
CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

CAN	REG	USE STORE LABEL	OCC	RQR	<p>INGREDIENT DISCLOSURE LIST CONCENTRATION 1% WEIGHT/WEIGHT. THE WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) IS A NATIONAL SYSTEM TO PROVIDE INFORMATION ON HAZARDOUS MATERIALS USED IN THE WORKPLACE. WHMIS IS IMPLEMENTED BY THE HAZARDOUS PRODUCTS ACT AND THE CONTROLLED PRODUCTS REGULATIONS (ADMINISTERED BY THE DEPARTMENT OF CONSUMER AND CORPORATE AFFAIRS). THE REGULATIONS IMPOSE STANDARDS ON EMPLOYERS FOR THE USE, STORAGE AND HANDLING OF CONTROLLED PRODUCTS AND ADDRESS LABELLING AND IDENTIFICATION, EMPLOYEE INSTRUCTION AND TRAINING, AS WELL AS THE UPKEEP OF A MATERIALS SAFETY DATA SHEET (MSDS). THE PRESENCE IN A CONTROLLED PRODUCT OF AN INGREDIENT IN A CONCENTRATION EQUAL TO OR GREATER THAN SPECIFIED IN THE INGREDIENT DISCLOSURE LIST MUST BE DISCLOSED IN THE SAFETY DATA SHEET.</p>
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Title :

Reference :

Effective Date : 31DEC1987

Last Amendment : CAGAAK, 122, 2, 551, 1988  
Canada Gazette Part II

Entry / Update : APR1991

## Substance

Chemical Name : **CYCLOHEXANONE**  
Reported Name : **CYCLOHEXANONE**  
CAS Number : **108-94-1**

<u>Area</u>	<u>Type</u>	<u>Subject</u>	<u>Spec.</u>	<u>Description</u>	<u>Level / Summary Information</u>
CSK	REG	AIR	OCC	MAC	TWA: 200.0MG/M3; CLV: 400MG/M3 <b>Title</b> : DIRECTIVE NO. 46/1978 ON HYGIENIC REQUIREMENTS ON OCCUPATIONAL ENVIRONMENT <b>Reference</b> : HPMZC*, 39, 1978 <b>Effective Date</b> : MCH1985 HYGIENICKE PREDPISY MINISTERSTVA ZDRAVOTNICTVI CSR (HYGIENIC REGULATIONS OF MINISTRY OF HEALTH OF CSR) <b>Last Amendment</b> : HPMZC*, 58, 1985 <b>Entry / Update</b> : DEC1991 HYGIENICKE PREDPISY MINISTERSTVA ZDRAVOTNICTVI CSR (HYGIENIC REGULATIONS OF MINISTRY OF HEALTH OF CSR)

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

<u>Area</u>	<u>Type</u>	<u>Subject</u>	<u>Spec.</u>	<u>Description</u>	<u>Level / Summary Information</u>
DEU	REC	AQ USE	- INDST	CLASS RQR	THIS SUBSTANCE IS CLASSIFIED AS SLIGHTLY HAZARDOUS TO WATER (WATER-HAZARD CLASS: WGK 1). ( THE DIFFERENT CLASSES ARE: WGK 3 = VERY HAZARDOUS; WGK 2 = HAZARDOUS; WGK 1 = SLIGHTLY HAZARDOUS; WGK 0 = IN GENERAL NOT HAZARDOUS.) THE CLASSIFICATION FORMS THE BASIS FOR WATER-PROTECTION REQUIREMENTS FOR INDUSTRIAL PLANTS IN WHICH WATER-HAZARDOUS SUBSTANCES ARE HANDLED. <b>Title</b> : ADMINISTRATIVE RULES CONCERNING WATER-HAZARDOUS SUBSTANCES (VERWALTUNGSVORSCHRIFT WASSERGEFAEHRDENDE STOFFE) <b>Reference</b> : GMSMA6, 8, 114, 1990 <b>Effective Date</b> : Gemeinsames Ministerialblatt. Joint Ministerial Papers <b>Last Amendment</b> : <b>Entry / Update</b> : DEC1991

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

<u>Area</u>	<u>Type</u>	<u>Subject</u>	<u>Spec.</u>	<u>Description</u>	<u>Level / Summary Information</u>
DEU	REG	AIR	EMI	MPC	THIS SUBSTANCE BELONGS TO CLASS II. THE AIR EMISSIONS OF ORGANIC COMPOUNDS MUST NOT EXCEED (AS THE SUM OF ALL COMPOUNDS IN ONE CLASS) THE FOLLOWING MASS CONCENTRATIONS: CLASS I - 20 MG/M3 AT A MASS FLOW OF >= 0.1 KG/H; CLASS II - 100 MG/M3 AT A MASS FLOW OF >= 2 KG/H; CLASS III - 150 MG/M3 AT A MASS FLOW OF >= 3 KG/H. IF COMPOUNDS FROM DIFFERENT CLASSES ARE PRESENT, THE MASS CONCENTRATION MUST NOT EXCEED 150 MG/M3 AT A TOTAL MASS FLOW OF >= 3 KG/H. <b>Title</b> : TECHNICAL GUIDELINES FOR AIR POLLUTION CONTROL (TECHNISCHE ANLEITUNG ZUR REINHALTUNG DER LUFT) <b>Reference</b> : GMSMA6, 7, 93, 1986 <b>Effective Date</b> : 01MCH1986 Gemeinsames Ministerialblatt. Joint Ministerial Papers <b>Last Amendment</b> : <b>Entry / Update</b> : JAN1992

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

DEU REC AIR OCC MAK 8H-TWA: 50 ML/M3 (PPM); 200 MG/M3 (20C, 101.3 KPA). SUBSTANCE WITH SYSTEMIC EFFECTS. ONSET OF EFFECT <= 2H. HALF-LIFE < 2H. 30MIN-STEL: 100 ML/M3 (PPM); 400 MG/M3; AVERAGE VALUE; 4 X/SHIFT. PREGNANCY GROUP C: THERE IS NO REASON TO FEAR A RISK OF DAMAGE TO THE DEVELOPING EMBRYO OR FETUS WHEN MAK AND BAT VALUES ARE ADHERED TO. VAPOUR PRESSURE: 0.5 KPA AT 20C.  
Title : MAXIMUM CONCENTRATIONS AT THE WORKPLACE AND BIOLOGICAL TOLERANCE VALUES FOR WORKING MATERIALS (MAXIMALE ARBEITSPLATZKONZENTRATIONEN UND BIOLOGISCHE ARBEITSTOFFTOLERANZWERTE)  
Reference : MPGDFD, XXVII, 17, 1991 Effective Date :  
 MITTEILUNG DER SENATSKOMMISSION ZUR PRUEFUNG GESUNDHEITSSCHAEDLICHER ARBEITSTOFFE (DEUTSCHE FORSCHUNGSGEMEINSCHAFT)  
Last Amendment : Entry / Update : JAN1992

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

DEU REG CLASS LABEL PACK - CLASS RQR RQR CLASSIFICATION AND LABELLING IN GERMANY IS GENERALLY THE SAME AS FOR THE EEC (SEE OJEC\*\* L 180, 1991). HOWEVER, SLIGHT MODIFICATIONS MAY BE INTRODUCED FOR SOME SUBSTANCES IN THE GERMAN LEGISLATION.  
Title : ORDINANCE ON HAZARDOUS SUBSTANCES. (GEFAHRSTOFFVERORDNUNG)  
Reference : BGZBAD, I, 1931, 1991 Effective Date : 15JUN1991  
 Bundesgesetzblatt (Federal Law Gazette)  
Last Amendment : Entry / Update : APR1992

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

GBR REG TRNSP LABEL - CLASS RQR LABELLING OF ROAD TANKERS : FLAMMABLE LIQUID. EMERGENCY ACTION CODE : 3(Y)  
Title : HAZARDOUS SUBSTANCES (LABELLING OF ROAD TANKERS) REGULATIONS 1978  
Reference : GBRSI\*, 1702, 1978 Effective Date : 28MCH1979  
 Statutory Instruments  
Last Amendment : Entry / Update : JAN1983

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **cyclohexanone**  
 CAS Number : **108-94-1**

*Area Type Subject Spec. Description Level / Summary Information :*

GBR	REG	TRNSP AQ AQ	MARIN MARIN EMI	RQR RSTR RSTR	CATEGORY D SUBSTANCE: DISCHARGE INTO THE SEA IS PROHIBITED; DISCHARGE OF RESIDUAL MIXTURES IS SUBJECT TO RESTRICTIONS. <u>Title</u> : THE MERCHANT SHIPPING (CONTROL OF POLLUTION BY NOXIOUS LIQUID SUBSTANCES IN BULK) REGULATIONS 1987, SCHEDULE 1
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Reference : GBRSI\*, 551, 15, 1987 Effective Date : 06APR1987

Statutory Instruments

Last Amendment : GBRSI\*, 2604, 2, 1990

Entry / Update : 1992

Statutory Instruments

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **cyclohexanone**  
 CAS Number : **108-94-1**

*Area Type Subject Spec. Description Level / Summary Information :*

GBR	REG	AIR	OCC	OES	8H-TWA: 100MG/M3 (25PPM). STEL(10MIN-TWA): 40 0MG/M3 (100PPM). <u>Title</u> : EH40 OCCUPATIONAL EXPOSURE LIMITS FOR USE WITH THE CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH REGULATIONS
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Reference : GBRSI\*, 1657, 10, 1988 Effective Date : 01JAN1992

Statutory Instruments

Last Amendment : GNHSE\*, EH40, 11, 1992

Entry / Update : 1992

Guidance Note from the Health and Safety Executive

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

<u>Area</u>	<u>Type</u>	<u>Subject</u>	<u>Spec.</u>	<u>Description</u>	<u>Level / Summary Information :</u>
IND	REG	MANUF SAFTY STORE IMPRT	-	RQR RQR RQR RQR	<p>These rules define the responsibilities of occupiers of any industrial activity in which a toxic and hazardous substance may be involved. These responsibilities encompass: (a) a assessment of major hazards (causes, occurrence, frequency); (b) measures to prevent accidents and limit eventual impairment to human health and pollution of the environment; (c) provision of relevant factual knowledge and skills to workers in order to ensure health and environmental safety when handling equipments and the foregoing chemical; (d) notification of the competent authorities in case of major accidents; (e) notification of sites to the competent authorities 3 months before commencing; (f) preparation of an on-site emergency plan as to how major accidents should be coped with; (g) provision of competent authorities with information and means to respond quickly and efficiently to any off-site emergency; (h) provision of information to persons outside the site, liable to be affected by a major accident; (i) labelling of containers as to clearly identify contents, manufacturers, physical, chemical and toxicological data; (j) preparation of a safety data sheet including any significant information regarding hazard of this substance and submission of safety reports to the competent authorities; (k) for the import of a hazardous chemical to India, importers must supply the competent authorities with specified information regarding the shipment.</p> <p><b>Title :</b> THE MANUFACTURE, STORAGE AND IMPORT OF HAZARDOUS CHEMICALS RULES. 1989</p> <p><b>Reference :</b> GAZIN*, 787, 1989 THE GAZETTE OF INDIA</p> <p><b>Effective Date :</b> 27NOV1989</p> <p><b>Last Amendment :</b></p> <p><b>Entry / Update :</b> SEP1992</p>

### Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

<u>Area</u>	<u>Type</u>	<u>Subject</u>	<u>Spec.</u>	<u>Description</u>	<u>Level / Summary Information :</u>
JPN	REC	AIR	OCC	MAC	<p>TWA: 100MG/M3 (25PPM)</p> <p><b>Title :</b> MAXIMUM ALLOWABLE CONCENTRATIONS RECOMMENDED BY THE JAPANESE ASSOCIATION OF INDUSTRIAL HEALTH.</p> <p><b>Reference :</b> SAIGBL, 33, 4, 277-287, 1991 Japanese Journal of Industrial Health</p> <p><b>Effective Date :</b></p> <p><b>Last Amendment :</b></p> <p><b>Entry / Update :</b> DEC1991</p>

### Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

<u>Area</u>	<u>Type</u>	<u>Subject</u>	<u>Spec.</u>	<u>Description</u>	<u>Level / Summary Information :</u>
MEX	REG	AIR	OCC	MXL	<p>AT ANY WORKPLACE WHERE THIS SUBSTANCE IS PRODUCED, STORED OR HANDLED A MAXIMUM PERMISSIBLE LEVEL OF 200MG/M3 (50PPM) MUST BE OBSERVED FOR A PERIOD OF 8 HOURS OR 400MG/M3 (100PPM) FOR 15 MINUTES FOUR TIMES A DAY WITH INTERVALS OF AT LEAST 1 HOUR.</p> <p><b>Title :</b> INSTRUCTION NO.10 RELATED TO SECURITY AND HYGIENIC CONDITIONS AT WORKPLACES. (INSTRUCTIVO NO. 10, RELATIVO A LAS CONDICIONES DE SEGURIDAD E HIGIENE DE LOS CENTROS DE TRABAJO).</p> <p><b>Reference :</b> DOMEX*, 1984 Diario Oficial</p> <p><b>Effective Date :</b> 28MAY1984</p> <p><b>Last Amendment :</b> DOMEX*, 1989 Diario Oficial</p> <p><b>Entry / Update :</b> DEC1991</p>

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

RUS REG AQ SURF MAC CLASS 0.2 MG/L HAZARD CLASS: II  
Title :  
Reference : Effective Date : 1JAN1989  
Last Amendment : SPNPV\*, 4630-88, 1988 Entry / Update : JUL1990  
 SANITARNYE PRAVILA I NORMY OKHRANY POVERKHNOSTNYKH  
 VOD OT ZAGRIAZNENIA  
 (HEALTH REGULATION AND STANDARDS OF SURFACE WATER  
 PROTECTION FROM CONTAMINATION)

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

RUS REG AIR AMBI MAC 0.04 MG/M3 1X/D.  
Title :  
Reference : Effective Date : AUG1984  
Last Amendment : PDKAV\*, 3086-84, 1984 Entry / Update : SEP1985  
 PREDELNO DOPUSTIMYE KONTSENTRATSII (PDK)  
 ZAGRYAZNYAYUSHCHIKH VESHCHESTV V ATMOSFERNOM  
 VOZDUKHE NASELENNYKH MEST  
 (MAXIMUM ALLOWABLE CONCENTRATIONS (MAC) OF  
 CONTAMINANTS IN THE AMBIENT AIR OF RESIDENTIAL AREAS)

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

RUS REG AIR OCC MAC CLASS CLV : 10.0 MG/M3 (VAPOUR) HAZARD CLASS: III  
Title :  
Reference : Effective Date : 01JAN1989  
Last Amendment : GOSTS\*, 12.1.005, 1988 Entry / Update : MAY1990  
 GOSUDARSTVENNYI STANDART SSSR  
 (STATE STANDARD OF USSR)

Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

RUS REG USE OCC MAC MAXIMUM ALLOWABLE LEVEL OF SKIN CONTAMINATION OF HAND COMING IN CONTACT WITH SUBSTANCE: 1. 5MG/CM3  
Title :  
Reference : Effective Date : MAY1988  
Last Amendment : PDUZK\*, 4618-88, 1988 Entry / Update : JUL1990  
 PREDELNO DOPSTIMYE UROVNI ZAGRIAZNENIA KOZHI RUK RABOTAIUSHCHIKHVREDNYMI BESHCHESTVAMI (MAXIMUM ALLOWABLE LEVELS OF CONTAMINATION OF HANDS OF WORKERS BY HAZARD SUBSTANCES)

Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

SWE REG AIR OCC HLV 1D-TWA: 100MG/M3 (25PPM). 15MIN-STEL: 200MG/M 3 (50PPM). SKIN ABSORPTION.  
Title : HYGIENIC LIMIT VALUES.  
Reference : AFS\*\*, 1990:13, 5-64, 1990 Effective Date : 01JUL1991  
 ARBETARSKYDDSSSTYRELSSENS FOERFATTNINGSSAMLING  
Last Amendment : Entry / Update : 1992

Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

USA REG MANUF USE SAFTY REQ OCC OCC PRMT PRMT MXL ; Summary - THE FOLLOWING CHEMICAL IS INCLUDE D ON A LIST OF CHEMICALS AND MIXTURES FOR WHI CH REPORTING IS CURRENTLY REQUIRED UNDER THE TOXIC SUBSTANCES CONTROL ACT SECTION 2607A. T HIS TOXIC SUBSTANCE IS SUBJECT TO PRELIMINARY ASSESSMENT INFORMATION RULES ON PRODUCT ION QUANTITIES, USES, EXPOSURES, AND ADVERSE EFFE CTS. MANUFACTURERS INCLUDING IMPORTERS MUST S UBMIT A REPORT FOR THIS LISTED CHEMICAL MANUF ACTURED AT EACH SITE.  
Title : PRELIMINARY ASSESSMENT INFORMATION RULES  
Reference : FEREAC, 47, 26998, 1982 Effective Date : 1982  
 Federal Register  
Last Amendment : CFRUS\*, 40, 712, 30, 1990 Entry / Update : OCT1991  
 Code of Federal Regulations



## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

USA	REG	CLASS AIR AQ	INDST EMI EMI	RQR RQR RQR	5000 (2270); Summary - RELEASES OF THIS HAZARDOUS SUBSTANCE, IN QUANTITIES EQUAL TO OR GREATER THAN ITS REPORTABLE QUANTITY (RQ), REPORTED AS 6LBS (KG)   , ARE SUBJECT TO REPORTING TO THE NATIONAL RESPONSE CENTER UNDER THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT. (#)- RQ IS SUBJECT TO CHANGE
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**Title** : CERCLA: LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

**Reference** : CFRUS\*, 40, 302, 4, 1990 **Effective Date** : 1990  
 Code of Federal Regulations

**Last Amendment** : CFRUS\*, 40, 302, 4, 1990 **Entry / Update** : SEP1991  
 Code of Federal Regulations

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

USA	REG	CLASS MANUF FOOD	PESTI PESTI ADDIT	RQR PRMT RQR	CASE NAME CYCLOHEXANONE; Summary - THIS SUBSTANCE IS INCLUDED ON A LIST OF ACTIVE INGREDIENTS CONTAINED IN A PRODUCT FIRST REGISTERED BEFORE NOVEMBER 1, 1984, FOR WHICH A REGISTRATION STANDARD HAS NOT BEEN ISSUED. PUBLICATION OF THIS LIST INITIATES AN ACCELERATED REREGISTRATION AND DATA CALL-IN FOR PRODUCTS CONTAINING THE LISTED ACTIVE INGREDIENTS. IN PARTICULAR THE LIST INCLUDES A NUMBER OF ACTIVE INGREDIENT CASES HAVING INDIRECT FOOD OR FEED USES.
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**Title** : FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT PESTICIDES REQUIRED TO BE REREGISTERED ; LIST C.

**Reference** : FEREAC, 54, 140, 30846, 1989 **Effective Date** : 1988  
 Federal Register

**Last Amendment** : FEREAC, 54, 140, 30846, 1989 **Entry / Update** : JAN1992  
 Federal Register

## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

USA	REC	SAFTY USE	OCC OCC	MXL MXL	5000 PPM <b>Title</b> : POCKET GUIDE TO CHEMICAL HAZARDS
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**Reference** : XPHPAW, 90, 117, 78, 1990 **Effective Date** : JUN1990  
 US Public Health Service Bulletin

**Last Amendment** : XPHPAW, 90, 117, 78, 1990 **Entry / Update** : OCT1991  
 US Public Health Service Bulletin

Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

USA	REG	WASTE STORE TRNSP	INDST - REMOV	CLASS RQR RQR	IGNITABLE; Summary - THIS CHEMICAL, IF DISCARDED, MUST BE TREATED AS AN ACUTE HAZARDOUS WASTE. ACUTE HAZARDOUS WASTES REGULATIONS ARE MORE RESTRICTIVE FOR EXCLUSION. ANY RESIDUE OF THIS CHEMICAL LABELED AS ACUTELY HAZARDOUS AND REMAINING IN A CONTAINER, OR AN INNER LINER REMOVED FROM A CONTAINER, IS CONSIDERED A HAZARDOUS WASTE IF DISCARDED UNLESS TRIPLE RINSING OR OTHER CLEANING MEASURES ARE TAKEN (40 CFR 261.33E).
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**Title :** RCRA-RESOURCE AND CONSERVATION RECOVERY ACT: DISCARDED COMMERCIAL CHEMICAL PRODUCTS, OFF-SPECIFICATION SPECIES, CONTAINER RESIDUES, AND SPILL RESIDUES THEREOF.

**Reference :** FEREAC, 45, 78541, 1980 **Effective Date :** 1980  
 Federal Register

**Last Amendment :** CFRUS\*, 40, 261, 33, 1990 **Entry / Update :** JAN1992  
 Code of Federal Regulations

Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

USA	REC	AIR	OCC	TLV	Time Weighted Avg (TWA) 25 ppm, 100 MG/M3, sk in; Summary - THIS THRESHOLD LIMIT VALUE IS INTENDED FOR USE IN THE PRACTICE OF INDUSTRIAL HYGIENE AS A GUIDELINE OR RECOMMENDATION IN THE CONTROL OF POTENTIAL HEALTH HAZARDS.
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**Title :** THRESHOLD LIMIT VALUES

**Reference :** ACGIH\*, 11, 1989 **Effective Date :** 1989  
 Threshold Limit Values and Biological Exposure Indices

**Last Amendment :** ACGIH\*, 11, 1991 **Entry / Update :** DEC1991  
 Threshold Limit Values and Biological Exposure Indices

Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

USA REG MONIT - RQR ; Summary - THIS IS A CHEMICAL OR MIXTURE FOR WHICH REPORTING IS CURRENTLY REQUIRED UNDER THE TOXIC SUBSTANCE CONTROL ACT HEALTH AND SA FETY STUDIES SECTION 2607D. PERSONS WHO CURRENTLY MANUFACTURE OR PROCESS CHEMICAL SUBSTANCES OR MIXTURES FOR COMMERCIAL PURPOSES, THOSE WHO PROPOSE TO DO SO, AND THOSE WHO ARE NOT CURRENTLY INVOLVED WITH A LISTED CHEMICAL BUT WHO MANUFACTURED OR PROCESSED IT OR PROPOSED TO DO SO ANY TIME DURING THE TEN YEAR PERIOD PRIOR TO THE TIME IT BECAME LISTED MUST SUBMIT TO THE ADMINISTRATOR OF THE U.S. EPA STUDIES OR LISTS OF HEALTH AND SAFETY STUDIES CONDUCTED ON THIS SUBSTANCE FOR EVALUATION.

**Title :** HEALTH AND SAFETY DATA REPORTING RULES SECTION 8(D)

**Reference :** FEREAC, 51, 32726, 1986 **Effective Date :** 1986  
Federal Register

**Last Amendment :** CFRUS\*, 40, 716, 120, 1990 **Entry / Update :** OCT1991  
Code of Federal Regulations

## Substance

**Chemical Name :** CYCLOHEXANONE  
**Reported Name :** CYCLOHEXANONE  
**CAS Number :** 108-94-1

Area Type Subject Spec. Description Level / Summary Information :

EEC REG CLASS LABEL PACK - CLASS RQR RQR CLASS: FLAMMABLE (R 10). XN - HARMFUL; HARMFUL BY INHALATION (R 20). LABEL: XN - HARMFUL; FLAMMABLE (R 10); HARMFUL BY INHALATION (R 20); AVOID CONTACT WITH EYES (S 25). CLASSIFICATION OF PREPARATIONS CONTAINING THE SUBSTANCE CONCENTRATION RANGE: ABOVE 25%: XN - HARMFUL ; HARMFUL BY INHALATION (R 20).

**Title :** COUNCIL DIRECTIVE 67/548/EEC OF 27 JUNE 1967 ON THE APPROXIMATION OF THE LAWS, REGULATIONS AND ADMINISTRATIVE PROVISIONS RELATING TO THE CLASSIFICATION, PACKAGING AND LABELLING OF DANGEROUS SUBSTANCES

**Reference :** OJEC\*\*, 196, 1, 1967 **Effective Date :** 1JUL1992  
Official Journal of the European (Communities)Union

**Last Amendment :** OJEC\*\*, L 180, 79, 1991 **Entry / Update :** APR1992  
Official Journal of the European (Communities)Union

## Substance

**Chemical Name :** CYCLOHEXANONE  
**Reported Name :** CYCLOHEXANONE  
**CAS Number :** 108-94-1

Area Type Subject Spec. Description Level / Summary Information :

IMO REC TRNSP LABEL PACK MARIN CLASS HAZARD CLASS: 3 = INFLAMMABLE LIQUID. PACKING GROUP: III = SUBSTANCE PRESENTING MINOR DANGER. UN NO.1915.

**Title :**

**Reference :** **Effective Date :**

**Last Amendment :** I, IMCOC\*, 10004, 1990 **Entry / Update :** JAN1991  
International Maritime Dangerous Goods Code

## Substance

Chemical Name :  
 Reported Name : **Cyclohexanone**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

IMO	REG	AQ AQ	EMI MARIN	PRO PRO	<p>Category D substance (substance which is practically non-toxic to aquatic life): discharge into the sea of this substance, of ballast water, tank washings, or other residues of the substance shall be prohibited except where specified conditions are satisfied.</p> <p>Requirements prescribe port facilities for receiving residues or mixtures containing the regulated substance. Technical assistance for training of scientific and technical personnel shall be promoted where requested by the Parties of this Convention. (Applies to cyclohexanone and to cyclohexanone/cyclohexanol mixture)</p> <p><b>Title :</b> International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78).</p> <p><b>Reference :</b> _____ <b>Effective Date :</b> _____</p> <p><b>Last Amendment :</b> IMODC*, <b>Entry / Update :</b> SEP1994</p>
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## Substance

Chemical Name : **CYCLOHEXANONE**  
 Reported Name : **CYCLOHEXANONE**  
 CAS Number : **108-94-1**

Area Type Subject Spec. Description Level / Summary Information :

UN	REC	TRNSP LABEL PACK	-	CLASS	<p>HAZARD CLASS: 3 = INFLAMMABLE LIQUID. PACKING GROUP: III = SUBSTANCE PRESENTING MINOR DANG ER. UN NO.1915.</p> <p><b>Title :</b> _____</p> <p><b>Reference :</b> _____ <b>Effective Date :</b> _____</p> <p><b>Last Amendment :</b> I, UNTDG*, 15, 1989 <b>Entry / Update :</b> SEP1982</p> <p>UN Transport of Dangerous Goods, Recommendation prepared by the Committee of Experts on the Transport of Dangerous Goods</p>
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