FOREWORD INTRODUCTION

CHLOROACETIC ACID

CAS N°: 79-11-8

Substance

End Point	:	**IDENTIFIERS, PHYSICAL AND CHEMICAL PROPERTIES**
Chemical Name	:	**Acetic acid, chloro-**
Common Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
RTECS Number	:	**AF8575000**

Synonyms

Chloracetic acid
.alpha.Chloroacetic acid
Chloroethanoic acid
MCA
MCAA
MKhUK
Monochloroacetic acid
Monochloroethanoic acid

Properties & Definitions

Molecular Formula	:	**C2H3ClO2**
Molecular Weight	:	**94.5**
Melting Point	:	**63C;17C 80% in water**
Boiling Point	:	**189C ***
Flash Point	:	**126C (c-cup)**
Flamable Limit	:	**Non-flammable; 8% volume**
Density	:	**1.58 (solid); 1.3707 (liquid)**
Relative Vapor Density	:	**3.26**
Vapour Pressure	:	**0.0087 kPa at 25C** calculated**
Octanol/Water Partition Coefficient	:	**log Pow = 0.22 experimental**
Water Solubility	:	**4260000 mg/L at 20C*****
Surface Tension	:	**35.2 mN/m at 100C**
Additives	:	**For MCA (solid): none; MCA (H20): water; MCA (ETOH): ethylmonochloroacetate.**
Impurities	:	**Dichloroacetic acid; acetic acid; water; sodium dichloroacetate; sodium acetate; sodium chloride; sodium glycolate; ethylmonochloroacetate; ethanol; iron and lead.**
General Comments	:	MCA forms a deliquescent solid and exists in 3 crystalline forms; .alpha., .beta., and .gamma.. Also a .delta. monoclinically prismatic structure form exists. **VP of 80% MCA in water = 0.1 kPa at 20C. Auto flammability = 470C at 1013 hPa.***80% MCA in water: mixes completely. *BP = 143C for 80% in water.

Overall Evaluation

SIDS INITIAL ASSESSMENT

LOW CURRENT PRIORITY FOR FURTHER WORK IN THE SIDS CONTEXT

ENVIRONMENTAL EXPOSURE

Environmental fate - general

Abiotic degradation: Chloroacetic acid does not appreciably absorb UV radiation above 290 nm and is therefore not expected to be directly photolyzed. It photodechlorinates very slowly in air-saturated solutions with only <0.4 % being converted to free chloride when irradiated for 11 hours in a laboratory photoreactor (the rate significantly decreases after a few hours). Photodechlorination is much lower in the absence of oxygen. The presence of radiosensitizers such as p-cresol and tryptophan which generate superoxide anion radicals (O2.-) increase the rate of photodechlorination by up to 16-fold. Hydrolysis did not contribute to the degradation in these experiments.

Volatilization from water/soil: Chlroroacetic acid has a pKa of 2.86 and will be completely ionized at environmental pH's. Evaporation from water will therefore not be a significant loss process.

Atmospheric fate: MCA/SMCA released to the atmosphere, i.e. during production or pesticide spraying, is dissolved in water as an aerosol. The aerosol will be subject to gravitational settling and undergo slow photodechlorination. Degradation in the atmosphere is therefore expected to be low.

Biodegradation: Chloroacetic acid is degraded by greater than 70-90% within 5-10 days in laboratory biodegradation tests using sewage or acclimated sludge inocula. The degradation rate is increased by acclimation and involves dechlorination. In river water, 73% MCA/SMCA is mineralized to carbon dioxide in 8-10 days at 29C. Even under anaerobic conditions the compound seems to be readily degraded to methane, CO2 and chloride ions (86-90% reduction within 2 days at 34C). Degradation occurs in soil, however, under acidic conditions and/or a low temperature MCA/SMCA is comparatively persistent.

Aquatic fate: MCA is mineralizedd in water (73% in 8-10 days), and is not appreciably adsorbed to sediment. Chloroacetic acid has a very low log octanol/water partition coefficient, 0.22, and therefore is not expected to bioconcentrate in fish.

Terrestrial fate: When MCA/SMCA is released onto the soil surface, it will leach into the ground. Degradation occurs in the soil, however, under acidic conditions and/or at low temperature, MCA/SMCA is only slowly degraded. Chloroacetic acid has a very low log octanol/water partition coefficient, 0.22, and therefore is not expected to be appreciably adsorbed to soil particles.

Local perspective - Single swedish factory scenario

Distribution

The major exposed environment are the soil via air emissions and the lake recipient after waste water treatment. Release of treated water occurs from a single continuous point source. Waste water is treated in the water treatment plant. The reduction rate of MCA/SMCA is >= 98%.

Predicted Environmental Concentrations (PEC)

Background: A Fugacity calculation (Mackay level III) was conducted for the region around the Swedish production/processing factory site. Six different scenarios were considered:

- Winter or summer seasons (temperature effect).
- Neutral or acid soils (pH 7 and 5).
- With or without waste water treatment.

Results: The results show that the dominant emission route in the presence of a waste water treatment plant is to the air as an SMCA aerosol (=< 75 kg/day). SMCA contained in the air emission is expected to precipitate within a confined area (5.4 km2 = 10% of the total area), mostly to the terrestrial compartment. The following PECs where calculated:

SOIL SCENARIO (with waste water treatment)	PEC Winter - Summer*			
	Atmosphere (x E-6 mg/m3)	Soil (ug/L)	Water (ug/L)	Sediment (ug/L)
NEUTRAL SOIL	2.7	25 - 74	0.38 - 0.71	0.25 - 0.48
ACID SOIL (pH 5)	2.7	87 - 280	0.43 - 0.98	0.29 - 0.66

* Selected winter/summer temperatures: 4C/8C in water, 7C/15C in soil, 5C/5C in the sediment. No temperature available for the degradation rate.

The PEC for soil, water and sediment are influenced by the temperature and pH. The quote PEC-winter/PEC-summer for a given compartment varied between 2-3. The degradation rate decreased when the pH decreased from 7 to 5 and/or when the temperature decreased.

Two additional calculations where performed to simulate a production site without a waste water treatment plant. In these cases the dominant emission is to water (560 kg/day). The exclusion of the treatment plant

increased the PEC in water and sediment by 50-75 times. PEC in the water compartment was calculated to be 19 and 32 ug/L for a combination of temperature and pH representing the best-case and worse-case, respectively.

MCA/SMCA accumulates in the snow during the winter. High peak concentrations may ocurr in the melt water.

MONITORING DATA

A preliminary environmental monitoring study indicates that exposure due release of SMCA from the Swedish production site may be >= 1000 mg/m2 within 100 m and >= 200 mg/kg within 250 m from the point of source release.

In Japan, MCA has been found in surface water (0.64 ug/L) and sediment (1.6 - 3.3 ug/kg). Note, that these levels are similar to those estimated for PEC from the fugacity calculations (see above).

MCA has been measured in the environment, for example in preindustrial glacial ice water (0.1 - 1.0 ug/L). This indicates that MCA may occur naturally and may be considered as a background level. If there is a natural occurance exist, this must be taken into account when using monitoring data.

INDIRECT EXPOSURE OF HUMANS VIA THE ENVIRONMENT

Indirect exposure of humans via the environment may occur via the atmosphere. SMCA is discharged (=< 75 kg/day) from a chimney into the atmosphere dissolved in water as an aerosol. Due to gravitational effects SMCA will probably reach ground level in a confined local area leading to indirect human exposure. A preliminary environmental monitoring study indicates that exposure due release of SMCA from the Swedish production site may be >= 1000 mg/m2 within 100 m and >= 200 mg/kg within 250 m from the point of source release.

CONSUMER EXPOSURE

The only potential consumer exposure that has been identified is the antimicrobial use of MCA (1 mg/mL) in food products and as an escharotic agent. However, further information alluding to these uses or identifying current uses has not been located.

OCCUPATIONAL EXPOSURE

Manufacture

The potential exposure of humans to MCA or SMCA at the Swedish production site is expected to occur during their manufacture, mixing of MCA solutions, filling of drums, and storage. Forty and thirty-eight workers are involved with MCA and SMCA production, respectively. Four of these workers per process are exposed 8 hours a day during manufacture and packaging. The remaining workers are expected to be exposed on average 2 hours a day. The most likely routes of exposure are expected to be via skin absorption and inhalation.

Precautions taken to prevent exposure include: local mechanical exhaust ventilation capable of minimizing mist emissions at the point of use; emergency thermostatically-controlled (25-30C) pipes with a 3-5% solution of sodium bicarbonate on each level of the factory used; eye wash bottle with clean water. Personal safety equipment consists of: goggles giving complete protection to eyes and face; plastic or rubber gloves and boots; use of respirator in misty atmosphere or dusty atmosphere. Educational training programmes and distribution of Material Safety Data Sheet Safety information to personnel are also carried out.
Exposure may occur via the atmosphere. SMCA is discharged (=< 75 kg/day) from a chimney into the atmosphere dissolved in water as an aerosol. Due to gravitational effects will probably reach ground level. A preliminary environmental monitoring study indicates that exposure due release of SMCA from the Swedish production site may be >= 1000 mg/m2 within 100 m and >= 200 mg/kg within 250 m from the point of source release.

Industrial hygiene monitoring data is not available from the Swedish manufacturer.

Occupational Exposure Levels have only been located for USA. An inhalation TWA of 0.3 ppm (1.3 mg/m3) and 1 ppm (4.2 mg/m3; for 15 minutes exposure) are quoted. A TWA of 0.3 ppm (1.3 mg/m3) has also been quoted for skin absorption as excessive exposure can occur when the vapour concentration is below the recommended guideline.

INITIAL ASSESSMENT

Human:
The anticipated acute and chronic human health hazards posed by MCA/SMCA are effects on the cardiac system, the central nervous system, and kidneys. Chronic exposure may also result in hepatoxicity and teratogenic effects (SMCA tested only). In addition, MCA is highly corrosive and irritating to the eyes, skin and respiratory tract.

The toxicity profile of MCA and SMCA are similar for the oral route of exposure. However, SMCA is much less toxic than MCA by the dermal route in acute studies indicating that dermal absorption of MCA is greater than for SMCA. Toxicity associated with inhalation exposure is difficult to determine for MCA because of poor study design and/or inadequate reporting of available studies: studies for SMCA are not available. However, due to the corrosive property of MCA and toxicity profile of MCA/SMCA it is prudent to recommend that exposure by the inhalation to MCA and SMCA should be avoided.

Acute dermal exposure of workers to MCA may result in death even after rapid and extensive washing of the skin area. The effects may be delayed. However, under "normal" exposure conditions with strict use of recommended protective measures it is envisaged that exposure and subsequent effects will be low. It has been suggested that oral and inhalation absorption may be limited because of the irritating effects of MCA and that the low odour threshold for MCA (0.01 ppm, 0.042 mg/m3) indicates good alert properties of the compound. In contrast, SMCA is less irritating and therefore oral, inhalation dermal exposure may occur unobserved. Because SMCA forms dusts, inhalation and dermal exposure may represent important routes of exposure.

Occupational exposure to aerosol carried SMCA within the factory and indirect environmental exposure outside of the factory site are potential exposures which are likely to occur but based on the available data this exposure situation cannot be estimated. Similarly, occupational exposure from the use of products containing MCA cannot be estimated based on the available data.

Consumer products currently in use have not been identified.

The biochemical mechanism of action resulting in death is not understood. Contributing factors apparently believed to be involved are: (i) the inhibition of the tricarboxylic acid cycle decreasing cellular energy supply and increasing acidosis with glycolic acid and oxalate production, and; (ii) effects on cellular components where sulfhydral groups are critical for normal biological activity. Both of these effects may contribute to CNS, cardiovascular, renal and hepato effects. In addition, the metabolites glycolic acid and oxalates may contribute to CNS and renal toxicity.

Monofluoroacetic acid (MFA; CAS No. 144-49-0), monoidoacetic acid (MIA: CAS No. 64-69-7), monobromoactic acid (MBA; CAS No. 79-08-3) and the sodium salts of MFA and MIA (CAS No. 62-74-8 and 305-53-3) are close structural analogues of MCA and SMCA. MFA is more toxic than MCA but it is also corrosive and may cause effects on the cardiac system, the central nervous system and kidneys which may result in death. However, MCA apparently has a different mechanism of action than its structural halo analogues. For example, both MCA and MFA inhibit aconitase required for acetate metabolism in the tricarboxylic acid cycle but their inhibition kinetics are different. In addition, MCA like MIA but unlike MFA depletes organ thiols. Hence, comparison of MCA or SMCA with its structural halo analogues for risk assessment or identifiying antidotes should only be done with prudence.

ENVIRONMENTAL

MTC:
The anticipated ecotoxicological hazards posed by MCA/SMCA are low/moderate acute and chronic toxicity to aquatic animals. In acute studies with fish the acid form was more toxic than the salt form. This difference is probably a pH dependent effect. Acute toxicity data are available for three trophic levels. Chronic toxicity data are available for two different trophic levels. The lowest acute EC50 is 25 ug/L and the lowest NOECchronic is ca. 5 ug/L. Both effect levels are from a green algae. The MTC acute based on the assessment factor of 100, is 25/100 = 0.25 ug/L. The MTCchronic based on the assessment factor of 10, is 5/10 = 0.5 ug/L. MTCaq will then be 0.25 ug/L (the lowest of these two).

MCA/SMCA is used as a broad spectrum herbicide. Effects on terrestrial plants are therefore expected, even at low concentrations. Based on the recommended agricultural dose an effective lethal dose for terrestrial plants of 6.7 g/m3 is derived (effective dose >= 20 kg SMCA/ha, mixed to a depth of 0.3 meter). To estimate the MTC an assessment factor of 1000 has been used. The derived MTCterr is 6.7/1000 g/m3 = 6.7 mg/m3 = 6.7 ug/L.

PEC:
MCA/SMCA may enter into the environment during its production/use via the waste water emissions during its production and/or use as a chemical intermediate (primarily in the manufacture of chlorophenoxy herbicides and carboxymethyl cellulose). Emission of SMCA to the air in the form of aerosol is expected to gravitationally settle out on soil and water. On land SMCA will biodegrade and to some extent probably leach into the ground water.

In the ground water, SMCA is expected to be persistent. In surface water MCA/SMCA will biodegrade and will not be appreciably adsorbed to sediment or bioconcentrate in fish. MCA may also be formed naturally.

Local PECs have been calculated for a single factory scenario under climatical conditions expected to be normal at the Swedish production/processing site, for air (2.7E-6 mg/m3), soil (25-288 ug/L), water (0.38-0.98 ug/L) and sediment (0.25-0.66 ug/L). The highest value are derived for lower temperatures during winter. If the waste water treatment was excluded, the PEC for water increases by 50-75 fold. In regions where the temperature is below zero during winter an accumulation of air emission of MCA/SMCA in snow is expected. High peak concentrations may then occur in the water from melted snow. However, air emission of MCA/SMCA does not normally occur during its production.

"Natural" sources: A background level of 0.1-1 ug/L is expected to occur in precipitation. The "natural" annual contirbution to the total exposure to the environment is calculated to be 0.07-0.7 mg/m2 (based on 700 mm rain/year). This is less than 1% of the contribution from the anthropogenic water or air emissions in the single factory scenario, and will therefore not influence the calculated PECs. However, one scenario which is not included in the fugacity calculation is the exposure to environments which are totally dependant on precipitation water, i.e. small fresh water lakes with short advection time. The PEC in such recipient may be in the same order of magnitude as the "natural" background level in the precipitation, i.e. 0.1-1 ug/L.

PEC/MTC:
Single factory scenario: For the terrestrial plants the quote PEC/MTC is more than 1 in all scenarios considered (best case (summer + neutral soil): 25 ug/L /6.7 ug/L = 3.7; worse case (winter + acid soil): 280 ug/L /6.7 ug/L = 42) indicating that adverse effects are expected. The PEC/MTC quote in the aquatic environment were also greater than 1 in all considered scenarios, indicating that adverse effects may occur (best case: 0.38/0.25 = 1.5; worse case (no waste water treatment): 32/0.25 = 128).

Natural sources: The quote MTC/PEC for plants living in rain water/melted water are expected to be around 1 (PEC/MTC = 0.1-1 ug/L /0.25 ug/L = 0.4-4). It is noteworthy that the background levels seems to be very close to the levels for adverse effects in these ecosystems. Therefore even small amount of MCA/SMCA from anthropogenic sources may be important for the assessment.

Summary: These PEC/MTC estimates indicate that production/processing of MCA/SMCA may cause effects on plants in both the aquatic and terrestrial environment, especially in the winter and spring seasons. However, these results are only based on theoretical dilution/degradation data or preliminary monitoring data, and should be validated with more monitoring data

OVERALL RECOMMENDATION AND INITIAL ASSESSMENT

Conclusion

Based on the available data:

Human:

(i) The main anticipated human health hazards posed by MCA and SMCA are cardiac, renal, CNS and hepatoxicity. In addition, SMCA also has teratogenic effects and MCA is highly corrosive and irritant.

(ii) The main anticipated routes of exposure expected to result in human health hazards are for MCA via the oral and dermal routes and for SMCA via the oral route. It is difficult to determine if the inhalation route and dermal exposure of humans lead to internal exposure and subsequent toxicity; however, due to the corrosive properties of MCA and toxicity profile of MCA/SMCA it is prudent to avoid exposure to these substances by all routes.

(iii) More exposure information is required concerning occupational manufacturing/use of MCA/SMCA both nationally and internationally.

(iv) More exposure information is required concerning professional use of products containing MCA or even SMCA.

(v) The toxicological mechanism of action of MCA/SMCA is not fully understood.

(vi) SAR comparison of MCA/SMCA and their structural halo analogues should only be made with prudence.

(vii) Recommendation of the therapeutic use of an antidote against MCA/SMCA toxicity is not possible at present.

Environmental:

(i) MCA/SMCA are very highly toxic to aquatic and terrestrial plants and highly acute toxic to birds.

(ii) MCA/SMCA are low/moderate acute and chronic toxic to aquatic animals.

(iii) The potential exposure of the local terrestrial and aquatic environment around the factory site are considered to be high during production/processing of MCA/SMCA.

(iv) MCA may occur naturally. Concentrations in the precipitation is close to observed effect levels on plants.

(v) Degradation of MCA/SMCA is pH & temperature dependent: decreasing with decreasing temperature and pH.

(vi) Air emitted MCA/SMCA accumulates in snow causing peak concentration in melting water.

(vii) If the waste water is not processed by a treatment plant the potential for exposure of aquatic organisms will increase considerably.

RECOMMENDATION

Human:

(i) Low current priority for further work in the SIDS context, but warrant special attention due to specific effects to humans.

(further investigative work be encouraged to further elucidate the toxicological mechanism of action of MCA/SMCA with a view to evaluating potential andidotes in an animal model).

(ii) Collection of more exposure data is recommended as a Post SIDS activity.

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **FRG**

Production

Quantity	*Year*
50000-100000 t - P	**1991**

General Comments : The given quantity was produced in West Germany.

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
HOECH*
Hoechst AG, (1992)

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **USA**

Production

Quantity	*Year*
10000-100000 t/y - P	

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
DOWCH*
Dow Chemical Company. Dow Chemical Company Document, (1992)

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **USA**

Production

Quantity	*Year*
39000000 t	**1988**
40000000 t	**1989**
43600000 t	**1993**
19500000 t - EX	**1993**

General Comments : U.S.A. "Demand: 1988 = 85 million 1b; 1989 = 87 million 1b; 1993/projected/: 96 million 1b (includes imports, which totaled 43 million 1b last year); exports are negligible".

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
HSDBM*
Hazardous Substances Databank HSDB, (1992)

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **CHE**

Production

Quantity	*Year*
0 - P	**1991**
>1000 t/y - IM	

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
#BUWLK*
Karlaganis, G. Bundesamt fuer Umwelt, Wald und Landschaft, (1991)

Production-Trade

[redacted]

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **USA**

Production

Quantity	*Year*
34000 t - P	**1987**

General Comments : The given quantity refers to production capacity.

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
#BEICR*
Beicip. Bureau d'Etudes Industrielles et de Cooperation Rapport, (1988)

Production-Trade

[redacted]

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **EUR**
Area Specifications : **W**

Production

Quantity	*Year*
210 t - P	**1987**

General Comments : The given quantity refers to production capacity.

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
#BEICR*
Beicip. Bureau d'Etudes Industrielles et de Cooperation Rapport, (1988)

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **SWE**

Production

Quantity	*Year*
5000-12700 t - P	**1991**

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
KEMIR*
KemI. KEMI Report, (1992)

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **JPN**

Production

Quantity	*Year*
38500 t - P	**1987**

General Comments : The given quantity refers to production capacity.

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
#BEICR*
Beicip. Bureau d'Etudes Industrielles et de Cooperation Rapport, (1988)

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **WORLD**

Production

Quantity	*Year*
362500 t - P	**1987**

General Comments : The given quantity refers to production capacity.

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
#BEICR*
Beicip. Bureau d'Etudes Industrielles et de Cooperation Rapport, (1988)

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **FRG**

Production

Quantity	*Year*
14000 t - P	**1992**
0 t - P	**1993**
110000 t - P	**1993**

General Comments : ca.14000 tonnes produced in former East Germany. The given quantity of "110000 tonnes" refers to production capacity of Germany.

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
#UBAEI*
UBA. Umweltbundesamt. Exposure Information of Monochloroacetic Acid, (1994)

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **MEX**

Production

Quantity	*Year*
3000 t - P	**1991**

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
#PDMCA*
Bendesky, S. Production Data on Monochloroacetic Acid. Letter from Polaquimia de Tlaxcola, (1991)

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **AUT**

Production

Quantity	*Year*
>1000 t/y - IM	

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
DACOK*
Kohlmann. Data Collection
(Letter 10 Jan. 1992), (1992)

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **CAN**

Production

Quantity	*Year*
0 - P	**1986**
2-20 t - IM	**1986**

References

!SIDSP*
OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)
#MCASS*
Chenier, R. Answer on Swedish Request on Monochloroacetic Acid and it's Sodium Salt, (1991)

Production-Trade

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **DNK**

Production

Quantity	*Year*
1552 t - IM	**1985**
6485 t - IM	**1989**

General Comments : 1552 tonnes include mono-, di-, and trichloroacetic acid. Denmark imported 6485 tonnes mono-, di-, and trichloroacetic acid from the Netherlands (4294 tonnes), Germany (988 tonnes) and from Sweden (979 tonnes).

References

!SIDSP*

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

#UIMAN*

Niemela, J. Use Information on Monochloroacetic acid. Letter from Ministry of the Environment, National Agency of Environmental Protection, (1991)

Processes

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**

Process

Process comments : MCA is manufactured at a single newly built (1993) and automated plant in Sweden. In contrast to other plants, this plant includes a chimney (Eka Nobel, 1994d). MCA-flakes and solutions, and SMCA (sodium monochloroacetate) are packed by automated procedures and stored in a cool, dry ventilated place separate from other chemicals (Eka Nobel, 1991a, b & f). Storage and handling systems utilize glass-lined steel storage tanks, glass-lined or PTFE plastic-lined pipes, valves and pumps. Storage tanks prevented from freezing are connected to a vent scrubbing system. Empty MCA/SMCA containers can contain residues, gases and mists or dusts. MCA and SMCA should not be disposed of in a landfill or water course. MCA solid is transported by lorry in fiberdrums with an innerbag of polyethane with a capacity for either 92 or 800 kg. MCA solution is transported in stainless steel tankers. SMCA is transported by lorry in paper bags with capacity of 50 - 100 kg.

References

Primary Reference : **#EKNOA***
Eka Nobel AB. Personal Communication, (1994)

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

Uses

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **FRG**

Use

Quantity	*Year*	*Comments*
		Germany (based on 50 industrial users, 1991). The following data are "approximate values".
33 %	**1991**	CMC
22 %	**1991**	Thioglycolic acid
15 %	**1991**	Ethyl and methyl chloroacetate
6 %	**1991**	Intermediate for herbicides
23 %	**1991**	Other uses
		Comments: MCA is not permitted as food additive and herbicide in Germany.

References

Primary References : **#BUWLK***
Karlaganis, G. Bundesamt fuer Umwelt, Wald und Landschaft, (1991)

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

Uses

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **SWE**

Use

Quantity	*Year*	*Comments*
		QUANTITATIVE USE: World demand for production of (1990)
90000 t	**1990**	CMC (45%)
24000 t	**1990**	Phenoxy herbicides (12%)
23900 t	**1990**	Thioglycolic acid (12%)
19000 t	**1990**	Cyanoacetic acid (11%)
16000 t	**1990**	Chloroacetyl chloride (7%)
5600 t	**1990**	Glycine (3%)
23100 t	**1990**	Others (11%)

References

Primary References : **#BEICR***
Beicip. Bureau d'Etudes Industrielles et de Cooperation Rapport, (1988)

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

Uses

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **SWE**

Use

Quantity	*Year*	*Comments*
		INDUSTRIAL USE: Carboxymethylcellulose
		Ethylchloroacetate, glycine, synthetic caffeine, sarcosine, thioglycolic acid, vitamines, EDTA, 2,4-D and 2,4,5-T.
		Herbicides
		Used in synthesis in chemical industry, classified as pharmaceutical.
		PUBLIC USE: Drug: escharotic agent

References

Primary References : **ECDIN***
Environmental Chemicals Data and Information Network (ECDIN), (1991)

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

Uses

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **SWE**

Use

Quantity	*Year*	*Comments*
		INDUSTRIAL USE (information from Dow Chemicals) Raw material for:
50 %		Plastics (PVC stabilizers)
20 %		Hair perms
20 %		Adhesives
10 %		Surfectant
		Type of use: "industrial use, only closed systems"

References

Primary References : **DOWCH***
Dow Chemical Company. Dow Chemical Company Document, (1992)

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

Uses

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **SWE**

Use

Quantity	*Year*	*Comments*
		MCA is predominantly used as raw material for synthesis of cellulose ethers, mainly CMC (Carboxy and Methyl Cellulose, Beicip, 1988). Other important uses are as a chemical intermediate (for herbicides, plastics, thioglycolic acid, cyanoacetic acid and chloroacetyl chloride) and as constituent in products intended for professional uses. Current use of consumer products containing MCA/SMCA have not been identified.

References

Primary References : **HSDBM***
Hazardous Substances Databank HSDB, (1992)

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

Uses

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **SWE**

Use

Quantity	*Year*	*Comments*
		Information from HSDB:
43 %		Cellulose ethers, mainly CMC (uses include drilling muds, detergents, food and pharmaceuticals.
42 %		Herbicides
15 %		Thioglycolic acid, glycine and others

References

Primary References : **HSDBM***
Hazardous Substances Databank HSDB, (1992)

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

Uses

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **SWE**

Use

Quantity	*Year*	*Comments*
		INDUSTRIAL USE - Raw material for: Fragrance, perfume, deodoriser, flavouring agent Professional use: analytical reagent

References

Primary References : **#MCASS***
Chenier, R. Answer on Swedish Request on Monochloroacetic Acid and it's Sodium Salt, (1991)

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

Uses

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **FIN**

Use

Quantity	*Year*	*Comments*
		MCA has been identified as a constituent in products in Finland. The products are imported from the Netherlands. These products are used professionally as acidic paint removers and as graffiti cleaning products. Information concerning the actual use of these products and potential exposure is not currently available. (The following reference is also cited: Malm, J. (1994). Use Information. Letters from National Board of Waters and Environment, Finland. 23rd Feb. 1994 and 8th Feb. 1994).

References

Primary References : **#KEMIR***
KemI. KEMI Report, (1994)

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

Uses

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **SWE**

Use

Quantity	*Year*	*Comments*
		Type of use: mainly (?) non-dispersive use. (Reported in: EUCLID (1992b). Monochloroacetic acid. Data sheet from Hoechst AG. Updated 23 April 1992). Other use: antimicrobial additive to food.

References

Primary References : **#KEMIR***
KemI. KEMI Report, (1994)

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

Study

[redacted]

End Point	:	**Pathway into the Environment and Environmental Fate.**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Geographic Area	:	**SWE**

Pathway and Transport

Pathway	:	**NATUR**

Quantity Transported

General Comments	:	Natural occurrence: mono-, di, and trichloroacetic acid may form in the atmosphere by photochemical reactions with antropogenic chlorinated hydrocarbons or sea salt aerosol. Analysis of old glacier ice indicate that MCA is a naturally occurring compound.

References

Primary Reference	:	**ETOCDK** Grimwal, A.et al. Environmental Toxicology and Chemistry, (1994)
Secondary Reference	:	**!SIDSP*** OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

[redacted]

End Point	:	**Pathway into the Environment and Environmental Fate.**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Geographic Area	:	**SWE**

Pathway and Transport

Pathway	:	**INDST**

Quantity Transported

Medium	*to Medium*	*Quantity*	*Time*	*Year*	*to Year*

AQ WASTE to AQ

ENVIRONMENTAL FATE/EXPOSURE SUMMARY: chloroacetic acid may enter the environment in emissions and waste water from its production and use as a chemical intermediate primarily in the manufacture of chlorophenoxy herbicides & carboxymethyl cellulose. Such release of the chemical would be limited to industrial settings. If released into surface water,

chloroacetic acid would biodegrade (73% in 8-10 days). It would not adsorb appreciably to sediment or bioconcentrate in fish. If spilled on land it would biodegrade and leach into the ground water. Its fate in ground water is uknown. If released into the air, probably as an aerosol, it will gravitationally settle out and undergo slow photodegradation

ARTIFICIAL SOURCES: emissions and waste water from its production and use as a chemical intermediate in the manufacture of 2,4-dichlorophenoxyacetic acid, 2,4,5- trichlorophenoxyacetic acid, carboxymethyl cellulose and many other chemicals. The chemical itself has been used as a

pre-emergent herbicide and defoliant and these applications, if still in use, would constitute an emission source and ground contaminant of a more general nature.

to AIR

ATMOSPHERIC FATE: if chloroacetic acid is used as a pesticide, it could possibly be released to the atmosphere during spraying and will generally be associated with aerosols and sprays. The aerosol will be subjected to gravitational settling and undergo slow photodechlorination.

References

Primary Reference : **HSDBM***
EPA. Hazardous Substances Databank HSDB, (1992)

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

Study

End Point : **CONCENTRATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **USA**

Test Subject

Organism	*Medium*	*Specification*	*Lifestage*	*Sex*
	AQ	**DRINK**		

Species/strain/system : Drinking water

Test Substance

Description of the test substance : MCA should be monitored in the salt rather than the free acid (pKa = 2.8).

Test Method and Conditions

Test method description : Monitoring study

Test Results

Matrix	*Concentrations*	*Spec.*	*Date*
AQ	**1-2 ug/L**		**1988-1989**

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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

Study

End Point : **CONCENTRATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **FRG**

Test Subject

Organism	*Medium*	*Specification*	*Lifestage*	*Sex*
	AQ	**WASTE**		

Species/strain/system : Industrial waste water

Test Substance

Description of the test substance : MCA should be monitored in the salt form rather than the free acid (pKa = 2.8).

Test Method and Conditions

Test method description : Monitoring study

Test Results

Matrix	*Concentrations*	*Spec.*	*Date*
MCA in industrial waste water	**20-70 mg/L**		**1988-1989**

References

Primary Reference : **#UBAEI***
UBA. Umweltbundesamt. Exposure Information of Monochloroacetic Acid, (1994)

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

Study

End Point : **CONCENTRATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **ATA**

Test Subject

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

Species/strain/system : Glacier ice (old) probably pre-industrial ice, (Antaktis)

Test Substance

Description of the test substance : MCA should be monitored in the salt form rather than the free acid (pKa = 2.8).

Test Method and Conditions

Test method description : Monitoring study

Test Results

Matrix	*Concentrations*	*Spec.*	*Date*
	0.1-1 ug/L		

General Comments : This indicates that MCA may occur naturally and may be considered as a background level.

References

Primary Reference : **ETOCDK**
Grimwall, A. et al. Environmental Toxicology and Chemistry, (1994)

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

Study

End Point : **CONCENTRATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Lifestage*	*Sex*
	AQ	**WASTE**		

Species/strain/system : Industrial waste water

Test Substance

Description of the test substance : MCA should be monitored in the salt form rather than the free acid (pKa = 2.8).

Test Method and Conditions

Test method description : Monitoring study

Test Results

Matrix	*Concentrations*	*Spec.*	*Date*
AQ	**80-100 mg/L**		**1979**

MCA in industrial waste water

References

Primary Reference : **MOTDW***
Walterson, E. et al. Monoklorattiksyra : Toxikologisk Dokumentation Samt Preliminar Bedomning av Effekter i Recipienten Inst. for Vatten- och Luftvardsforskning, R 41/80, (1980)

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

Study

End Point : **CONCENTRATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Lifestage*	*Sex*
	AQ	**WASTE**		

Species/strain/system : Effluent (non-specified)

Test Method and Conditions

Test method description : "TOC measurement"; estimation of concentration in effluent

Test Results

Matrix	*Concentrations*	*Spec.*	*Date*
AQ	**200 mg/L**		
Estimated concentration in effluent			

References

Primary Reference : **FCASC***
Dechamp, P. Formula 1 on Chloroacetic Acid and Sodium Chloroacetate, (1992)

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

Study

End Point	:	**CONCENTRATION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Geographic Area	:	**JPN**

Test Subject

Organism	*Medium*	*Specification*	*Lifestage*	*Sex*
	AQ	**SURF**		
	SED			

Species/strain/system : Suwa lake

Test Substance

Description of the test substance : MCA should be monitored in the salt form rather than the free acid (pKa = 2.8).

Test Method and Conditions

Test method description : Monitoring study

Test Results

Matrix	*Concentrations*	*Spec.*	*Date*
AQ	**0.64 ug/L**		**1984**
MCA in surface water			
SED	**1.6-3.3 ug/kg**		**1984**
MCA in sediment			

References

Primary Reference : **CEDEH***

Chemicals in the Environment : Report on Environmental Survey and Wildlife Monitoring of Chemicals in F.Y. 1984 and 1985, (1987)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*
	FOOD		**ORL**		

Species/strain/system : Food products

Test Method and Conditions

Test method description : Not specified

Test Results

Intake	*Spec.*	*Date*
1 mg/mL		

The only potential consumer exposure that has been identified is the antimicrobial use of MCA in food products.

General Comments : Further information alluding to these uses or identifying current uses has not been located.

References

Primary Reference : **HOECH***
Hoechst AG, (1971)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **SWE**

Test Subject

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

Test Method and Conditions

Test method description : Not specified

Test Results

General Comments : The potential exposure of humans to MCA or SMCA at the Swedish production site is expected to occur during their manufacture, mixing of MCA solutions, filling of drums, and storage. Forty and thirty-eight workers are involved with MCA and SMCA production, respectively. Four of these workers per process are exposed 8 hours a day during manufacture and packaging. The remaining workers are expected to be exposed on average 2 hours a day. The most likely routes of exposure are expected to be via skin absorption and inhalation.

References

Primary Reference : **#EKNOA***
Eka Nobel AB. Personal Communication, (1993)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Geographic Area : **USA**

Test Subject

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

Test Results

Intake *Spec.* *Date*

1.3 mg/m3
Inhalation TWA of 0.3 ppm

4.2 mg/m3
Inhalation TWA of 1 ppm for 15 minutes exposure

1.3 mg/m3
TWA of 0.3 ppm has also been quoted for skin absorption as excessive can occur when the vapour concentration is below the recommended guidelines.

References

Primary Reference : **DOWCH***
Dow Chemical Company. Dow Chemical Company Document, (1990)

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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Geographic Area	:	**SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*
	FOOD		**ORL**		

Species/strain/system : Food products (MCA as antimicrobial agent, 1 mg/mL).

Test Method and Conditions

Test method description : Not specified

Test Results

General Comments : Further information alluding to these uses or identifying current uses has not been located.

References

Primary Reference : **ECDIN***
Environmental Chemicals Data and Information Network (ECDIN), (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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Geographic Area	:	**SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SEW**

Species/strain/system : Waste water treatment plants of a producer in Sweden

Test Method and Conditions

Test method description : Measurements in the waste water treatment plants

Test Results

Quantity	*Time*	*Comments on result*
>=98 %		The level of biodegradation of MCA/SMCA

General Comments : SMCA = sodium monochloroacetate. All of the aerosol emission is expected to be deposited on the local surrounding land area north east of the discharge point, because of gravitational effects and preveilling winds.

References

Primary Reference :

#EIMSM*

Wettstrom, R. Exposure Information for MCA/SMCA. Personal Communication, (1993)

Secondary Reference :

!SIDSP*

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

Study

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Geographic Area	:	**SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Lake water + activated sludge (adapted; non-adapted)

Test Substance

Description of the test substance : MCA (sodium salt)

Test Method and Conditions

Test method description : OECD Guideline 301C; GLP: no

Temperature : **20 C**

(An)aerobic : **AEROB**

Test Results

Quantity	*Time*	*Comments on result*
91 %	**9 d**	Degradation after 9 days; no adaptation
91 %	**5.5 d**	Degradation after 5.5 days; adaptation

References

Primary Reference : **IVLBDQ**
Solyom, P. Institutet foer Vatten och Luftvardsforskning, (1981)

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

Study

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Geographic Area	:	**SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SEW**
	-	**SLUDG**
	SOIL	

Species/strain/system : Sewage or acclimated sludge inocula

Test Method and Conditions

Test method description	:	Laboratory biodegradation tests
Temperature	:	**34 C**
(An)aerobic	:	**ANAER**

Test Results

Quantity	*Time*	*Comments on result*
86-90 %	**2 d**	Chloroacetic acid is readily degraded to methane, CO2 and chloride ions (86-90% reduction).

General Comments : Degradation occurs in soil, however, under acidic conditions and/or at low temperature MCA is comparatively persistent (Jensen, 1959).

References

Primary Reference : **AMICCW**
Egli, C. et al. Archives of Microbiology, 152, 218-223, (1989)

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

Study

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Geographic Area	:	**SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SEW**
	-	**SLUDG**
	AQ	**FRESH**

Species/strain/system : Sewage or acclimated sludge inocula

Test Method and Conditions

Test method description	:	Laboratory biodegradation tests
Temperature	:	**29 C**

Exposure

Exposure comments : The degradation rate is increased by acclimation and involves dechlorination.

Test Results

Quantity	*Time*	*Comments on result*
>70-90 %	**5-10 d**	MCA degradation using sewage or acclimated sludge inocula
73 %	**8-10 d**	In river water, MCA/SMCA is mineralized to carbon dioxide at 29C.

References

Primary Reference : **HSDBM***
Hazardous Substances Databank HSDB, (1992)

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

Study

[redacted]

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Geographic Area	:	**SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SEW**

Species/strain/system : Waste water treatment plants of two producers

Test Method and Conditions

Test method description : Periodic measurements

Test Results

Quantity	*Time*	*Comments on result*
>99 %		Elimination

References

Primary Reference : **#UBAEI***

UBA. Umweltbundesamt. Exposure Information of Monochloroacetic Acid, (1994)

Secondary Reference : **!SIDSP***

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

Study

[redacted]

End Point	:	**BIODEGRADATION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SEW**

Species/strain/system : Waste water treatment plant

Test Method and Conditions

Test method description : Simple treatment (sewage treatment)

Test Results

Quantity	*Time*	*Comments on result*
97 %		Estimated elimination

References

Primary Reference : **#UBAEI***
UBA. Umweltbundesamt. Exposure Information of Monochloroacetic Acid, (1994)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **FRG**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Activated sludge of domestic sewage in Germany

Test Method and Conditions

Test method description : Toxicity test on activated sludge of domestic sewage.

Test Results

Quantity	*Time*	*Comments on result*
80 mg/L		80 mg/L MCA has toxic effects

General Comments : Only a short review. Original reference not mentioned.

References

Primary Reference : **#UBAEI***
UBA. Umweltbundesamt. Exposure Information of Monochloroacetic Acid, (1994)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **FRG**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**NATUR**

Species/strain/system : Natural stream water

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : GLP: no

(An)aerobic : **AEROB**

Exposure

Dose / Concentration : **0.047-47 ug/L**

Test Results

Quantity	*Time*	*Comments on result*
50 %	**4-10 d**	Half-life (--> CO2) >= 4-10 days

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence, tested substance should be the salt form rather than the free acid.

References

Primary Reference : **BIBRT***
BIBRA Toxicity Profile, (1992)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Water + activated sludge, with and without adaptation

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : OECD Guideline 301 C; GLP: no

(An)aerobic : **AEROB**

Test Results

Quantity	*Time*	*Comments on result*
99 %	**3 wk**	Degradation after 3 weeks (based on TOD)
100 %	**3 wk**	Degradation after 3 weeks (based on gas chromatography)

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence, tested substance should be the salt form rather than the free acid.

References

Primary Reference : **MITIE***
Orabe, Y. Ministry of International Trade and Industry, MITI Environment Agency, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Water + activated sludge, with and without adaptation

Test Substance

Description of the test substance : MCA (see general comments)
Purity Grade : **>99%**

Test Method and Conditions

Test method description : OECD Guideline 301 D; GLP: yes

(An)aerobic : **AEROB**

Test Results

Quantity	*Time*	*Comments on result*
69 %	**28 d**	Degradation after 28 days

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence, tested substance should be the salt form rather than the free acid.

References

Primary Reference : **AKZOT***
van Ginkle, C. G. Akzo Research Laboratories. Technical Report, CRL D 88/92, (1988)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Water + activated sludge, non-adapted

Test Substance

Description of the test substance : MCA (see general comments), purity not reported.

Test Method and Conditions

Test method description : OECD Guideline 301 E; (Ready biodeg. Modified OECD Screening test). Degradation calculated from ThCO2 (theroritical concentration of CO2 in the test substance).

(An)aerobic : **AEROB**

Exposure

Dose / Concentration : **4.5-9.0 mg/L**
Exposure comments : Inoculum: 4.5 and 9.0 mg/L related to DOC

Test Results

Quantity	*Time*	*Comments on result*
73 %	**7 d**	Degradation after 7 days (related to 4.5 mg/L)
14-24 %	**7 d**	Degradation after 7 days (related to 9.0 mg/L)

General Comments : This test is probably conducted at a pH>pKa (= 2.8). Hence, tested substance should be the salt form rather than the free acid.

References

Primary Reference : **EESADV**
Strujis, J. et al. Ecotoxicology and Environmental Safety, 19, 204-211, (1990)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Water + activated sludge

Test Substance

Description of the test substance : MCA (see general comments), purity not specified.

Test Method and Conditions

Test method description : OECD Guideline 301 E. (Ready biodeg. Modified OECD Screening test).

(An)aerobic : **AEROB**

Test Results

Quantity	*Time*	*Comments on result*
13 %	**7 d**	ca. 13% degradation after 7 days
26 %	**14 d**	Degradation after 14 days
41 %	**21 d**	Degradation after 21 days
53 %	**53 d**	Degradation after 53 days

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence, tested substance should be the salt form rather than the free acid.

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Water + activated sludge, industrial

Test Substance

Description of the test substance : MCA (see general comments), purity not specified.

Test Method and Conditions

Test method description : OECD Guideline 302 B. (Inherent biodeg. Modified Zahn-Wellens Test), 1140 mg/L related to test substance; GLP: no

(An)aerobic : **AEROB**

Exposure

Dose / Concentration : **1140 mg/L**

Test Results

Quantity	*Time*	*Comments on result*
10-20 %	**3 h**	Degradation after 3 hours
27 %	**3 d**	Degradation after 3 days
71 %	**6 d**	Degradation after 6 days
89 %	**8 d**	Degradation after 8 days
98 %	**10 d**	Degradation after 10 days. (Reported in: Verbrand der chemischen Industrie, e. V. (Unveroeffentlichte Untersuchung der Hoechst AG (W 86-348)).

General Comments : This test is probably conducted at a pH>pKa (= 2.8). Hence, tested substance should be the salt form rather than the free acid.

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Water + activated sludge, non-adapted

Test Substance

Description of the test substance : MCA (see general comments), purity not specified.

Test Method and Conditions

Test method description : OECD Guideline 302 B. (Inherent biodeg. Modified Zahn-Wellens Test), 1000 mg/L related to test substance.

Exposure

Dose / Concentration : **1000 mg/L**

Test Results

Quantity	Time	Comments on result
100 %	**28 d**	Degradation after 28 days

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence tested substance should be the salt form rather than the free acid.

References

Primary Reference : **CMSHAF**
Gerike, P. et al. Chemosphere. Chemistry, Biology and Toxicology as Related to Environmental Problems, 21(6), 799-812, (1990)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	Medium	Specification
	AQ	**SLUDG**

Species/strain/system : Water + activated sludge

Test Substance

Description of the test substance : MCA (see general comments), purity not specified.

Test Method and Conditions

Test method description : OECD Guideline 301 E. (Ready biodeg. Modified OECD Screening test), 5 mg/L related to COD.

(An)aerobic : **AEROB**

Exposure

Dose / Concentration : **5 mg/L**

Test Results

Quantity	*Time*	*Comments on result*
100 %	**28 d**	Degradation after 28 days

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence tested substance should be the salt form rather than the free acid.

References

Primary Reference : **CMSHAF**
Gerike, P. et al. Chemosphere. Chemistry, Biology and Toxicology as Related to Environmental Problems, 21(6), 799-812, (1990)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Water + activated sludge, industrial

Test Substance

Description of the test substance : MCA (see general comments), purity not reported.

Test Method and Conditions

Test method description : OECD Guideline 302 B. (Inherent biodeg. Modified Zahn-Wellens Test); GLP: no

(An)aerobic : **AEROB**

Test Results

Quantity	*Time*	*Comments on result*
87 %	**5 d**	Degradation after 5 days

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence tested substance should be the salt form rather than the free acid.

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*
	AQ	**SLUDG**

Species/strain/system : Water + activated sludge, industrial

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : OECD Guideline 302 B. (Inherent biodeg. Modified Zahn-Wellens Test), 1000 mg/L related to COD; GLP: no

(An)aerobic : **AEROB**

Exposure

Dose / Concentration : **1000 mg/L**
Exposure comments : lagtime = 1 day

Test Results

Quantity	*Time*	*Comments on result*
>90 %	**5.5 d**	Degradation after 5.5 days

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence tested substance should be the salt form rather than the free acid. The information related to "Lagtime" is reported in the following reference: Verbrand der chemischen industrie e. V. (Unveroeffentlichte Unterschung der Hoechst AG (W 86-438).

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*
-	**AQ**	
BACT	**SOIL**	

Species/strain/system : Soil bacteria (Pseudomonas putida)

Test Substance

Description of the test substance : MCA (see general comments), purity not reported.

Test Method and Conditions

Test method description : Study of the dechlorination capacity in static and semi-static culture (chemostate).

(An)aerobic : **AEROB**

Test Results

Quantity	*Time*	*Comments on result*
		Pseudomonas putida are able to use 'MCA' as an energy and carbon source.

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence, tested substance should be the salt form rather than the free acid.

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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

Study

End Point : **BIODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*
BACT	**AQ**	**SLUDG**

Species/strain/system : Activated sludge of a predominantly domestic sewage

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : ETAD Fermentation Tube Method "Determination of damage to effluent bacteria by the Fermentation Tube Method". 24 hours exposure, aquatic; GLP: no

Exposure

Exposure Period : **24 h**

Test Results

General Comments : EC0 = 80 mg/L; EC50 = 160 mg/L. It is unclear if the test medium is neutralized. If the mdeium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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

Study

End Point	:	**PHOTODEGRADATION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Medium	:	**AIR**
Geographic Area	:	**SWE**

Test Method and Conditions

Test method description	:	Indirect photolysis in air. Reaction with OH-radicals. Calculated according to Atkinson.

Test Results

Quantity	*Time*	*Comments on result*
50 %	**58 d**	Half-life = ca. 58 days

References

Primary Reference	:	**HOECH*** Hoechst AG, (1992)
Secondary Reference	:	**!SIDSP*** OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**PHOTODEGRADATION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Medium	:	**AQ**
Geographic Area	:	**SWE**

Test Results

General Comments	:	Chloroacetic acid does not absorb UV radiation above 290 nm appreciably and would not therefore photolyzes directly. It photodechlorinates very slowly in air-saturated solutions with <0.4% being converted to free chloride when irradiated for 11 hours in a laboratory photoreactor. The rate decreases after a few hours. Direct photodechlorination is much lower in the absence of oxygen. The presence of sensitizers such as p-cresol and tryptophan that generate superoxide radicals increas the rate of photodechlorination by up to 16-fold.

References

Primary Reference : **HSDBM***
EPA. Hazardous Substances Databank HSDB, (1992)

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

Study

End Point : **PHOTODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Medium : **AQ**
Geographic Area : **SWE**

Test Method and Conditions

Test method description : Photolysis in water; (abiotic); Hg-lamp, 253 nm.

Exposure

Dose / Concentration : **0.5 M**

Test Results

Quantity	*Time*	*Comments on result*
		Formation of Cl-, CO2, glycolic acid, acetic acid, formaldehyde and methane.

References

Primary Reference : **MOCMB7**
Neumann-Spallart, M. et al. Monatshefte fuer Chemie, 13, 101-105, (1979)

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

Study

End Point : **PHOTODEGRADATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Medium : **AQ**
Geographic Area : **SWE**

Test Method and Conditions

Test method description : Photolysis in water; (abiotic); Hg-lamp, 253 nm.

Exposure

Dose / Concentration : **1 M**

Test Results

Quantity	*Time*	*Comments on result*
		Formation of Cl-, CO2, and methylchloride.

References

Primary Reference : **RAREAE**
Baxter, J. N. et al. Radiation Research, 33, 303-310, (1968)

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

Study

End Point	:	**HYDROLYSIS**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Medium	:	**AQ**
Geographic Area	:	**SWE**

Test Method and Conditions

Test method description	:	30 days incubation. End point: formation of glycolic acid.
Temperature	:	**20-70 C**

Test Results

Quantity	*Time*	*Comments on result*
0.01 %		Hydrolysed at 20C
0.15 %		Hydrolysed at 50C
1 %		ca. 1% hydrolysed at 70C

References

Primary Reference	:	**HOECH*** Hoechst AG, (1992)
Secondary Reference	:	**!SIDSP*** OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**HYDROLYSIS**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Medium	:	**AQ**
Geographic Area	:	**SWE**

Test Method and Conditions

Test method description	:	Not specified

Test Results

Quantity	*Time*	*Comments on result*
		Formation of HCl, glycolic acid, glycolic acid monochloroacetate.

References

Primary Reference : **FCASC***
Dechamp, P. Formula 1 on Chloroacetic Acid and Sodium Chloroacetate, (1992)

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

Study

End Point	:	**SORPTION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Specifications	:	**SED SOIL**
Geographic Area	:	**SWE**

Test Results

General Comments : Chloroacetic acid would not adsorb appreciably to sediment. MCA has a very low log octanol/water partition coefficient, 0.22, and therefore would not be expected to adsorb appreciably to soil.

References

Primary Reference : **HSDBM***
EPA. Hazardous Substances Databank HSDB, (1992)

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

Study

End Point	:	**EVAPORATION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Medium	:	**AQ**
Geographic Area	:	**SWE**

Test Results

General Comments : MCA has a pKa of 2.86 and will be completely ionized at environmental pH's. Evaporation from water will therefore not be a significant loss process.

References

Primary Reference : **HSDBM***
EPA. Hazardous Substances Databank HSDB, (1992)

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

Study

End Point	:	**ABSORPTION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**

Test Subject

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

Species/strain/system : S-D rats

Test Results

General Comments : Monochloroacetic acid was rapidly absorbed through the skin of rats with absorption rate half-lives of less than 44 minutes.

References

Primary Reference : **DOWCH***
Hurst, G. H. and Watanabe, P. G. Dow Chemical Company Document, (1976)

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

Study

End Point	:	**DISTRIBUTION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**

Evaluations

Evaluation text :

OECD/SIDS Summary: In Sprague-Dawley rats administered an oral dose of 53 or 162 mg/kg 14C-monochloroacetate, concentrations of 14C were greater in the liver and kidney than in the plasma (Hayes et al., 1973). Levels of radioactivity in the heart and brain were similar to that in the plasma. Peak plasma levels of radioactivity were reached approximately 30 minutes after administration of the compound. At 17 hours, approximately 50% of the administered radioactive dose had been recovered in the urine. A whole-body autoradiography study with rats (Sprague-Dawley) given (1 14C)MCA(6.8 ug/100g BW) showed that after 1 hour 14C was extensively excreted into the small intestinal lumen. The radiolabel predominately accumulated in the brain, thymus, salivary glands and tongue after 1 hour. After 4 hours the liver and other organs started to eliminate radioactivity. In contrast, the central nervous system, thymus and pancreas started to accumulate radioactivity. Because low doses of MCA penetrate the blood-brain barrier, it is suggested that penetration is not dose-dependent. It is also suggested that MCA and/or its metabolites accumulate into the hydrophilic tissues at earlier time periods and into lipophilic tissues at later times (Bhat et al. 1990).

References

Secondary Reference :

!SIDSP*

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

Study

End Point	:	**BIOCONCENTRATION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Geographic Area	:	**SWE**

Test Subject

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

Test Results

General Comments	:	Chloroacetic acid has a very low log octanol/water partition coefficient, 0.22, and therefore would not be expected to bioconcentrate in fish.

References

Primary Reference	:	**HSDBM*** EPA. Hazardous Substances Databank HSDB, (1992)
Secondary Reference	:	**!SIDSP*** OECD/SIDS. Screening Information Data Set (SIDS) of OECD High Production Volume Chemicals Programme, (1994)

Study

End Point	:	**METABOLISM**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**

Evaluations

Evaluation text :

OECD/SIDS Summary: The metabolism of MCA has been characterised in the mouse following MCA administration by intraperitoneal injection (Yllner 1971a). Metabolites of MCA identified in the urine included S-carboxymethylcysteine (33%-43% free and 1%-6% conjugated), thiodiacetic acid (thiodiglycolic acid was found to be the major urinary metabolite of S-carboxymethylcysteine, and most of the glycolate was oxidized to carbon dioxide. The metabolism proceeds probably by enzymatic hydrolysis of the carbon-chlorine bond with the formation of glycolic acid . MCA also conjugates with GSH to form the S-carboxymethyl derivative of GSH, which is then converted to S-carboxymethyl cysteine. In wistar rats given 50 mg/kg MCA by gavage, thiodiglycolic acid was identified as the major urinary metabolite, accounting for 60% of the administered dose (Green and Hathway, 1975). A greater percentage of administered MCA was excreted as thiodiglycolic acid in rats than in mice; in both species most of the remainder of the dose was excreted as S-carboxymethylcysteine (Jones and Hathway, 1978). Hurst and Watanabe (1976) showed in preliminary pharmacokinetic studies with MCA in rats that MCA was rapidly metabolized, and detoxication by conjugation with glutathione appeared to be a major metabolic pathway.

References

Secondary Reference :

!SIDSP*

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

Study

End Point : **EXCRETION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Test Substance

Isotope : **14C**
Labelled Compound : **1-14C MCA**

Exposure

Exposure Type : **ACUTE**
Exposure Period : **1 x**
Dose / Concentration : **2 mg/kg BW**

Test Results

Organ	*Quantity*		*Time*	*Comments on result*
URINE	**82-88 %**	**TOT**	**3 d**	% of the administered dose excreted in the urine. Of the radiolabel recovered in the urine, 6-22% was present as the parent compound.
AIR	**8 %**	**TOT**	**3 d**	% of the administered dose eliminated in the expired air as CO2.
FECES	**<3 %**	**TOT**	**3 d**	% of the administered dose eliminated in the faeces.
	2-3 %	**TOT**	**3 d**	2% to 3% of the administered dose remained in the animal.

References

Primary Reference : **APTOA6**
Yllner, S. Acta Pharmacologica et Toxicologica, 30, 69-80, (1971)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Dose / Concentration : **100-300 mg/kg BW**

Test Method and Conditions

Test method description : Doses of 30, 100 or 300 mg/kg were applied. Vehicle/solvent: water. GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**ORL**			**LD50**	Oral LD50 for rats was established as 100-300 mg/kg body weight.

General Comments : Lethality was not affected for 100 or 300 mg/kg for MCA adjusted with NaOH to pH 6.5 compared with MCA unadjusted.

References

Primary Reference : **DOWCH***
Geisel, C. Dow Chemical Company Document, (1945)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Species/strain/system : Swiss-Webster mouse
Exposure Period : **1 x**
Dose / Concentration : **260 mg/kg BW**

Test Method and Conditions

Test method description : Doses from 0-800 mg/kg were tested. Purity: 99%. GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
MOUSE			**ORL**		**M**	**LD50**	LD50 was established as 260 mg/kg body weight.

General Comments : A small number of mice surviving doses of chloroacetic acid around the LD50 developed a front paw paralysis and brain damage. Single doses of 80, 118 or 174 mg/kg producted, "little or no" mortality in mice.

References

Primary Reference : **FAATDF**
Berardi, M. R. et al. Fundamental and Applied Toxicology, 9, 469-479, (1987)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Dose / Concentration : **300 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			**ORL**			**LD50**	LD50 was established as 300 mg/kg body weight.

References

Primary Reference : **PHMCAA**
Berardi, M. and Snyder, R. Pharmacologist, 25, 228, (1983)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Species/strain/system : Cavies
Dose / Concentration : **30-300 mg/kg BW**

Test Method and Conditions

Test method description : Chloroacetic acid was applied at doses of 10, 30, 100, 300 or 1000 mg/kg. Purity: 97.8%. GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
MAMM			**ORL**			**LD50**	Oral LD50 for cavies was established as 30-300 mg/kg body weight.

References

Primary Reference : **DOWCH***
Geisel, C. Dow Chemical Company Document, (1945)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Exposure Period : **4 h**
Dose / Concentration : **180 mg/m3 AIR**

Test Method and Conditions

Test method description : GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**IHL**			**LC50**	LC50 for rats was established as 180 mg/m3 for 4 hours exposure.

References

Primary Reference : **GTPZAB**
Maksimov, G. G. and Dubinina, O. N. Gigiena Truda i Professional'nye Zabolevaniya
(Labour Hygiene and Occupational Diseases), 18, 32, (1974)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Exposure Period : **1 h**
Dose / Concentration : **>259.5 mg/m3 AIR**

Test Method and Conditions

Test method description : GLP: no data
Temperature : **20 C**

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**IHL**			**LC50**	LC50 for rats was established as >259.5 mg/m3 (>66 ppm) for 1 hour exposure at 20C.

References

Primary Reference : **DOWCH***
Dow Chemical Company Document, (1992)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Species/strain/system : Wistar rats
Frequency : **1 x**
Dose / Concentration : **90.4 mg/kg BW**

Test Method and Conditions

Test method description : Doses of 0, 40, 63, 100 or 160 mg/kg were applied. vehicle/solvent: water. GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**ORL**		**F**	**LD50**	Oral LD50 for rats was establisehd as 90.4 mg/kg body weight.

References

Primary Reference : **HOECH***
Leist and Weigand. Hoechst AG, 232/79, (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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Frequency	:	**1 x**
Dose / Concentration	:	**277.5 mg/kg**

Test Method and Conditions

Test method description	:	GLP: no data

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**ORL**			**LD50**	Oral LD50 for rats was establisehd as 277.5 mg/kg body weight.

References

Primary Reference	:	**FAVUAI** Kurcatov, G. V. and Vasileva, Z. A. Fiziologicheski Aktvnye Veshchestva, 8, 55-58, (1976)
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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Species/strain/system	:	Wistar rats
Dose / Concentration	:	**305 mg/kg BW**

Test Method and Conditions

Test method description	:	Doses of 200, 280, 400 or 2000 mg/kg were applied. GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**SKN**		**M**	**LD50**	Dermal LD50 for rats was establisehd as 305 mg/kg body weight.

References

Primary Reference : **HOECH***
Leist and Weigand. Hoechst AG, 234/79, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Species/strain/system : Himalayan rabbits
Dose / Concentration : **250 mg/kg BW**

Test Method and Conditions

Test method description : Doses of 63, 125, 250 or 500 mg/kg were applied. GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RBT			**SKN**			**LD50**	Dermal LD50 for rabbits was calculated as 250 mg/kg body weight.

References

Primary Reference : **HOECH***
Leist and Weigand. Hoechst AG, 236/79, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Species/strain/system : Rabbit
Dose / Concentration : **178 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no data

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RBT			**SKN**			**LD50**	Dermal LD50 for rabbits was established as 178 mg/kg body weight.

References

Primary Reference : **BIBRT***
BIBRA Toxicity Profile, 43(19), (1972)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Dose / Concentration : **97 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**SCU**		**F**	**LD50**	Subcutaneous LD50 for female rats was established as 97 mg/kg body weight.

References

Primary Reference : **HOECH***
Leist and Weigand. Hoechst AG, 223/79, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Dose / Concentration : **269 mg/kg BW**

Test Method and Conditions

Test method description : GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
MOUSE			**IPR**		**F**	**LD50**	Intraperitoneal LD50 for female rats was established as 269 mg/kg body weight.

References

Primary Reference : **APTOA6**
Le Poidevin, N. Acta Pharmacologica et Toxicologica, 23, 98-102, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Species/strain/system : SD rats
Exposure Period : **24 h**
Dose / Concentration : **108 mg/kg BW**

Test Method and Conditions

Test method description : Test substance: TG MCA; GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
RAT			**SCU**			**LD50**	Subcutaneous LD50 for rats was established as 108 mg/kg body weight.

References

Primary Reference : **TXAPA9**
Hayes, F. D. et al. Toxicology and Applied Pharmacology, 26, 93-102, (1973)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Evaluations

Evaluation text : OECD/SIDS Summary: EXPERIENCE WITH HUMAN EXPOSURE: The Swedish Poison Information Centre (SPIC, 1986) considers the main risks of MCA to humans to be corrosion, and cardiac, renal and CNS toxicity. These conclusions are in part supported by the following synopsis. Adapted from NTP, 1992 Monochloroacetic acid is a strong irritant to the skin, eyes, and mucous membranes (Morrison and Leake, 1941; Sax, 1984) . Prolonged exposure of the skin results in corrosion (severe burns) but if the skin is quickly washed well only ruberfaction of the skin occurs (HSDB, 1993). Aqueous solutions of MCA at concentrations up to 1% produced no observable effect on human skin (Morrison and Leake, 1941). No adverse effects were detected in three human volunteers who drank 300 mL of a 0.05% water solution of MCA for 60 days (Morrison and Leake, 1941). (For the second part of the information see record No. 7200).

References

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Evaluations

Evaluation text : OECD/SIDS Summary: EXPERIENCE WITH HUMAN EXPOSURE: (Adapted from BIBRA, 1992). Vapours from MCA have apparently caused corneal epithelial injury (no further details given) (Knapp, 1923). On the basis of their pH, concentrated solutions would be expected to be eye irritants. An atmospheric concentration in air of 5.7 mg/m3 was said to be irritation threshold of the respiratory mucous membrane (Maksimov & Dubinina, 1974). Several incidents of human exposure have occurred from skin contact with either molten MCA or an 80% (aqueous) concentrated solution. The proportion of skin surface contaminated ranged from 5% to extensive, being most commonly about 10%. There was generally a latent period of at least one hour before any symptoms (including fall in blood pressure, signs of shock, increased and depressed respiration, convulsion, vomiting and diarrhoea) became evident (Anon, 1972; Taylor, 1987; Zeldenrust, 1951; EPA, 1969; Kusch et al., 1990; Ruty et al., 1987); Millischer et al., 1987). In some of these cases death occurred even though the skin was washed promptly and thoroughly (Christofano et al., 1970; Kulling et al., 1986; Zeldenrust, 1951; EPA, 1987; Mann, 1969; Millischer et al., 1987). In one case a worker survived after exposure to a dose expected to cause death (Kusch et al.,1990): the reason for this is unclear. Post-mortem showed a number of non-specific changes, mostly internal bleeding throughout the body (Taylor, 1987; Zeldenrust, 1951), the predominant target organs being the central nervous system, heart and kidneys (Kulling et al. 1986; Zeldenrust, 1951). Although some skin absorption occurred, spillage of hot, radiolabelled chloroacetic acid onto about 1 cm2 of the skin, followed immediate wash-off, produced no systemic toxic effects (Dancer et al., 1965). (For the first part of the information, see record No. 7199).

References

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Test Subject

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

Test Method and Conditions

Test method description : GLP: no data

UNS
Application of a 10% solution of MCA for mouse skin elicited (unspecified) toxic effects in 50% of the animals within 35 minutes.

References

Primary Reference : **GTPZAB**
Maksimov, G. G and Dubinina, O. N. Gigiena Truda i Professional'nye Zabolevaniya
(Labour Hygiene and Occupational Diseases), 18, 32, (1974)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Test Subject

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

Species/strain/system : Rat and mouse

Test Method and Conditions

Test method description : GLP: no data

Test Results

Toxicity of molten chloroacetic acid is characterized by a small amount of surface area exposure and short application time necessary to produce death in rat and mice.

References

Primary Reference : **DABBBA**
Berardi, M. Dissertation Abstracts International (Section) B: the Sciences and Engineering, 47, 2357-B, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Test Subject

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

Test Method and Conditions

Test method description : GLP: no data

Test Results

Application of 200 mg MCA/kg body weight to the skin of rats caused death.

References

Primary Reference : **PHMCAA**
Berardi, M. and Snyder, R. Pharmacologist, 25, 228, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**

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

Test Results

Fatalities among rabbits are expected when only 3% of the skin is exposed. Thorough washing after 1 minute contact did not decrease mortalities.

References

Primary Reference : **AIHAAP**
Christofano, E. F. et al. American Industrial Hygiene Association Journal, 31, 35, (1970)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

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 : Shaved belly skin of rabbits was exposed to approximately 0.5 mL of 75% solution of MCA for 5, 15, 30 and 60 seconds. GLP: no

Test Results

Skin necrosis after 30 seconds exposure

References

Primary Reference : **DOWCH***
Norris, J. M. Dow Chemical Company Document, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Test Subject

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

Species/strain/system : New Zealand rabbits

Test Method and Conditions

Test method description : MCA 77.5% was applied to 4% or 9% of total skin area for 5 (one animal) or 10 (3 or 5 animals) minutes and then washed off. GLP: no

Test Results

Body weights and liver weights had not returned to pre-test weight after 1 week for survivors in the 10 minutes group.

References

Primary Reference : **DOWCH***
Norris, J. M. Dow Chemical Company Document, (1970)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
GPIG			**IHL**			**18 TOT**	

Species/strain/system : Guinea pig

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure Type : **SHORT**
Exposure Period : **4 mo**
Dose / Concentration : **5.8-20.8 mg/m3 AIR**
Exposure comments : Guinea pigs were exposed to 5.8 or 20.8 mg/m3 chloroacetic acid.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
BW	**DECR**				
LUNG	**INFL**				
RBC	**BIOCH**				

Exposure to 20.8 mg/m3 MCA produced reduction in body weight , inflammation of the lungs, reduced blood haemoglobin levels, lowering of rectal temperature and decreased oxygen uptake.

ANS	**TEMP**
RESPI	**OXY**

A concentration of 5.8 mg/m3 caused milder toxic effects.

LOEL
LOEL: 5.8 mg/m3

General Comments : OECD/SIDS Comment: paper in Russian-unclear about some details.

References

Primary Reference : **GTPZAB**
Maksimov, G. G. and Dubinina, O. N. Gigiena Truda i Professional'nye Zabolevaniya
(Labour Hygiene and Occupational Diseases), 18, 32, (1974)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : B6C3F1 mice

Test Substance

Purity Grade : **99%**
Vehicle - Solvent : Water

Test Method and Conditions

Test method description : OECD-like; GLP: yes

Exposure

Exposure Type : **SHORT**
Exposure Period : **13 wk**
Dose / Concentration : **25-200 mg/kg BW**
Exposure comments : Chloroacetic acid was administered by gavage at doses of 0, 25, 50, 100, 150 or 200 mg/kg.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	DEATH				

Compound-related death occurred in the highest dose groups (200 mg/kg).

NEF

There were no compound-related changes in the various haematologic or clinical pathology parameters.

LIVER **STRUC**

Hepatocellular cytoplasmic vacuolization occurred in the 200 mg/kg group.

LIVER **BIOCH**

Cholinesterase levels were significantly decreased in female mice receiving 150 or 200 mg/kg. The decreased levels may have been a reflection of hepatic toxicity.

Compound-related histopathologic effects or changes in absolute and relative testis weight were not observed.

NOAEL

NOAEL: 100 mg/kg

References

Primary Reference : **!NTPSE***
National Toxicology Program. Technical Report Series, (1992)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : B6C3F1 mice

Test Substance

Purity Grade : **99%**
Vehicle - Solvent : Water

Test Method and Conditions

Test method description : OECD-like; GLP: no

Exposure

Exposure Type : **SHORT**
Exposure Period : **16 d**
Dose / Concentration : **15-480 mg/kg BW**
Exposure comments : Chloroacetic acid was administered by gavage at doses of 0, 15, (females only), 30, 60, 120, 240 or 480 (males only) mg/kg for 16 days.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	DEATH				

All females receiving 480 mg/kg and all male and female mice receiving 240 mg/kg died within two days.

BW	**INCR**

Male and female body weight was non-significantly increased.

EYE	**EXOC**
CNS	**MUSCL**
	BEHAV

Clinical findings in the mice that died included lacrimation , ataxia, hyperactivity, bradypnea, bradycardia, hypothermia , prostration, piloerection, decreased limb tone, and impaired grasping reflex.

RESPI	**RATE**
HEART	**RATE**
ANS	**TEMP**
-	**CONDI**
HAIR	**CHNG**
CNS	**FUNCT**

EYE	**EXOC**

Lacrimation was also observed in females receiving 120 mg/kg

References

Primary Reference : **!NTPSE***
National Toxicology Program. Technical Report Series, (1992)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
MOUSE			**ORL**		**M**	**6/GROUP**	**6**

Species/strain/system : B6C3F1 mice

Test Substance

Purity Grade : **>99%**
Vehicle - Solvent : Water

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure Type : **SHORT**
Exposure Period : **14 d**
Dose / Concentration : **265-482 mg/kg BW/d**
Exposure comments : Groups of mice received 0, 265, 386 or 482 mg/kg of chloroacetic acid in drinking water.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
BW	**NEF**				

Mice body and relative liver weights were not altered.

NEF

Proliferation of peroxisomes did not occur.

NOEL

NOEL: 482 mg/kg

References

Primary Reference : **TXAPA9**
De Angelo, A. B. et al. Toxicology and Applied Pharmacology, 101, 285-298, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**ORL**		**M**		
					F		

Species/strain/system : F344 rats

Test Substance

Purity Grade : **99%**
Vehicle - Solvent : Water

Test Method and Conditions

Test method description : OECD-like; GLP: yes

Exposure

Exposure Type : **SHORT**
Exposure Period : **13 wk**
Dose / Concentration : **30-150 mg/kg BW**
Exposure comments : Chloroacetic acid (MCA) was administered by gavage at doses of 0, 30, 60, 90, 120 or 150 mg/kg for 13 weeks.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	DEATH				

Compound-related death occurred in the three highest dose groups (90, 120 or 150 mg/kg).

BLOOD	**BIOCH**				

A significant dose-related increases in blood urea nitrogen, alanine aminotransferase, and aspartate aminotransferase ocuurred in male and female rats receiving 90-150 mg/kg and 60-150 mg/kg, respectively.

LIVER	**SIZE**				
KIDNY	**SIZE**				

Relative liver and kidney weights were elevated.

HEART	**STRUC**				

A dose-related increase in the indcidence and severity of cardiomyopathy occurred.

LIVER	**BIOCH**			**M**	

Cholinesterase levels were significantly lower in males receiving 90 mg/kg MCA for 8 weeks and in males receiving 30 or 60 mg/kg for 13 weeks. The decreased levels may have been a reflection of hepatic toxicity.

GONAD	**NEF**			**M**	

Compound-related histopathologic effects or changes in absolute and relative testis weights were not observed.

	NOEL				

NOEL: <30 mg/kg

References

Primary Reference : **!NTPSE***
National Toxicology Program. Technical Report Series, (1992)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**ORL**		**M**		
					F		

Species/strain/system : F344 rats

Test Substance

Purity Grade : **99%**
Vehicle - Solvent : Water

Test Method and Conditions

Test method description : OECD-like; GLP: no

Exposure

Exposure Type : **SHORT**
Exposure Period : **16 d**
Dose / Concentration : **7.5-120 mg/kg BW**
Exposure comments : Chloroacetic acid was administered by gavage at doses of 0, 7.5, 15, 30, 60 or 120 mg/kg by gavage for 16 days.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
BW	**INCR**			**M**	

Final mean body weight increased (13%) for male rats in the high dose group (120 mg/kg).

-	**DEATH**		**4 H**	**M**
EYE	**EXOC**			
	CONDI			

One male rat died in the 120 mg/kg group and exhibited increased lacrimation, prostration, bradypnea, decreased limb tone, ataxia and an impaired grasping reflex within 4 hours after dosing.

RESPI	**RATE**			
SON	**FUNCT**			
CNS	**MUSCL**			

Lacrimation was also observed in other groups (60 or 120 mg/kg in males; 15 to 120 mg/kg in females).

References

Primary Reference : **!NTPSE***
National Toxicology Program. Technical Report Series, (1992)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**IHL**			**75 TOT**	

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure Type : **SHORT**
Exposure Period : **4 mo**
Dose / Concentration : **5.8-20.8 mg/m3 AIR**
Exposure comments : Rats were exposed to 5.8 or 20.8 mg/m3 chloroacetic acid.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
BW	**DECR**				
LUNG	**INFL**				
RBC	**BIOCH**				

Exposure to 20.8 mg/m3 MCA produced reduction in body weight , inflammation of the lungs, reduced blood haemoglobin levels, lowering of rectal temperature and decreased oxygen uptake.

ANS	**TEMP**
RESPI	**OXY**

A concentration of 5.8 mg/m3 caused milder toxic effects.

LOEL

LOEL: 5.8 mg/m3

General Comments : OECD/SIDS Comment: paper in Russian-unclear about some details.

References

Primary Reference : **GTPZAB**
Maksimov, G. G. and Dubinina, O. N. Gigiena Truda i Professional'nye Zabolevaniya
(Labour Hygiene and Occupational Diseases), 18, 32, (1974)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT			**ORL**		**M**	**5**	**5**

Species/strain/system : Sprague-Dawley rats

Test Substance

Purity Grade : **>99%**
Vehicle - Solvent : Water

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure Type : **SHORT**
Exposure Period : **90 d**
Dose / Concentration : **29 mg/kg BW**
Exposure comments : Rats received 0 or 29 mg/kg of chloroacetic acid in drinking water for 90 days.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
LIVER	**SIZE**				
BW	**NEF**				

Absolute liver weight decreased by about 10%; however, body weight and relative liver weights did not change.

LIVER	**BIOCH**				
LIVER	**CHNG**				

Minimal collagen deposition and minimal to mild portal vein dilatation/extension occurred in the liver.

GONAD	**NEF**				

Histopathologic effects on changes in absolute and relative testes weight were not observed.

	LOEL				

LOEL: 170 mg/kg

References

Primary Reference : **FAATDF**
Bhat, H. K. et al. Fundamental and Applied Toxicology, 17, 240-253, (1991)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RAT					**M**	**6/GROUP**	**6**

Species/strain/system : Sprague-Dawley rats

Test Substance

Purity Grade : **99%**
Vehicle - Solvent : Water

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure Type : **SHORT**
Exposure Period : **14 d**
Dose / Concentration : **170-501 mg/kg BW**
Exposure comments : Groups of rats received 0, 170, 321 or 501 mg/kg of chloroacetic acid in drinking water.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
BW	**DECR**				
LIVER	**SIZE**				

Rat body weights and relative liver weights were dose-dependently decreased from the lowest dose tested.

NEF

Proliferation of peroxisomes did not occur.

LOEL

LOEL: 170 mg/kg

References

Primary Reference : **TXAPA9**
De Angelo, A. B. et al. Toxicology and Applied Pharmacology, 101, 285-298, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
RAT			**ORL**		**M**	**6/GROUP**	**6**

Species/strain/system : Wistar rats

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure Type : **LONG**
Exposure Period : **208 d**
90 d
Dose / Concentration : **5-100 mg/kg**
Exposure comments : Oral feed of rats with 0, 5, 13, 25, 50 or 100 mg/kg for 208 days and oral feed with 0 or 100 mg/kg for 90 days.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
LIVER	**BIOCH**			**M**	

Liver glycogen increased in MCA treated rats (90 days treatment at 100 mg/kg).

BW	**DECR**			**M**	

Body weight decreased in the 100 mg/kg group treated for 208 days.

	NEF			**M**	

A microscopic examination of most of the major organs including testes (but not brain) revealed no abnormalities.

NOEL
LOEL

NOEL: 50 mg/kg; LOEL: 100 mg/kg

General Comments : OECD/SIDS Comment: effects on liver glycogen were not determined at doses lower than 100 mg/kg.

References

Primary Reference : **AIPTAK**
Fuhrman, F. A. et al. Archives Internationales de Pharmacodynamie et de Therapie, 102, 113-125, (1955)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Test Subject

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

Species/strain/system : Rabbit

Test Method and Conditions

Test method description : Exposure to chloroacetic acid vapours. GLP: no data

Exposure

Exposure Period : **1 mi**

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
	NEF				

A one-minute exposure to chloroacetic acid vapours did not produce any fatalities in rabbits.

References

Primary Reference : **AIHAAP**
Christofano, E. F. et al. American Industrial Hygiene Association Journal, 31, 35, (1970)

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

Study

End Point	:	**BIOCHEMICAL INTERACTIONS**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**

Evaluations

Evaluation text	:	OECD/SIDS Summary: Interactions with biological components include covalent binding to proteins and lipids, conjugation with low molecular weight thiols, decreased sulfhydryl concentration in the rat liver and kidney, and inhibition of enzymatic activities by interaction with sulfhydryl groups e.g. pyruvate carboxylas e, the tricarboxylate cycle by uncompetitive inhibition of aconitase or by direct binding with glutathione S-transferase.

References

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

Study

End Point : **CARCINOGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**

Evaluations

Evaluation text : OECD/SIDS Summary: Excerpts from NTP, 1992: In recent studies conducted by the NTP, there was no evidence of carcinogenic activity for MCA in male or female F344/N rats given 15 or 30 mg/kg for 2 years by gavage (NTP, 1992).There was also no evidence of carcinogenic activity for MCA in male or female B6C3F1 mice given 50 or 100 mg/kg. Monochloroacetic acid was not carcinogenic to B6C3F1 mice or B6CAKF1 mice when applied subcutaneously at a dose of 100 mg/kg per day or given by gavage (46.4 mg/kg per day) for 3 weeks and in the feed at a higher concentration (149 mg/kg per day) for an additional 78 weeks (Innes and Ulland, 1968). Because a small number of animals was used (18 animals/sex per strain) and because the study duration was short (82 weeks), this study would be considered inadequate by current standards.

References

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**

Evaluations

Evaluation text : OECD/SIDS Summary: NON-BACTERIAL TEST IN VIVO: There is one report of the induction of cytogenetic abnormalities in bone marrow and sperm cells of Swiss mice exposed by intraperitoneal injection to doses of 125, 250, or 500 mg/kg MCA (Bhunya & Behera, 1987; and Bhunya & Das, 1987); these data are considered, by the NTP, difficult to interpret, due to the description of experimental methods used in the study and the classification of the abnormalities (NTP, 1992). Information in an abstract on MCA gave no evidence of sex-linked lethal mutation in the fruit fly, Drosophila melanogaster (Bartsch, 1977). NTP, 1992; Bhunya & Das, 1978; Bhunya & Behera, 1987; Bartsch, 1977.

References

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : Salmonella typhimurium TA1535/pSK 1002

Test Method and Conditions

Test method description : umu test; GLP: no

Exposure

Dose / Concentration : **330 ug/mL**
Exposure comments : Test with and without metabolic activation with S-9.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative results for mutagenicity with and without metabolic activation.

References

Primary Reference : **MUREAV**
Nakamura, S. et al. Mutation Research, 192, 239-246, (1987)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : S. typhimurium TA1535

Test Method and Conditions

Test method description : Assay for gene mutation; GLP: no

Exposure

Dose / Concentration : **9.45-47250 mg/L**
Exposure comments : Concentrations 0.1-500 mM were tested (3 plates/concentration) without metabolic activation.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result for genotoxicity

	CELL				

Cytotoxic at >10 =< 500 mM

References

Primary Reference : **CBINA8**
Ranung, U. et al. Chemico-Biological Interactions, 12, 251-263, (1976)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : S. typhimurium TA98, TA100, TA1535, TA1537

Test Method and Conditions

Test method description : Assay for gene mutation; GLP: no

Exposure

Dose / Concentration : **0.8-1000 ug/ PLATE**
Exposure comments : Concentrations of 0.8-500 ug/plate without metabolic activation and 0.8-1000 ug/plate with metabolic activation were used. (4 plates/concentration).

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative results for mutagenicity with and without metabolic activation.

References

Primary Reference : **HOECH***
Engelbart, K. Hoechst AG, 474/79 A, (1979)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : S. typhimurium TA1530

Test Substance

Purity Grade : **TG**

Test Method and Conditions

Test method description : Assay for gene mutation; GLP: no

Exposure

Dose / Concentration : **104-10206 ug/ PLATE**
Exposure comments : Test with and without metabolic activation.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
	NEF				

Negative results for genotoxicity with and without metabolic activation.

CELL

Cytotoxic at >104 =<1206 ug/plate

References

Primary Reference : **IJCNAW**
Bartsch, H. et al. International Journal of Cancer, 15, 429-437, (1975)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : S. typhimurium TA98, TA100, TA1535, TA1537

Test Substance

Purity Grade : **99%**

Test Method and Conditions

Test method description : Assay for gene mutation; GLP: no data

Exposure

Dose / Concentration : **10-3333 ug/ PLATE**
Exposure comments : Test with and without metabolic activation.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result for mutagenicity with and without metabolic activation.

References

Primary Reference : **ENMUDM**
Mortelmans, K et al. Environmental Mutagenesis, 8, 1-119, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : S. typhimurium TA98, TA100, TA1535, TA1537

Test Method and Conditions

Test method description : Assay for gene mutation; GLP: no

Exposure

Dose / Concentration : **<1000-1000 ug/ PLATE**
Exposure comments : Test with and without metabolic activation.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result for mutagenicity with and without metabolic activation.

References

Primary Reference : **PNASA6**
McCann, J. et al. Proceedings of the National Academy of Sciences of the United States of America, 72, 5135-39, (1975)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : E. coli WP2 (wild type), WP100 (uvrA-recA-)

Test Method and Conditions

Test method description : Assay for gene mutation; GLP: no

Exposure

Dose / Concentration : **<4000-4000 ug/ PLATE**
Exposure comments : Test with and without metabolic activation.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result for mutagenicity with and without metabolic activation.

References

Primary Reference : **MUREAV**
Mamber, S. W. et al. Mutation Research, 119, 135-144, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : S. typhimurium TA98, TA100, TA1535, TA1537, TA1538

Test Method and Conditions

Test method description : Assay for gene mutation; GLP: no

Exposure

Dose / Concentration : **0.5-1000 ug/ PLATE**
Exposure comments : Test with and without metabolic activation.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result for mutagenicity with and without metabolic activation.

References

Primary Reference : **#DOWCH***
Simmon, V. F. Dow Chemical Company Document, (1976)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : Saccharomyces cerevisiae D3

Test Method and Conditions

Test method description : Not specified; GLP: no data

Exposure

Exposure comments : Test with and without metabolic activation. Concentrations not given.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
GENE	**MUT**				

Weakly positive with and without metabolic activation.

References

Primary Reference : **#DOWCH***
Simmon, V. F. Dow Chemical Company Document, LSC-4378, (1976)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : Chinese hamster V79-cells

Test Substance

Purity Grade : **TG**

Test Method and Conditions

Test method description : HGPRT assay; GLP: no

Exposure

Dose / Concentration : **<198.45-198.45 ug/mL**
Exposure comments : Test without metabolic activation.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
	NEF				

Negative result for mutagenicity

References

Primary Reference : **IJCNAW**
Hubberman, E. et al. International Journal of Cancer, 16, 639-644, (1975)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
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 : Chromosomal Aberration in vitro test; GLP: no data

Exposure

Dose / Concentration : **50-500 ug/mL**
Exposure comments : Test without metabolic activation with S-9.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
	NEF				

Negative result for chromosomal aberration with and without metabolic activation.

References

Primary Reference : **EMMUEG**
Galloway, S. M. et al. Environmental and Molecular Mutagenesis, 10, 1-175, (1987)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
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 (SCE) test; GLP: no data

Exposure

Dose / Concentration : **50-1600 ug/mL**
Exposure comments : Concentrations of 50-500 ug/mL or 50-1600 ug/mL were used without or with metabolic activation, respectively.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result with metabolic activation.

CHROM	**RECOM**

A dose-related increase in sister chromatid exchange was observed without metabolic activation (S-9).

References

Primary Reference : **EMMUEG**
Galloway, S. M. et al. Environmental and Molecular Mutagenesis, 10, 1-175, (1987)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : Chinese hamster cell line, CHL

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : Sister Chromatid Exchange (SCE) test; GLP: no

Exposure

Dose / Concentration : **60-250 ug/mL**
Exposure comments : Test with and without metabolic activation (S-9).

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result in SCE test with and without metabolic activation.

References

Primary Reference : **MUREAV**
Sawada, M. et al. Mutation Research, 187, 157-163, (1987)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : Chinese hamster cell line, CHL

Test Substance

Purity Grade : **>99%**

Test Method and Conditions

Test method description : Chromosomal Aberration (CA) test; GLP: no

Exposure

Dose / Concentration : **60-500 ug/mL**
Exposure comments : Test with and without metabolic activation.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative results in CA test with and without metabolic activation.

	CELL				

Cytotoxic at 500 ug/mL with metabolic activation.

References

Primary Reference : **MUREAV**
Sawada, M. et al. Mutation Research, 187, 157-163, (1987)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : Mouse lymphocytes L5178YTK+/-

Test Substance

Purity Grade : **99%**

Test Method and Conditions

Test method description : Assay for gene mutation; GLP: no data

Exposure

Dose / Concentration : **139-1048 ug/mL**
Exposure comments : Test with metabolic activation

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
GENE	**MUT**				

Positive result for mutagenicity with metabolic activation.

References

Primary Reference : **MUREAV**
Amacher, D. E. and Turner, G. N. Mutation Research, 97, 49-65, (1982)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : Mouse lymphocytes L5178YTK+/-

Test Method and Conditions

Test method description : Assay for gene mutation; GLP: no data

Exposure

Dose / Concentration : **31.25-800 ug/mL**
Exposure comments : Test with metabolic activation (S9).

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
GENE	**MUT**				

Positive result for gene mutation without metabolic activation.

CELL	

Cytotoxic at 125-800 ug/mL without metabolic activation.

References

Primary Reference : **ENMUDM**
McGregor, D. B. et al. Environmental Mutagenesis, 9, 143-160, (1987)

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

Study

End Point : **MUTAGENICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**

Test Subject

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

Species/strain/system : Mouse embryo fibroblast

Test Method and Conditions

Test method description : Screening test; GLP: no data

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result for mutagenicity

References

Primary Reference : **BGCHE***
Sonnenfield, G. et al. BG Chemie Datenkatalog, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : Bone marrow cells of CD rats

Test Method and Conditions

Test method description : Unscheduled DNA synthesis (UDS); DNA damage and repair; GLP: no

Exposure

Dose / Concentration : **1.5-151.2 ug/mL**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Negative result for mutagenicity in UDS test

References

Primary Reference : **TXAPA9**
Gross, B. J. et al. Toxicology and Applied Pharmacology, 64, 557-565, (1982)

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

Study

End Point : **NEUROTOXICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**

Evaluations

Evaluation text : The neurotoxic potential of MCA was demonstrated in Swiss-Webster mice when front paw rigidity was observed in animals that survived an oral LD50 dose of 260 mg/kg (Berardi et al., 1987). Furthermore, because concentrations of intravenously administered 14C-inulin or 3H-dopamine were greater in brains of dosed animals than in controls, it was suggested that MCA impairs the functional integrity of the brain microvasculature. Various compounds including phenobarbital administered at least 24 hours before MCA treatment did not have an antidotal effect. A whole-body autoradiography study with rats (Sprague-Dawley) given (14C)MCA(6.8 ug/100 g body weight) showed that 14C accumulated in the brain after 1 hour and central nervous system after 4 hours. Because low doses of MCA penetrate the blood-brain barrier, it is suggested that penetration is not dose dependent. It is also suggested that MCA and/or its metabolites accumulate into the hydrophilic tissues at earlier time periods and into lipophilic tissues at later times (Bhat et al., 1990). Mitroka showed that dichloroacetic acid and phenobarbital (administered 15 minutes after MCA, compare Berardi et al., 1987) have a antidote effect to MCA (LD80; 80 mg/kg, i.v.) in male rats (Sprague-Dawley). Similar effects were observed in male mice (Swiss-Webster). In the rat, protection was associated with decreased levels of cerebrospinal fluid lactate concentration. In contrast, the antidote treatments did not alter the concentrations of MCA in the cerebrospinal fluid, extent of covalent binding to brain proteins, or alter blood-brain barrier permeability in the rat (Mitroka, 1989).

References

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

Study

End Point : **SENSITIZATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
RBT			**SKN**				
GPIG			**SKN**				

Species/strain/system : Rabbit, guinea-pig

Test Method and Conditions

Test method description : Open epicutaneous test; GLP: no

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NEF				

Not sensitizing

References

Primary Reference : **GTPZAB**
Maksimov, G. G. and Dubinina, O. N. Gigiena Truda i Professional'nye Zabolevaniya
(Labour Hygiene and Occupational Diseases), 18, 32, (1974)

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

Study

End Point : **IRRITATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
MOUSE			**SKN**		**M**		

Species/strain/system : ICR/Ha Swiss mice

Test Substance

Purity Grade : **AG**

Test Method and Conditions

Test method description : GLP: no data

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
SKIN	**IRRIT**				

Repeated application of 2% MCA in acetone during 4-weeks produced only minimal irritation.

References

Primary Reference : **JNCIAM**
Van Duuren, B. L. et al. Journal of the National Cancer Institute (United States), 53, 695-700, (1974)

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

Study

End Point : **IRRITATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : Albino Himalayan rabbits

Test Method and Conditions

Test method description : GLP: no

Test Results

Lethal with 500 mg/0.05 mL for 24 hours.

References

Primary Reference : **HOECH***
Leist and Weigand. Hoechst AG, 235/79, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : Albino Himalayan rabbits

Test Method and Conditions

Test method description : GLP: no

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
SKIN	**COR**				

Corrosive with 100 mg/kg body weight for 24 hours.

References

Primary Reference : **HOECH***
Leist and Weigand. Hoechst AG, 235/79, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
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

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
SKIN	**IRRIT**				

Hyperemia and light oedema with 10% solution.

References

Primary Reference : **BGCHE***
Rodionova, R. P. and Ivanov, N. G. BG Chemie Datenkatalog, 15, 58-63, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
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

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
SKIN	**COR**				
SKIN	**IRRIT**				

Highly corrosive with concentrated MCA. Irritating with 0.05% MCA.

References

Primary Reference : **GTPZAB**
Maksimov, G. G. and Dubinina, P. N. Gigiena Truda i Professional'nye Zabolevaniya
(Labour Hygiene and Occupational Diseases), 18, 32, (1974)

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

Study

End Point : **IRRITATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
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

Test Results

Lethal with 3% MCA

References

Primary Reference : **AIHAAP**
Christofano, E. F. et al. American Industrial Hygiene Association Journal, 31, 35, (1970)

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

Study

End Point : **IRRITATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Test Subject

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

Species/strain/system : Albino Himalayan rabbits

Test Method and Conditions

Test method description : GLP: no data

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
EYE	**COR**				

Highly corrosive with 100 mg/0.01 mL.

References

Primary Reference : **HOECH***
Leist and Weigand. Hoechst AG, 235/79, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
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

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
EYE	**IRRIT**				

Highly irritant with concentrated solution: produced severe conjunctival burns.

References

Primary Reference : **GTPZAB**
Maksimov, G. G. and Dubinina, O. N. Gigiena Truda i Professional'nye Zabolevaniya
(Labour Hygiene and Occupational Diseases), 18, 32, (1974)

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

Study

End Point : **IRRITATION**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
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 : Propylene glycol

Test Method and Conditions

Test method description : GLP: no

Exposure

Exposure comments : Chloroacetic acid (MCA) 1, 10 or 50% in propylene glycol was applied to the eye and either washed (exposure time not stated) or unwashed.

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
EYE	**IRRIT**				
EYE	**COR**				

Conjunctival irritation and corneal damage with 10 or 50% MCA and a trace of conjunctival irritation, completely healed within 24 hours with 1% MCA (washed eye).

References

Primary Reference : **DOWCH***
Wolf, M. A. Dow Chemical Company Document, (1954)

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

Study

End Point	:	**REPRODUCTION**
Chemical Name	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**

Evaluations

Evaluation text	:	OECD/SIDS Comment: Data not available. It is considered that there are suitable supporting studies to fill this data element requirement: compound-related histopathologic effects or changes in absolute and relative testis weight were not observed in different Repeated Dose Toxicity studies: 13- week study with rats (F344 and mice/B6C3F1 (NTP,1992); a 90- day study with rats (Bhat et al., 1991) a 208-day study with rats/SD (Fuhrman et al., 1955) or a 90-day study with sodium monochloroacetate in rats/SD.

References

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

Study

[redacted]

End Point : **AQUATIC ACUTE TOXICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**

Species/strain/system : Fathead minnow (Pimephales promelas rofinesque)

Test Method and Conditions

Test method description : Semi-static; GLP: no

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
FISH	**AQ**	**FRESH**				**LC50**	LC50 for 96 hours = 145 mg/L.

General Comments : The acid form was more toxic than the salt form in acute studies with fish. This difference is probably a pH effect.

References

Primary Reference : **#DOWEU***
McCarty, W. M. et al. Dow Europe. Unpublished Report or Communications, (1977)

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

Study

[redacted]

End Point : **AQUATIC ACUTE TOXICITY**
Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**

Species/strain/system : Poecilia reticulata

Test Method and Conditions

Test method description : Static

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
FISH	**AQ**	**FRESH**				**LC50**	LC50 for 96 hours = 370 mg/L.

General Comments : Test substance = MCA (it is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

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

Species/strain/system : Limoria (Arthropoda)

Test Substance

Description of the test substance : MCA

Test Method and Conditions

Test method description : 100 hours exposure

Exposure

Exposure Period : **100 h**

Test Results

50% increase

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa=2.8).

References

Primary Reference : **ECDIN***
Environmental Chemicals Data and Information Network (ECDIN), (1991)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

General Comments : AQUATIC FATE: When released into water, chloroacetic acid will be mineralized (73% in 8-10 days). It will not adsorb appreciably to sediment.

References

Primary Reference : **HSDBM***
EPA. Hazardous Substances Databank HSDB, (1992)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
MOLL	**AQ**	**MARIN**					

Species/strain/system : Mollusc (Teredo diegensis)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : 72-hour exposure

Exposure

Exposure Period : **72 h**

Test Results

100% increase at concentration >50 mg/L.

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **ECDIN***
Environmental Chemicals Data and Information Network (ECDIN), (1991)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

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

Species/strain/system : Epeorus assimilis

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Not specified

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	LOEC - BEHAV				

LOEC (immobilisation) = 25 mg/L

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8). Report only in Swedish.

References

Primary Reference : **MOTDW***
Walterson, E. et al. Monoklorattiksyra : Toxikologisk Dokumentation Samt Preliminar Bedomning av Effekter i Recipienten Inst. for Vatten- och Luftvardsforskning, R 41/80, (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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
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 Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Test solution is neutralized before use.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---
	POPUL BIOMA				

EC3 = 0.13 mg/L. EC3 = toxisch Grenzkonzentration 3%...." (as cited in the document).

General Comments : This test is conducted at a pH> pKa (= 2.8). Hence, tested substance is the salt form rather than the free acid. Algae were the most sensitive aquatic species to MCA/SMCA.

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
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 subspicatus)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Cell Multiplication Inhibition Test, DIN 38412, part 9, 1988. End point: biomass determination.

pH : **8.1-9.6**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---

EC10
BIOMA

EC10 for 48 hours = 0.007 mg/L (biomass determination)

EC50
BIOMA

EC50 for 48 hours = 0.028 mg/L (biomass determination)

EC10
BIOMA

EC10 for 48 hours = 0.014 mg/L (growth rate determination)

EC50
BIOMA

EC50 for 48 hours = 0.07 mg/L (growth rate determination)

General Comments : This test is conducted at a pH> pKa (= 2.8). Hence, tested substance is the salt form rather than the acid form. Algae were the most sensitive aquatic species to MCA/SMCA.

References

Primary Reference : **WATRAG**
Kuhn, R. et al. Water Research, 24(1), 31-38, (1990)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
CRUS	**AQ**	**FRESH**					

Species/strain/system : Water flea (Daphnia magna)

Test Substance

Description of the test substance : MCA (acid + salt from)

Test Method and Conditions

Test method description : Not specified

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	EC50				

EC50 for 24 hours = 79 mg/L. No neutralization (acid form).

	EC50				

EC50 for 24 hours = 427 mg/L. Neutralization (salt form).

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
CRUS	**AQ**	**FRESH**					

Species/strain/system : Water flea (Daphnia magna)

Test Substance

Purity Grade : **99%**

Test Method and Conditions

Test method description : GLP: no

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	EC50				
	BEHAV				

EC50 for 48 hours = 75 mg/L (for immobilization).

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **#DOWEU***
McCarty, W. M. et al. Dow Europe. Unpublished Report or Communications, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
CRUS	**AQ**	**FRESH**					

Species/strain/system : Water flea (Daphnia magna)

Test Method and Conditions

Test method description : ISO 6341

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	EC50				

EC50 for 24 hours = 180 mg/L

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **ACHEM***
Bautonett, J. C. ATOCHEM, (1988)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
CRUS	**AQ**	**FRESH**					

Species/strain/system : Water flea (Daphnia magna)

Test Method and Conditions

Test method description : Semi-static; 21-day exposure. The test solution is neutralized before use. Effect parameters: reproduction, mortality and the time for the first appearance of offspring. Provisional procedure 1st Jan. 1984, West Germany.

Exposure

Exposure Period : **21 d**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NOEC				

NOEC for 21 days = 32 mg/L

General Comments : The test is conducted at a pH>pKa (= 2.8). Hence, tested substance is the salt form rather than the free acid.

References

Primary Reference : **WATRAG**
Kuhn, R. et al. Water Research, 23(4), 501-510, (1989)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
CRUS	**AQ**	**FRESH**					

Species/strain/system : Shrimp Gammarus pulex (Arthropoda)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Not specified

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
	BEHAV				

Pertubation concentration = 30 mg/L

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **ERIMS***
Meinck, F. et al. Les Eaux Residuaires Industrielles, 2nd ed., (1970)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**

Test Subject

Organism	Medium	Specification	Route	Lifestage	Sex	Number exposed	Number controls
FISH	**AQ**	**ESTUA**					

Species/strain/system : Rainbow trout (Oncorhynchus mykiss)

Test Method and Conditions

Test method description : Sublethal effect parameter

Test Results

Organ	Effect	Rev.	OnSet	Sex	Affected in Exposed - Controls
	LOEC				

LOEC (lowest observed effect concentration) = 20 mg/L

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8). Report only in Swedish.

References

Primary Reference : **MOTDW***
Walterson, E. et al. Monoklorattiksyra : Toxikologisk Dokumentation Samt Preliminar Bedomning av Effekter i Recipienten Inst. for Vatten- och Luftvardsforskning, R 41/80, (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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
FISH	**AQ**	**FRESH**		**EGG** **JUV**			

Species/strain/system : Zebrafish (Branchydanio reiro)

Test Substance

Description of the test substance : Salt form

Test Method and Conditions

Test method description : Internal test method by AKZO, embryo-development test; semi-static (renewal enery 48 hours). pH of the test medium is adjusted to 7.75 before use. End point: survival (egg and fish development).

pH : **7.75**

Exposure

Exposure Period : **12 d**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	NOEC				

NOEC = 320 mg/L

BONE	**STRUC**				
REPRO	**CHNG**				
EGG	**CHNG**				

At 560 mg/L, the following effects were observed: difficulties at hatching, spinal deformations.

	DEATH				

High lethality

General Comments : Analytical montoring: no. This test is conducted at a pH>pK (= 2.8). Hence, tested substance is the salt form rather than the free acid.

References

Primary Reference : **#AKZOB***
Bepaling van de Toxiciteit voor Waterdirren. Interne Sop CRL-T37 : Test met Zebravisen, Embryonale Ontwikkeling. AKZO Internal Report, (1985)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
FISH	**AQ**	**MARIN**					

Species/strain/system : Three species of fish: Sea lamprey (Pteramyzon marinus); Rainbow trout (Oncorhynchus mykiss); Bluegill sunfish (Lepomis macrochirus)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Effect parameters: stress, 24 hours exposure.
Temperature : **13 C**
pH : **7.5-8.2**

Exposure

Exposure Period : **24 h**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---
	EC				

Effect concentration = 5.0 mg/L

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence, tested substance should be the salt form rather than the free acid.

References

Primary Reference : **AQUIR***
US EPA. AQUIRE. Aquatic Toxicity Information Retrieval Data Base, (1993)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
FISH	**AQ**	**FRESH**					

Species/strain/system : Carp (Cyprinus carpio)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Diet exposure (force fed). End point: lethality concentration.
pH : **6.7**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	DEATH				

Lethal concentration for <3 hours = 177 mg/kg

DEATH

Lethal concentration for 28 hours = 191 mg/kg

DEATH

Lethal concentration for <54 hours = 196 mg/kg

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence, tested substance should be the salt form rather than the free acid.

References

Primary Reference : **AQUIR***
US EPA. AQUIRE. Aquatic Toxicity Information Retrieval Data Base, (1993)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
FISH	**AQ**	**FRESH**					

Species/strain/system : Carp (Cyprinus carpio)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Not specified

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	BEHAV				

Pertubation concentration = 14 mg/L

Critical threshold = 65 mg/L

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **ERIMS***
Meinck, F. et al. Les Eaux Residuaires Industrielles, 2nd ed., (1970)

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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Geographic Area	:	**SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
FISH	**AQ**	**FRESH**					

Species/strain/system : Trutta iridea

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Not specified

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---
	BEHAV				

Pertubation concentration = 20 mg/L

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **ERIMS***
Meinck, F. et al. Les Eaux Residuaires Industrielles, 2nd ed., (1970)

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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Geographic Area	:	**SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
FISH	**AQ**	**FRESH**					

Species/strain/system : Golden orfe (Leuciscus idus)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : DIN 38412 part 15; static; GLP: no

Exposure

Exposure comments : No data on exposure duration.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---
	LC0				

LC0 = 5 mg/L. (Effect parameter reported as CL0).

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Geographic Area	:	**SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
FISH	**AQ**	**FRESH**					

Species/strain/system : Golden orfe (Leuciscus idus)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : OECD Guideline 203 (version 4 April 1984); static

Temperature : **3.8-8.7**

Exposure

Dose / Concentration : **1-500 mg/L**

Exposure comments : ph 8.3 - 8.7 in 1-100 mg/L; 3.8 in 500 mg/L.

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---

LC0

LC0 for 96 hours = 100 mg/L.

LC50

LC50 for 96 hours = 100 - 500 mg/L.

LC100

LC100 for < 3 hours = 500 mg/L.

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8). The information related to exposure comment is also cited in the following reference: Aufgrund makroscapischer Befunde ist der Tod der Tiere auf den niedrigen pH-Wert zurueckzufuehren. Exposure comment: pH 8.3-8.7 in 1-100 mg/L; in 500 mg/L.

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
INSEC	**AQ**	**FRESH**					

Species/strain/system : Midge (Chironomus pulmosus)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Not specified

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	BEHAV				

Pertubation concentration = 140 mg/L

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **ERIMS***
Meinck, F. et al. Les Eaux Residuaires Industrielles, 2nd ed., (1970)

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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
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 (Vorticella campanula)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Not specified

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---
	BEHAV				

Pertubation concentration = 9 mg/L

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **ERIMS***
Meinck, F. et al. Les Eaux Residuaires Industrielles, 2nd ed., (1970)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
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 (Paramaecium caudatum)

Test Substance

Description of the test substance : MCA (see general comment)

Test Method and Conditions

Test method description : Not specififed

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	BEHAV				

Perturbation concentration = 150 mg/L

General Comments : It is unclear if the test medium is neutralised. If the medium is neutralised the substance should be the salt form rather than the free acid (pKa = 2.8).

References

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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Geographic Area	:	**SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
WORM	**AQ**	**MARIN**					

Species/strain/system : Worm (Tubifex)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Not specified

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	BEHAV				

Pertubation concentration = 150 mg/L

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **ERIMS***
Meinck, F. et al. Les Eaux Residuaires Industrielles, 2nd ed., (1970)

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

Study

End Point : **TERRESTRIAL ACUTE TOXICITY**

Chemical Name : **Chloroacetic acid**
CAS Number : **79-11-8**

Species/strain/system : Hen

Test Method and Conditions

Test method description : Not specified

Test Results

Organism	*Medium*	*Spec.*	*Route*	*Lifestage*	*Sex*	*Effect*	*Effect Comments*
BIRD						**LD50**	LD50 = 81 mg/kg

General Comments : Test substance: MCA (not stated whether used as acid or salt form). MCA shows a high acute toxicity to birds.

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Geographic Area	:	**SWE**
General Comments	:	TERRESTRIAL FATE: When released on soil, chloroacetic acid will leach into the ground and biodegrade. While no rates of biodegradation in soil were found in the literature, the aqueous biodegradation literature suggests that it is a relatively rapid process.

References

Primary Reference : **HSDBM***
EPA. Hazardous Substances Databank HSDB, (1992)

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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
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 Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Oxygen Consumption Inhibitory Test (OCIT, OECD Confirmatory Test, OCT).

Test Results

Not presented

General Comments : This test is most probably conducted at a pH>pKa (= 2.8). Hence, the substance should be the salt form rather than the free acid.

References

Primary Reference : **DOWCH***
Dow Chemical Company. Dow Chemical Company Document, (1992)

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 : **Chloroacetic acid**
CAS Number : **79-11-8**
Study type : **LAB**
Geographic Area : **SWE**

Test Subject

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

Species/strain/system : Agricultural weed

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : Review article for herbicides

Test Results

Mono- di- and trichloroacetic acids cause a pronounced contact toxicity which is associated with an inability to be translocated from leaves.

Halogenated acetates are theoritically able to alkylate the sulfhydryl or amino groups in enzymes.

General Comments : This test is most probably conducted at a pH>pKa (=2.8). Hence, the tested substance should be the salt form rather than the free acid. Plants are the most sensitive terrestrial organisms with a very high acute toxicity (used as herbicides).

References

Primary Reference : **32RHAR**
Kearney, P. C. and Kaufman, D. D. Herbicides : Chemistry, Degradation and Mode of Action, 1 2nd ed., 400-452, (1975)

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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
Study type	:	**LAB**
Geographic Area	:	**SWE**

Test Subject

Organism	*Medium*	*Specification*	*Route*	*Lifestage*	*Sex*	*Number exposed*	*Number controls*
-	**AQ**	**SLUDG**					
BACT	**SOIL**	**-**					

Species/strain/system : Soil bacteria (Pseudomonas putida)

Test Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : OECD Guideline 209, (4 April 1984). Activated sludge, Respiration Inhibition Test, 3 hours exposure.

Exposure

Exposure Period : **3 h**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
---	---	---	---	---	---
	TCL0				

Toxicity threshold >1000 mg/L

General Comments : It is unclear if the test medium is neutralized. If the medium is neutralized the substance should be the salt rather than the free acid (pKa = 2.8). The following reference is also cited: EUCLID (1992b). Monochloroacetic acid data sheet from Hoechst AG. Updated 23 April 1992.

References

Primary Reference : **CMSHAF**
Gerike, P. and Gode, P. Chemosphere. Chemistry, Biology and Toxicology as Related to Environmental Problems, 21(6), 799-812, (1990)

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	:	**Chloroacetic acid**
CAS Number	:	**79-11-8**
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 Substance

Description of the test substance : MCA (see general comments)

Test Method and Conditions

Test method description : "According to Bringmann and Kuhn". The test medium is neutralized before use.

Temperature : **25 C**

Test Results

Organ	*Effect*	*Rev.*	*OnSet*	*Sex*	*Affected in Exposed - Controls*
	EC10				

EC10 = 4630 mg/L

General Comments : If the medium is neutralized the substance should be the salt form rather than the free acid (pKa = 2.8).

References

Primary Reference : **HOECH***
Hoechst AG, (1992)

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

Substance

[redacted]

Chemical Name :
Reported Name : **Chloroacetic acid, liquid**
CAS Number : **79-11-8**

Area	*Type*	*Subject*	*Spec.*	*Description*	*Level / Summary Information :*
CAN	**REG**	**TRNSP LABEL PACK**	**-**	**CLASS RQR**	PIN (PRODUCT IDENTIFICATION NO.): UN1750. CLASS (8): CORROSIVE. SPECIAL PROVISIONS: 46, 75. PACKING GROUP II, (I=GREAT DANGER, III=MINOR DANGER). MAXIMUM AMOUNT PER PACKAGE THAT MAY BE TRANSPORTED ON A PASSENGER AIRCRAFT OR VEHICLE: 1 L. MAXIMUM AMOUNT PER PACKAGE THAT MAY BE TRANSPORTED ON A CARGO AIRCRAFT: 30 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. ***Title :*** ***Reference :*** ***Effective Date :*** 06DEC1990 ***Last Amendment :*** **CAGAAK, 124, 26, 5523, 1990** **Canada Gazette Part II** ***Entry / Update :*** OCT1991

Substance

[redacted]

Chemical Name :
Reported Name : **Chloroacetic acid, solid**
CAS Number : **79-11-8**

Area	*Type*	*Subject*	*Spec.*	*Description*	*Level / Summary Information :*
CAN	**REG**	**TRNSP LABEL PACK**	**-**	**CLASS RQR**	PIN (PRODUCT IDENTIFICATION NO.): UN1751. CLASS (8): CORROSIVE. SPECIAL PROVISIONS: 46, 75. PACKING GROUP II, (I=GREAT DANGER, III=MINOR DANGER). MAXIMUM AMOUNT PER PACKAGE THAT MAY BE TRANSPORTED ON A PASSENGER AIRCRAFT OR VEHICLE: 15 KG. MAXIMUM AMOUNT PER PACKAGE THAT MAY BE TRANSPORTED ON A CARGO AIRCRAFT: 50 KG. 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. ***Title :*** ***Reference :*** ***Effective Date :*** 06DEC1990 ***Last Amendment :*** **CAGAAK, 124, 26, 5523, 1990** **Canada Gazette Part II** ***Entry / Update :*** OCT1991

Substance

Chemical Name :
Reported Name : **Chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
CAN	**REG**	**USE STORE LABEL**	**OCC**	**RQR**	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. ***Title :***

Reference : ***Effective Date :*** 31DEC1987

Last Amendment : **CAGAAK, 122, 2, 551, 1988** ***Entry / Update :*** APR1991
Canada Gazette Part II

Substance

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
CSK	**REG**	**WASTE**	**INDST**	**CLASS RQR**	THE SUBSTANCE IS CLASSIFIED AS HAZARDOUS WAST E COMPONENT. IT IS OR CAN BE DANGEROUS TO HUM AN HEALTH OR ENVIRONMENT. QUANTITY, SPECIFICA TION, USE OR DISPOSAL OF THE WASTE MUST BE RE PORTED TO AUTHORITIES. TRANSPORT AND DISPOSAL OF THE WASTE MUST BE PERFORMED IN ACCORDANCE WITH SPECIAL DIRECTIVE (APPLIES TO ALL WASTE CHLORORGANIC ACIDS) ***Title :*** PROVISION OF FEDERAL COMMITTEE FOR ENVIRONMEN T WHICH DECLARES WASTE CLASSIFICATION AND CAT ALOGUE

Reference : **SZCSR*, 69, 1650, 1991** ***Effective Date :*** 1AUG1991
Sbirka Zakonu Ceske a Slovenske Federativni Republiky (Collection of the Law of Czech and Slovak Federal Republic)

Last Amendment : ***Entry / Update :*** JAN1992

Substance

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
DEU	REC	AQ USE	- INDST	CLASS RQR	THIS SUBSTANCE IS CLASSIFIED AS HAZARDOUS TO WATER (WATER-HAZARD CLASS: WGK 2). (THE DIFFE RENT CLASSES ARE: WGK 3 = VERY HAZARDOUS; WGK 2 = HAZARDOUS; WGK 1 = SLIGHTLY HAZARDOUS; W GK 0 = IN GENERAL NOT HAZARDOUS.) THE CLASSIF ICATION FORMS THE BASIS FOR WATER-PROTECTION REQUIREMENTS FOR INDUSTRIAL PLANTS IN WHICH W ATER-HAZARDOUS SUBSTANCES ARE HANDLED.

Title : ADMINISTRATIVE RULES CONCERNING WATER-HAZARDO US SUBSTANCES (VERWALTUNGSVORSCHRIFT WASSERGE FAEHRDENDE STOFFE)

Reference : **GMSMA6, 8, 114, 1990** ***Effective Date :***

Gemeinsames Ministerialblatt. Joint Ministerial Papers

Last Amendment : ***Entry / Update :*** DEC1991

Substance

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
DEU	REG	AIR	EMI	MPC	THIS SUBSTANCE BELONGS TO CLASS I. THE AIR EM ISSIONS OF ORGANIC COMPOUNDS MUST NOT EXCEED (AS THE SUM OF ALL COMPOUNDS IN ONE CLASS) TH E FOLLOWING MASS CONCENTRATIONS: CLASS I - 20 MG/M3 AT A MASS FLOW OF >= 0.1 KG/H; CLASS I I - 100 MG/M3 AT A MASS FLOW OF >= 2 KG/H; CL ASS III - 150 MG/M3 AT A MASS FLOW OF >= 3 KG /H. IF COMPOUNDS FROM DIFFERENT CLASSES ARE P RESENT, THE MASS CONCENTRATION MUST NOT EXCEE D 150 MG/M3 AT A TOTAL MASS FLOW OF >= 3 KG/H .

Title : TECHNICAL GUIDELINES FOR AIR POLLUTION CONTRO L (TECHNISCHE ANLEITUNG ZUR REINHALTUNG DER L UFT)

Reference : **GMSMA6, 7, 93, 1986** ***Effective Date :*** 01MCH1986

Gemeinsames Ministerialblatt. Joint Ministerial Papers

Last Amendment : ***Entry / Update :*** JAN1992

Substance

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
DEU	REG	CLASS LABEL PACK	-	CLASS RQR RQR	CLASSIFICATION AND LABELLING IN GERMANY IS GE NERALLY THE SAME AS FOR THE EEC (SEE OJEC** L 180, 1991). HOWEVER, SLIGHT MODIFICATIONS MAY BE INTRODUCED FOR SOME SUBSTANCES IN THE GER MAN LEGISLATION.

Title : ORDINANCE ON HAZARDOUS SUBSTANCES. (GEFAHRSTO FFVERORDNUNG)

Reference : **BGZBAD, I, 1931, 1991** ***Effective Date :*** 15JUN1991

Bundesgesetzblatt (Federal Law Gazette)

Last Amendment : ***Entry / Update :*** APR1992

Substance

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
GBR	REG	TRNSP LABEL	-	CLASS RQR	LABELLING OF ROAD TANKERS: CORROSIVE SUBSTANC E. EMERGENCY ACTION CODE: 2R (APPLIES TO LIQU IDS)

Title : HAZARDOUS SUBSTANCES (LABELLING OF ROAD TANKE RS) REGULATIONS 1978

Reference : **GBRSI*, 1702, 1978** — **Statutory Instruments** ***Effective Date :*** 28MCH1979

Last Amendment : ***Entry / Update :*** JAN1983

Substance

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
GBR	REG	TRNSP AQ AQ	MARIN MARIN EMI	RQR RSTR RSTR	CATEGORY C SUBSTANCE: DISCHARGE INTO THE SEA IS PROHIBITED; DISCHARGE OF TANK WASHINGS AND RESIDUAL MIXTURES IS SUBJECT TO RESTRICTIONS . (APPLIES TO CHLOROACETIC ACID, 80% OR LESS SOLUTION).

Title : THE MERCHANT SHIPPING (CONTROL OF POLLUTION B Y NOXIOUS LIQUID SUBSTANCES IN BULK) REGULATI ONS 1987, SCHEDULE 1

Reference : **GBRSI*, 551, 15, 1987** — **Statutory Instruments** ***Effective Date :*** 06APR1987

Last Amendment : **GBRSI*, 2604, 2, 1990** — **Statutory Instruments** ***Entry / Update :*** 1992

Substance

Chemical Name :
Reported Name : **monochloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
GBR	REG	AIR	OCC	OES	8H-TWA: 1MG/M3 (0.3PPM) - CAN BE ABSORBED THR OUGH SKIN -

Title : EH40 OCCUPATIONAL EXPOSURE LIMITS FOR USE WIT H THE CONTROL OF SUBSTANCES HAZARDOUS TO HEAL TH REGULATIONS

Reference : **GBRSI*, 1657, 10, 1988** — **Statutory Instruments** ***Effective Date :*** 01JAN1992

Last Amendment : **GNHSE*, EH40, 11, 1992** — **Guidance Note from the Health and Safety Executive** ***Entry / Update :*** 1992

Substance

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
RUS	REG	AIR	OCC	MAC CLASS	CLV: 1.0MG/M3 (VAPOUR, AEROSOL) HAZARD CLASS: II

Title :

Reference : ***Effective Date :*** 01JAN1989

Last Amendment : **GOSTS*, 12.1.005, 1988** ***Entry / Update :*** MAY1990

GOSUDARSTVENNYI STANDART SSSR (STATE STANDARD OF USSR)

Substance

[redacted]

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
RUS	REG	AQ	SURF	MAC CLASS	0.06MG/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

[redacted]

Chemical Name :
Reported Name : **monochloracetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
USA	REG	FOOD	ADDIT	RSTR	; Summary - THIS SUBSTANCE IS INCLUDED ON A L IST OF SUBSTANCES USED TO PREPARE ADHESIVES W HICH MAY BE SAFELY USED AS COMPONENTS OF ARTI CLES INTENDED FOR USE IN PACKAGING, TRANSPORT ATION, OR HOLDING FOOD IN ACCORDANCE WITH THE FOLLOWING PRESCRIBED CONDITIONS: SUBSTA NCE MUST BE SEPARATED FROM THE FOOD BY A FUNCTION AL BARRIER, MUST NOT EXCEED LIMITS OF GOOD MA NUFACTURING PRACTICE USED WITH DRY FOODS, OR NOT EXCEED TRACE AMOUNTS AT SEAMS AND EDGE EX POSURES WHEN USED WITH FATTY AND AQUEOUS FOOD S. ALSO REGULATED BY SEA M INTEGRITY, LABELIN G STANDARDS, AND ANY PROVISION UNDER 21 CFR 1 75
		TRANS		RSTR	
		STORE		RSTR	
		PACK		RSTR	

Title : SUBSTANCES FOR USE ONLY AS COMPONENTS OF ADHE SIVES

Reference : **FEREAC, 42, 14534, 1977** ***Effective Date :*** 1977

Federal Register

Last Amendment : **CFRUS*, 21, 175, 105, 1988** ***Entry / Update :*** NOV1991

Code of Federal Regulations

Substance

[redacted]

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
USA	REG	AIR	EMI	RQR	; Summary - FROM A LIST OF POLLUTANTS JUDGED TO BE HAZARDOUS FOR WHICH EMISSION STANDARDS WILL BE DEVELOPED

Title : CLEAN AIR ACT, 112--NATIONAL EMISSION STANDAR DS FOR HAZARDOUS AIR POLLUTANTS

Reference :	**FEREAC, 50, 46290, 1985** **Federal Register**	**Effective Date :**	1985
Last Amendment :	**CFRUS*, 40, 61, 1, 1990** **Code of Federal Regulations**	**Entry / Update :**	SEP1991

Substance

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
USA	REG	TRNSP PACK LABEL	-	PRMT CNTRL RQR	LIQUID: MAY BE TRANSPORTED IN PASSENGER AIRCR AFT AND PASSENGER RAILCAR NOT TO EXCEED 1 QUA RT/PACKAGE. MAY BE TRANSPORTED IN CARGO AIRCR AFT NOT TO EXCEED 1 QUART/PACKAGE. MAY BE TRA NSPORTED IN CARGO AND PASSENGER VESSELS ON AN D BELOW DECK. FOR VESSEL S HIPMENTS GLASS CAR BOYS IN HAMPERS NOT PERMITTED UNDER DECK. SOL ID: MAY BE TRANSPORTED IN PASSENGER AIRCRAFT AND PASSENGER RAILCAR NOT TO EXCEED 25 POUNDS /PACKAGE. MAY BE TRANSPORTED IN CARGO AIRCRAF T NOT TO EXCEED 100 POUNDS/PACKAGE. MAY BE TR ANSPORTE D IN CARGO AND PASSENGER VESSELS ON AND BELOW DECK. VESSEL SHIPMENTS MUST BE KEPT DRY. ALL SHIPMENTS MUST BE LABELED CORROSIVE .; Summary - THIS REGULATION LISTS AND CLASSI FIES THOSE MATERIALS WHICH THE DEPARTMENT OF TRANSPORTATION HAS DESIGNATED AS HAZARDOUS MA TERIALS FOR SHIPPING PAPERS, PACKAGE MARKING, LABELING, AND TRANSPORT VEHICLE PLACARDING A PPLICABLE TO THE SHIPMENT AND TRANSPORT OF TH OSE HAZARDOUS MATERIALS.

Title : HAZARDOUS MATERIALS REGULATIONS, PART 172--HA ZARDOUS MATERIALS TABLES AND HAZARDOUS MATERI ALS COMMUNICATIONS REGULATIONS

Reference :	**CFRUS*, 49, 172, 101, 1984** **Code of Federal Regulations**	**Effective Date :**	OCT1991
Last Amendment :	**CFRUS*, 49, 172, 101, 1990** **Code of Federal Regulations**	**Entry / Update :**	NOV1991

Substance

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	*Type*	*Subject*	*Spec.*	*Description*	*Level / Summary Information :*
USA	**REG**	**SAFTY**	**INDST**	**RQR**	TPQ=100/10,000 RQ=1; Summary - THE PRESENCE O F EXTREMELY HAZARDOUS SUBSTANCES IN EXCESS OF THE THRESHOLD PLANNING QUANTITY (TPQ), IN PO UNDS, REQUIRES CERTAIN EMERGENCY PLANNING ACT IVITIES TO BE CONDUCTED. FOR CHEMICALS THAT A RE SOLIDS, THERE MAY BE TWO TPQ'S GIVEN. IN T HESE CASES, T HE LOWER QUANTITY APPLIES FOR S OLIDS IN POWDER FORM WITH PARTICLE SIZE LESS THAN 100 MICRONS, OR IF THE SUBSTANCE IS IN S OLUTION OR IN MOLTEN FORM. OTHERWISE, THE HIG HER QUANTITY APPLIES. THESE CHEMICALS ARE ALS O SUBJECT TO REGULATION UNDER SARA 304. RELEA SES OF SUBSTANCES, IN QUANTITIES EQUAL TO OR GREATER THAN THEIR REPORTABLE QUANTITY (RQ), IN POUNDS, ARE SUBJECT TO REPORTING TO THE NA TIONAL RESPONSE CENTER UNDER THE COMPREHENSIV E ENVIRONMENTAL RESPONSE, COMPENSATION, AND L IABILITY ACT OF 1980.
		STORE	**INDST**	**RQR**	

Title : SARA, SECTION 302(A) EMERGENCY PLANNING AND C OMMUNITY RIGHT TO KNOW ACT; LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLA NNING QUANTITIES

Reference :	**FEREAC, 52, 13395, 1987** **Federal Register**	***Effective Date :***	1987
Last Amendment :	**CFRUS*, 40, 355, 1990** **Code of Federal Regulations**	***Entry / Update :***	OCT1991

Substance

[redacted]

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	*Type*	*Subject*	*Spec.*	*Description*	*Level / Summary Information :*
USA	**REG**	**AIR**	**EMI**	**RQR**	; Summary - FACILITIES THAT EXCEEDED A MANUFA CTURING, IMPORTATION, OR PROCESSING THRESHOLD OF 25,000 LBS OR THE USE OF 10,000 LBS FOR T HIS CHEMICAL MUST REPORT TO EPA ANY RELEASES OF THE CHEMICAL (OR CATEGORY CHEMICAL) TO AIR , LAND, WATER, POTW, UNDERGROUND INJECTIO N, OR OFF SITE TRANSFER. THIS REGULATION COVERS STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODE S 20-39 ONLY).
		SOIL	**EMI**	**RQR**	
		AQ	**EMI**	**RQR**	
		MANUF	**EMI**	**RQR**	

Title : SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT, TITLE III. EPCRA SECTION 313 LIST OF TOXIC S UBSTANCES

Reference :	**CFRUS*, 40, 372, 65, 1988** **Code of Federal Regulations**	***Effective Date :***	1987
Last Amendment :	**CFRUS*, 40, 372, 65, 1988** **Code of Federal Regulations**	***Entry / Update :***	OCT1991

Substance

[redacted]

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
EEC	REG	CLASS LABEL PACK	-	CLASS RQR RQR	CLASS: T - TOXIC; TOXIC BY INHALATION, IN CON TACT WITH SKIN AND IF SWALLOWED (R 23/24/25). C - CORROSIVE; CAUSES SEVERE BURNS (R 35). L ABEL: T - TOXIC; TOXIC BY INHALATION, IN CONT ACT WITH SKIN AND IF SWALLOWED (R 23/24/25); CAUSES SEVERE BURNS (R 35); DO NOT BREATHE DU ST (S 22); WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION (S 36/37/39). CLASSIFICATION OF PREPARATIONS CONTAINING THE SUBSTANCE IN CONCENTRATION RANGE: ABOVE 10%: T - TOXIC; TOXIC BY INHALATION, IN CONTACT W ITH SKIN AND IF SWALLOWED (R 23/24/25); CAUSE S SEVERE BURNS (R 35). FROM 5% TO 10%: T - TO XIC; TOXIC BY INHALATION, IN CONTACT WITH SKI N AND IF SWALLOWED (R 23/24/25); CAUSES BURNS (R 34). FROM 2% TO 5%: T - TOXIC; TOXIC BY I NHALATION, IN CONTACT WITH SKIN AND IF SWALLO WED (R 23/24/25); IRRITATING TO EYES AND SKIN (R 36/38). FROM 1% TO 2%: XN - HARMFUL; HARM FUL BY INHALATION, IN CONTACT WITH SKIN AND I F SWALLOWED (R 20/21/22); IRRITATING TO EYES AND SKIN (R 36/38). FROM 0.2% TO 1%: XN - HAR MFUL; HARMFUL BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED (R 20/21/22). ***Title :*** COUNCIL DIRECTIVE 67/548/EEC OF 27 JUNE 1967 ON THE APROXIMATION OF THE LAWS, REGULATIONS AND ADMINISTRATIVE PROVISIONS RELATING TO THE CLASSIFICATION, PACKAGING AND LABELLING OF D ANGEROUS 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 :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
IMO	REC	TRNSP LABEL PACK	MARIN	CLASS	HAZARD CLASS: 8 = CORROSIVE. PACKING GROUP: I I = MEDIUM DANGER (I=GREAT DANGER - III=MINOR DANGER). (APPLIES TO CHLOROACETIC ACID, LIQU ID AND SOLID). UN NOS. 1750; 1751 ***Title :*** ***Reference :*** ***Effective Date :*** ***Last Amendment :*** **!, IMCOC*, 10004, 1990** ***Entry / Update :*** JAN1991 **International Maritime Dangerous Goods Code**

Substance

Chemical Name :
Reported Name : **Chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
IMO	REC	AQ AQ	EMI MARIN	RSTR RSTR	Category C substance (substance which is slightly toxic to aquatic life): discharge into the sea of this substance, of ballast water, tank washings or other residues or mixtures containing such a substance shall be prohibited except where specified conditions are satisfied. Technological requirements prescribe equipments and designs that must be present on the tankers as well as 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 the Convention. (Applies to chloroacetic acid, 80% or less) ***Title :*** International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78). ***Reference :*** ***Effective Date :*** ***Last Amendment :*** **IMODC*,** ***Entry / Update :*** SEP1994

Substance

Chemical Name :
Reported Name : **chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
UN	REC	TRNSP LABEL PACK	-	CLASS	HAZARD CLASS: 8 = CORROSIVE. PACKING GROUP: I I = MEDIUM DANGER (I=GREAT DANGER - III=MINOR DANGER). (APPLIES TO CHLOROACETIC ACID, LIQU ID AND SOLID). UN NOS. 1750; 1751 ***Title :*** ***Reference :*** ***Effective Date :*** ***Last Amendment :*** **!, UNTDG*, 15, 1989** ***Entry / Update :*** AUG1990 **UN Transport of Dangerous Goods, Recommendation prepared by theCommittee of Experts on the Transport of Dangerous Goods**

Substance

Chemical Name :
Reported Name : **Chloroacetic acid**
CAS Number : **79-11-8**

Area	Type	Subject	Spec.	Description	Level / Summary Information :
WHO	REC	AQ	DRINK	GL	No adequate data to recommend a health-based guideline value. The substance is a chemical of health significance in drinking-water. ***Title :*** WHO GUIDELINES FOR DRINKING-WATER QUALITY ***Reference :*** **WHODW*, 1983** ***Effective Date :*** **GUIDELINES FOR DRINKING WATER QUALITY, VOLUME 1 - RECOMMENDATIONS** ***Last Amendment :*** **WHODW*, 1993** ***Entry / Update :*** OCT1992 **GUIDELINES FOR DRINKING WATER QUALITY, VOLUME 1 - RECOMMENDATIONS**