

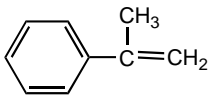
[FOREWORD](#)

[INTRODUCTION](#)

(1-METHYLETHENYL)BENZENE

CAS N°: 98-83-9

SIDS INITIAL ASSESSMENT PROFILE

CAS No.	98-83-9
Chemical Name	(1-Methylethenyl)benzene
Structural formula	

CONCLUSIONS AND RECOMMENDATIONSEnvironment

The chemical is moderately toxic to aquatic organisms and is considered as not readily biodegradable. The predicted environmental concentration is lower than the predicted no effect concentration. The chemical is therefore currently considered of low potential risk and low priority for further work.

Health

Within the Sponsor country exposure is well controlled because the only known use is as a closed system intermediate in the production of resins. The chemical is moderately toxic in a repeated dose toxicity study (i.e. kidney, liver, thymus). The chemical is also considered as an irritant to skin and eyes. Risks to human health from daily intake through occupational and indirect exposure are considered low. The chemical is currently considered of low potential risk and low priority for further work.

SHORT SUMMARY WHICH SUPPORTS THE REASONS FOR THE CONCLUSIONS AND RECOMMENDATIONS

(1-Methylethenyl)benzene is a stable liquid with a production volume of ca. 15,000 tonnes/year in 1993 in Japan. The chemical is produced in closed system and is used as intermediate for ABS resins and polyester resins. (1-Methylethenyl)benzene is considered as "not readily biodegradable" with a moderate bioaccumulation potential. It is expected to photodegrade.

Modelling of the potential environmental distribution of (1-methylethenyl)benzene (obtained from a generic fugacity model (Mackay level III)) showed the chemical is expected to distribute mainly to water and air. Using production data from Japan and Germany the predicted environmental concentration (PEC_{local}) of this chemical was estimated as 2.3×10^{-5} mg/l and 5.5×10^{-2} mg/l respectively for local exposure scenarios. In a 1977 Japanese environmental survey, the chemical was not detected from surface water and sediments.

(1-Methylethenyl)benzene is moderately toxic to fish, daphnids and algae. The lowest acute and chronic toxicity data was considered to calculate the predicted no effect concentration. The lowest acute toxicity data was the 24 h-LC₅₀ for *Oryzias latipes* (15 mg/l) and the lowest chronic toxicity was a 21d-NOEC (reproduction) for *Daphnia magna* (1.8 mg/l). An assessment factor of 100 was used to determine a predicted no effect concentration of 0.018 mg/l. The predicted no effect concentration is lower than the predicted environmental concentration and therefore the

environmental risk is considered low.

(1-Methylethenyl)benzene is produced in closed systems and therefore only limited occupational exposure is expected in sampling and bag or tank filling operations. Inhalation is considered the main route of exposure. Concentrations in the atmosphere were measured at two production facilities. An average concentration of 10.1 mg/m^3 was found in sampling operations (max 48.7 mg/m^3 - min 0.5 mg/m^3). The daily intake through inhalation is estimated to be 1.2 mg/kg/day as the worst case. Indirect exposure via the environment, $\text{PEC}_{\text{local}}$ was estimated as $2.3 \times 10^{-5} \text{ mg/l}$ and daily intake through water is estimated to be $7.7 \times 10^{-7} \text{ mg/day}$ and through fish $4.8 \times 10^{-6} \text{ mg/kg/day}$. This chemical is used on food contact material constituent, but there are no available data of a migration to food.

The chemical is considered as irritant to skin and eyes. The chemical showed no genotoxic effects in bacteria and chromosomal aberration tests *in vitro*. In a combined repeat dose and reproductive/developmental toxicity screening test, at the highest dose ($1,000 \text{ mg/kg}$), histopathological examination demonstrated acidophilic change of hepatocytes and increase of fatty droplets in the fascicular zone of the adrenals in both sexes, increase of hyaline droplets and basophilic changes in the renal tubular epithelium and hyperplasia of the mucosal epithelium in the urinary bladder in male rats, vacuolation and infiltration of lymphocytes in the renal tubular epithelium and atrophy of the thymus in female rats. In the 200 mg/kg group, similar histopathological changes were found in the liver and kidneys of both sexes, and the thymus of female rats. The chemical had no effects on reproductive parameters. The, No-observable-effect-level (NOEL) was 40 mg/kg/day for repeated dose toxicity and 200 mg/kg/day for reproductive toxicity.

For human health, a margin of safety was estimated to be 33, based on occupational exposure calculation. However, the frequency of exposure is very limited and the very few workers involved wear personal protective equipment. Since the margin of safety in other cases is large such as 5.2×10^7 through drinking water and 8.3×10^6 through fish, the human health risks for the public from indirect exposure via the environment are low.

IF FURTHER WORK IS RECOMMENDED, SUMMARISE ITS NATURE

FULL SIDS SUMMARY

CAS NO: 98-83-9		SPECIES	PROTOCOL	RESULTS
PHYSICAL-CHEMICAL				
2.1	Melting Point		Other (unknown)	- 23.2 °C
2.2	Boiling Point		Other (unknown)	161 - 162 °C (at 1,013 hPa)
2.3	Density		Other (unknown)	0.91g/cm ³ at 20 °C
2.4	Vapour Pressure		Other (unknown)	3 hPa at 20 °C
2.5	Partition Coefficient (Log Pow)		OECD TG 107	3.48 at 25 °C
2.6 A.	Water Solubility		OECD TG 105	100 mg/l at 25 °C
B.	pH			
	pKa			
2.12	Oxidation: Reduction Potential			
ENVIRONMENTAL FATE AND PATHWAY				
3.1.1	Photodegradation			No data
3.1.2	Stability in Water		OECD TG 111	Stable at pH4, 7 and 9 at 25 °C
3.2	Monitoring Data			In air = In surface water = not detected In soil/sediment = not detected In biota =
3.3	Transport and Distribution		Calculated (Fugacity, Mackey Level III type)	release: 100% to water: In Air 28.4 % In Water 69.7 % In Sediment 1.3 % In Soil 0.6 %
			(local exposure)	PEC _{local} = 2.3 x 10 ⁻⁵ mg/l (Japan) PEC _{local} = 5.5 x 10 ⁻² mg/l (Germany)
3.5	Biodegradation		OECD TG 301C	not readily biodegradable
3.7	Bioaccumulation		OECD TG 305C	BCF = 12 - 140
ECOTOXICOLOGY				
4.1	Acute/Prolonged Toxicity to Fish	<i>Oryzias latipes</i>	OECD TG 203	LC ₅₀ (24 hr) = 15 mg/l, LC ₅₀ (48 hr) = 15 mg/l, LC ₅₀ (72 hr) = 15 mg/l, LC ₅₀ (96 hr) = 15 mg/l
4.2	Acute Toxicity to Aquatic Invertebrates <i>Daphnia</i>	<i>Daphnia magna</i>	OECD TG 202	EC ₅₀ (24 hr) = 56 mg/l, EC ₅₀ (48 hr) = 54 mg/l,
4.3	Toxicity to Aquatic Plants e.g. Algae	<i>Selenastrum capricornutum</i>	OECD TG 201	EC ₅₀ (72 hr) = 52.6 mg/l NOEC = 40 mg/l
4.5.2	Chronic Toxicity to Aquatic Invertebrates (<i>Daphnia</i>)	<i>Daphnia magna</i>	OECD TG 202	EC _{50s} (21 d) = 4.7mg/l (Reproduction) NOEC = 1.8 mg/l LOEC = 5.6 mg/l EC _{50s} (21 d) = 3.1 mg/l (Immobility)

4.6.1	Toxicity to Soil Dwelling Organisms			None
4.6.2	Toxicity to Terrestrial Plants			None
4.6.3	Toxicity to Other Non-Mammalian Terrestrial Species (Including Birds)			None
TOXICOLOGY				
5.1.1	Acute Oral Toxicity	Rat	Other (unknown)	LD ₅₀ = 4,900 mg/kg
5.1.2	Acute Inhalation Toxicity	Rat	Other (unknown)	LC ₅₀ = 3,000 ppm/4 hr
5.1.3	Acute Dermal Toxicity	Rabbit	Other (unknown)	LD ₅₀ = 16 ml/kg
5.4	Repeated Dose Toxicity	Rat (SD)	OECD Combined	NOEL = 40 mg/kg
5.5	Genetic Toxicity In Vitro			
A.	Bacterial Test (Gene mutation)	S.typhimurium E. coli	Japanese TG	- (With metabolic activation) - (Without metabolic activation)
B.	Non-Bacterial In Vitro Test (Chromosomal aberrations)	CHL cells	Japanese TG	- (With metabolic activation) - (Without metabolic activation)
5.6	Genetic Toxicity In Vivo			None
5.8	Toxicity to Reproduction	Rat (SD)	OECD Combined	NOEL = 1,000 mg/kg
5.9	Developmental Toxicity/ Teratogenicity			None
5.11	Experience with Human Exposure			None

[Note] Data beyond SIDS requirements can be added if the items are relevant to the assessment of the chemical, e.g. corrosiveness/irritation, carcinogenicity.

COVER PAGE
SIDS Initial Assessment Report
for
7th SIAM
(Australia, March 25-27, 1998)

Chemical Name: (1-Methylethenyl)benzene
CAS No: 98-83-9
Sponsor Country: Japan

National SIDS Contact Point in Sponsor Country: Mr. Kenichi Suganuma
Ministry of Foreign Affairs

HISTORY:

SIDS Dossier and Testing Plan were reviewed in SIDS Review Process, where the following SIDS Testing Plan was agreed:

no testing	()	
testing	(X)	Stability in water
		Biodegradation
		Acute toxicity to algae
		Chronic toxicity to daphnia
		Combined repeat dose and reproductive toxicity test
		Genetic toxicity test in bacteria
		Chromosomal aberration test in vitro

In March, 1998, we received comments for draft SIAR from member countries. Therefore, SIAR was revised before SIAM-7. Main revision was done in Section of human health and summary

COMMENTS:

Deadline for circulation: December 31, 1997

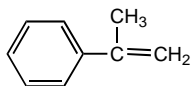
Date of Circulation: January 29, 1998

Date of Recirculation: March 16, 1998

(To all National SIDS Contact Points and the OECD Secretariat)

SIDS INITIAL ASSESSMENT REPORT**(1-Methylethenyl)benzene
(CAS No. 98 - 83 - 9)****1. IDENTITY**

- OECD Name: (1-Methylethenyl)benzene
- Synonym: 2-Phenylpropene, alpha-Methylstyrene
- CAS Number: 98-83-9
- Empirical Formula: C₉H₁₀
- Structural Formula:



- Degree of Purity: 99.6 %
- Major Impurity: None
- Essential Additives: None
- Physical-chemical properties
 - Melting Point: -23.3 °C
 - Vapour pressure: 2.8 x 10² Pa at 20 °C
6.9 x 10² Pa at 37.7 °C
 - Water solubility: 100 mg/l
 - Log Pow: 3.48

2. GENERAL INFORMATION ON EXPOSURE**2.1 Production and import**

The production volume of (1-methylethenyl)benzene in Japan is ca 15,000 tonnes/year in 1993. According to ECDIN database, the production volume of USA is ca. 36,000 tonnes/year in 1987.

2.2 Use pattern

All of (1-methylethenyl)benzene produced in Japan is used as intermediate for resins, and no consumer use are reported.

2.3 Other information

None

3. ENVIRONMENT**3.1 Environmental Exposure****3.1.1 General Discussion**

1-Methylethenylbenzene is stable abiotically (OECD 111) and biotically (OECD 301C: 0% after 28d) in water. However, photodegradation is expected because (1-Methylethenyl)-benzene has an absorption band in UV region.

(1-Methylethenyl)benzene has moderate bioaccumulation potential (OECD 305C: BCF 12 – 140 after 8 weeks).

The potential environmental distribution of (1-Methylethenyl)benzene obtain from a generic fugacity model (Mackay level III) is shown in Table 1. Parameters used for this model is shown as Annex to this report. The results show that, if (1-Methylethenyl)benzene is released into air or soil, it is unlikely to be distributed into other compartment. If (1-Methylethenyl)benzene is released into water, it is likely to be transported to air.

Table 1 Environmental distribution of (1-Methylethenyl)benzene
Using a generic fugacity model (Mackey level III).

Compartment	Release 100% to air	Release 100% to water	Release 100% to soil
Air	97.0 %	28.4 %	2.0 %
Water	1.1 %	69.7 %	0.1 %
Soil	1.9 %	0.6 %	97.9 %
Sediment	0.0 %	1.3 %	0.0 %

As this chemical is used in a closed system and is not used for consumer products, its release to environments may occur only from the production site. In Japanese environmental survey, (1-methylethenyl)benzene was not detected from surface water and bottom sediments in 1977. Detection limits in this survey were 0.004 mg/l and 0.01 mg/kg, respectively.

3.1.2 Predicted Environmental Concentration

As (1-Methylethenyl)benzene is produced under the well controlled closed system, amount of release to air phase is negligibly small. The waste of (1-Methylethenyl)benzene treated own wastewater treatment plant is released into centralized wastewater treatment plant and then released into the bay. Therefore, Predicted Environmental Concentration (PEC) will be calculated only for the water environment.

a. Local exposure

According to the report from a Japanese manufacturer, 1000 kg/year (estimated) of (1-methylethenyl)benzene is discharged into the centralized wastewater treatment plant (CWTP). Wastewater treated in CWTP is released with 4.4×10^{10} l/year of effluent into the ocean along the coast near from the manufactory. The removal rate of this chemical by CWTP is estimated to be negligible. Therefore, Local Predicted Environmental Concentration (PEC_{local}) is calculated to be 2.3×10^{-5} mg/l, employing the following formula and dilution factor of 1,000.

$$\text{Amount of release (1 x 10}^9 \text{ mg/y)}$$

$$\text{Volume of effluent (4.4 x 10}^{10} \text{ l/y) x Dilution Factor (1,000)}$$

According to a German exposure information, German proposed to integrate a generic exposure scenario using the following parameters.

Production volume:	50,000 tonnes/year (maximum production volume given in IUCLID)
Emission factor:	1 % (production and processing at the same site)
number of production days:	300 days/year
Elimination in stp:	83 % (according to the Simpletreat)
Flow-rate of receiving river:	60 m ³ /s (according to the TGD)

With this data, a PEC_{local} of about 5.5 x 10⁻² mg/l can be calculated.

b. Regional exposure

No data are available.

3.2 Effects on the Environments

3.2.1 Effects on aquatic organisms

Acute and chronic toxicity data of (1-methylethenyl)benzene to aquatic organisms are summarized below (Table 1). Toxicity of this chemical to aquatic organisms is not so high, because all the toxicity data are higher than 1 mg/l and do not differ much among the species used for the tests. The LC₅₀ values of *Olyzias latipes* remained at the constant value in the 4-d acute toxicity tests (15.0 mg/l, Table 1), suggesting that chronic toxicity of this chemical may not be high.

Predicted No Effect Concentration (PNEC) of this chemical was determined based on the toxicity data presented in Table 1. As the lowest acute toxicity data among several species, 24 h-LC₅₀ of *Oryzias latipes* (15 mg/l, Table 1) was selected.

As the lowest chronic toxicity among algae and cladoceran (water flea), 21d-NOEC (reproduction) of *Daphnia magna* (1.8 mg/l, Table 1) was adopted. Therefore, the assessment factors of 100 were used to both acute and chronic toxicity data to determine PNEC, according to the OECD Provisional Guidance for Initial Assessment of Aquatic Effects (EXCH/MANUAL/96-4-5. DOC/May 1996) because no chronic toxicity data for fish was available.

From acute toxicity data: PNEC = 15.0/ 100 = 0.15 mg/l

From chronic toxicity data: PNEC = 1.8/ 100 = 0.018 mg/l

Thus, PNEC of (1-methylethenyl)benzene is 0.018 mg/l.

Table 1

Acute and chronic toxicity data of (1-methylethenyl) benzene to aquatic organisms at different trophic levels. The data (ref. 1) by the Environmental Agency of Japan are from the tests conducted based on the OECD Test Guide Lines.

Species	Endpoint	Conc. (mg/l)	Remarks
<i>Selenastrum capricornutum</i> (algae)	Gro 72 h EC ₅₀	52.6	1), A
	72 h NOEC	40.0	1), C
<i>Daphnia magna</i> (Water flea)	Imm 24 h EC ₅₀	56.0	1)

		48 h EC ₅₀	54.0	1), A
	Rep	21d NOEC	1.8	1), C
<i>Chaetogammarus marinus</i>	Mor	48 h LC ₅₀	4.2	2)
<i>Oryzias latipes</i> (fish, Medaka)	Mor	24 h LC ₅₀	15.0	1), A
		48 h LC ₅₀	15.0	1)
		72 h LC ₅₀	15.0	1)
		96 h LC ₅₀	15.0	1)
<i>Leuciscus idus</i> (fish)	Mor	48 h LC ₅₀	28.0	3)
<i>Salmo gairdneri</i> (fish)	Mor	24 h NOEC	5.0	4)

Notes: Gro; growth, Imm; immobilization, Rep; reproduction, Mor; mortality

1)- 4), reference number, A), C); selected as the lowest value respectively among the acute or chronic toxicity data of algae, cladoceran (water flea) and fishes to determine PNEC.

References

- 1) Toxicity data by the Environmental Agency of Japan, the tests were conducted based on OECD Test Guide Lines.
- 2) Aquatic Toxicity of Compounds that may be carried by ships (Marpel 1973, Annex II) "A progress report for 1983 and 1984" DECET, TNO, 1984 (Rep. No. R 84/59), IUCRID for CAS-No. 98-83-9 (Feb., 1996), -27/29. Source: Phenol- chemie GmbH Gladbeck.
- 3) Huels-Untersuchung (unveroeffentlicht), IUCLID for CAS-No. 98-83-9 (Feb., 1996), -27/29. Source: Phenolchemie GmbH Gladbeck.
- 4) Datenbank fuer wassergefaehrdende Stoffe (DABAWAS, 1979), IUCRID for CAS-No. 98-83-9 (Feb., 1996), -27/29. Source: Phenolchemie GmbH Gladbeck.

3.2.2 Terrestrial effects

No data available.

3.2.3 Other effects

No data are available.

3.3 Initial Assessment for Environment

Predicted no effect concentration (PNEC)

Predicted no effect concentration (PNEC) for aquatic organisms has been calculated for the lowest values for most sensitive species, *Daphnia magna*. Using the NOEC (21 d) of 3.2 mg/l and assessment factor 100.

$$\text{PNEC} = 1.8/100 = 0.018$$

Predicted environmental concentration (PEC)

PEC from Japanese local exposure scenario was 2.3×10^{-5} mg/l.

$$\text{PEC}_{\text{local}}/\text{PNEC} = 2.3 \times 10^{-5}/0.018 = 1.27 \times 10^{-3} < 1$$

PEC from German local exposure scenario was 5.5×10^{-2} mg/l.

$$\text{PEC}_{\text{local}}/\text{PNEC} = 5.5 \times 10^{-2}/0.018 = 3.1 > 1$$

This ratio suggests that this chemical has no adverse effect on aquatic environments in Japanese situation, but has adverse effect in German situation.

4. HUMAN HEALTH

4.1 Human Exposure

4.1.1 Occupational exposure

(1-Methylethenyl)benzene is produced in closed systems. Occupational exposures in production sites are expected in sampling and drum or tank filling operations. Inhalation is considered to be the main route and dermal exposure may occur during sampling operations.

The exposure levels were measured at two production facilities. Air samples were collected at 20-40 cm away from the worker's face, using charcoal tube method and analysed by GC with FID. The workers wear respiratory protecting equipment and protective gloves during sampling, coupling and decoupling operations for tank loading. Entire facility has no shielding, and all these operations were done in the open space. Durations and frequencies of sampling, drum filling and tank loading were 10 minutes, 6 times/day, 3 hours 3 times a month and 40 minutes, twice a day.

The average exposure levels are:

Sampling	10.1 mg/m ³	(max 48.7, min 0.5; 11 samples)
Drum filling	6.7 mg/m ³	(max 10.6, min 1.9; 8 samples)
Tank filling	3.4 mg/m ³	(max 12.5, min 1.0; 11 samples)

If a single worker is assigned to implement all above daily operation without protective equipment, the daily intake is calculated as 1.2 mg/kg/day, based on the average atmosphere concentration.

Dermal exposure derived by the EU Exposure Model is 0 - 0.1 mg/cm²/day. However, risk through skin must be very low, because the workers always use protective equipment.

4.1.2 Consumer exposure

As this chemical is used on food contact material constituent, the exposure may occur via food. But there are no available data of a migration to food.

4.1.3 Indirect exposure via the environment

As (1-methylethenyl)benzene is not biodegradable and moderately bioaccumulative, the exposure to the general population via the environment would be possible through drinking water processed from surface water and through fish which may accumulate this chemical.

Based on the physical chemical properties of this chemical (e.g. relatively high water solubility to the PEC calculation in Section 3.1.2), a significant removal during the processing is not expected. Therefore, the concentration in drinking water is estimated to be equal to PEC (2.3×10^{-5} mg/l), as the worst case. The daily intake is calculated as 7.7×10^{-7} mg/kg/day (2 l/day, 60 kg b.w.).

Using the maximum bioconcentration factor of 140 obtained by the tests, the concentration of this chemical in fish can be calculated as follows:

$$PEC_{\text{fish}} = (2.3 \times 10^{-5} \text{ mg/l}) \times 140 = 3.2 \times 10^{-6} \text{ mg/g-wet}$$

As a daily intake of fish in Japan is estimated to be 90 g for 60 kg body weight person, a daily intake of this chemical will be 4.8×10^{-6} mg/kg/day.

4.2 Effects on Human Health

a) Acute toxicity

SIDS data: Oral/Rat: LD50: 4,900 mg/kg
 Inhalation/Rat: LCLo: 3,000 ppm/6 hr
 Dermal/Rabbit: LD₅₀: 16 ml/kg

b) Irritation

Studies in rabbits showed this chemical was moderately irritant to skin and eyes.

c) Repeated toxicity

SIDS data: (1-Methylethenyl)benzene was performed for oral toxicity in SD (Crj:CD) rats in an OECD combined repeat dose and reproductive/developmental toxicity screening test at doses of 0 (vehicle: olive oil), 40, 200, 1,000 mg/kg/day.

In the 1,000 mg/kg group, male rats showed suppression of body weight gain, and a decrease in food consumption, and one animal died due to ischuria with urinary calculi. Female rats of 1,000 mg/kg group showed a slight suppression of body weight gain in the late gestation period. Histopathological examination demonstrated acidophilic change of hepatocytes and increase of fatty droplets in the fascicular zone of the adrenals in both sexes, increase of hyaline droplets and basophilic changes in the renal tubular epithelium and hyperplasia of the mucosal epithelium in the urinary bladder in male rats, and vacuolation and infiltration of lymphocytes in the renal tubular epithelium and atrophy of the thymus in female rats. Blood chemical examination in male rats showed increase in GPT, urea nitrogen and potassium, and a decrease in triglyceride. In the 200 mg/kg group, similar histopathological changes were found in the liver and kidneys of both sexes, and the thymus of female rats. An increase in GPT was also observed in male rats.

NOEL: 40 mg/kg/day
 LOEL: 200 mg/kg/day

Another study was conducted. (1-Methylethenyl)benzene was administered to 20 male and female SD rats in each group once daily by gavage for 13 weeks at doses of 0, 40, 200 and 1000 mg/kg/day according to OECD Guideline 408. NOAEL was 40 mg/kg/day. (EU Scientific Committee on Food, Working Group Food Contact Material Constituent, 1997)

d) Reproductive/developmental toxicity

SIDS data: 1-Methylethenyl)benzene was performed for oral toxicity in SD(Crj:CD) rats in an OECD combined repeat dose and reproductive/developmental toxicity screening test at doses of 0 (vehicle: olive oil), 40, 200, 1,000 mg/kg/day.

The chemical had no effects on reproductive parameters such as the mating index, the fertility index, gestation length, number of corporalutea or implantations, the implantation index, the gestation index, the delivery index or parturition. Two dams of the 1,000 mg/kg group, however, did not nurse their litters and lost all them within 2 days. There were no significant differences in numbers of offspring or live offspring at birth, the sex ratio, the live birth index, or body weight gain after birth. No abnormal findings ascribable to the compound were found for external examination, clinical signs, or necropsy of the offspring.

NOEL: 1,000 mg/kg/day

- e) Genetic toxicity
Bacterial test: Negative results in *S. Typhimurium* TA100, TA98, TA1535, TA1537 and *E. coli* wp2 *uvrA* with and without metabolic activation.

Chromosomal aberration test in vitro:

(1-Methylethenyl)benzene did not induce structural chromosomal aberration or polyploidy in CHL/IU cells up to a concentration more than that causing 50% cell growth inhibition, in the absence or presence of an exogenous metabolic activation system.

4.3 Initial Assessment for Human Health

(1-Methylethenyl)benzene is considered as an irritant to skin and eyes. The chemical was not mutagenic in bacterial test and chromosomal aberration test in CHL cells with and without metabolic activation system. NOEL was 40 mg/kg/day for repeat dose toxicity and 1,000 mg/kg/day for reproductive toxicity in OECD combined repeat dose and reproductive toxicity test, respectively.

(1-Methylethenyl)benzene is used as an intermediate in a closed system at industries, and workers wear protective gloves and respiratory protective equipments during operation. Therefore, the major exposure route is an inhalation in limited workers. The daily intake through inhalation in occupational situation is calculated as 1.2 mg/kg/day as the worst case. The margin of safety is calculated of 33. However, the frequency of exposure is very limited and the workers wear personal protective equipment. As for indirect exposure via environment, PEC_{local} of 2.3×10^{-5} mg/l from local exposure scenario was used. The daily intake through drinking water or fish was calculated as 7.7×10^{-7} mg/day or 4.8×10^{-6} mg/kg/day. The margin of safety is calculated as 5.2×10^7 for drinking water and 8.3×10^6 for fish. Therefore, the health risk in occupational situation, general environment and indirect via environment is presumably low.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

(1-Methylethenyl)benzene is moderately toxic to fish, daphnids and algae. The PEC is lower than the PNEC, implies the environmental risk presumably to be low. For human health, from the estimated exposure for workers as the worst case, margin of safety is calculated of 33. However, the frequency of exposure is very limited and the workers wear personal protective equipment. Since

the margin of safety in other cases is large such as 5.2×10^7 through drinking water and 8.3×10^6 through fish, health risk is presumably low at present considering its use pattern and exposure levels.

5.2 Recommendations

6. REFERENCES

ANNEX: Full SIDS Dossier

REVISED OECD HPV FORM 1

SIDS DOSSIER

ON THE HPV PHASE-4 CHEMICAL

(1-Methylethenyl)benzene

CAS No. 98 - 83 - 9

Sponsor Country: Japan

DATE: January 29, 1998

CONTENTS**SIDS PROFILE****SIDS SUMMARY****1. GENERAL INFORMATION**

1.01 SUBSTANCE INFORMATION

- * A. CAS-NUMBER
- B. NAME (IUPAC-NAME)
- * C. NAME (OECD NAME)
- † D. CAS DESCRIPTOR
- E. EINECS-NUMBER
- F. MOLECULAR FORMULA
- * G. STRUCTURAL FORMULA
- H. SUBSTANCE GROUP
- I. SUBSTANCE REMARK
- J. MOLECULAR WEIGHT

1.02 OECD INFORMATION

- A. SPONSOR COUNTRY
- B. LEAD ORGANISATION
- C. NAME OF RESPONDER (COMPANY)

1.1 GENERAL SUBSTANCE INFORMATION

- A. TYPE OF SUBSTANCE
- B. PHYSICAL STATE
- C. PURITY

1.2 SYNONYMS

1.3 IMPURITIES

1.4 ADDITIVES

1.5 * QUANTITY

1.6 LABELLING AND CLASSIFICATION (USE AND/OR TRANSPORTATION)

1.7 * USE PATTERN

- A. GENERAL USE PATTERN
- B. USES IN CONSUMER PRODUCTS

1.8 OCCUPATIONAL EXPOSURE LIMIT VALUE

1.9 * SOURCES OF EXPOSURE

1.10 ADDITIONAL REMARKS

- A. OPTIONS OF DISPOSAL
- B. OTHER REMARKS.

2. PHYSICAL-CHEMICAL DATA

2.1 * MELTING POINT

2.2 * BOILING POINT

2.3 † DENSITY (RELATIVE DENSITY)

2.4 * VAPOUR PRESSURE

2.5 * PARTITION COEFFICIENT n-OCTANOL/WATER

2.6 * WATER SOLUBILITY

- A. SOLUBILITY
- B. pH VALUE, pKa VALUE

2.7 FLASH POINT (LIQUIDS)

2.8 AUTO FLAMMABILITY (SOLID/GASES)

2.9 FLAMMABILITY

2.10 EXPLOSIVE PROPERTIES

- 2.11 OXIDISING PROPERTIES
- 2.12 † OXIDATION: REDUCTION POTENTIAL
- 2.13 ADDITIONAL REMARKS
 - A. PARTITION CO-EFFICIENT BETWEEN SOIL/SEDIMENT AND WATER (Kd)
 - B. OTHER REMARKS

3. ENVIRONMENTAL FATE AND PATHWAYS

- 3.1 STABILITY
 - 3.1.1 * PHOTODEGRADATION
 - 3.1.2 * STABILITY IN WATER
 - 3.1.3 STABILITY IN SOIL
- 3.2 * MONITORING DATA (ENVIRONMENT)
- 3.3 * TRANSPORT AND DISTRIBUTION BETWEEN ENVIRONMENTAL COMPARTMENTS INCLUDING ESTIMATED ENVIRONMENTAL CONCENTRATIONS AND DISTRIBUTION PATHWAYS
 - 3.3.1 TRANSPORT
 - 3.3.2 THEORETICAL DISTRIBUTION (FUGACITY CALCULATION)
- 3.4 MODE OF DEGRADATION IN ACTUAL USE
- 3.5 * BIODEGRADATION
- 3.6 BOD-5, COD OR RATIO BOD-5/COD
- 3.7 BIOACCUMULATION
- 3.8 ADDITIONAL REMARKS
 - A. SEWAGE TREATMENT
 - B. OTHER

4. ECOTOXICITY

- 4.1 * ACUTE/PROLONGED TOXICITY TO FISH
- 4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES
 - * A. DAPHNIA
 - B. OTHER AQUATIC ORGANISMS
- 4.3 * TOXICITY TO AQUATIC PLANTS e.g., ALGAE
- 4.4 TOXICITY TO BACTERIA
- 4.5 CHRONIC TOXICITY TO AQUATIC ORGANISMS
 - 4.5.1 CHRONIC TOXICITY TO FISH
 - 4.5.2 (*) CHRONIC TOXICITY TO AQUATIC INVERTEBRATES (e.g., DAPHNIA REPRODUCTION)
- 4.6 TOXICITY TO TERRESTRIAL ORGANISMS
 - 4.6.1 TOXICITY TO SOIL DWELLING ORGANISMS
 - 4.6.2 TOXICITY TO TERRESTRIAL PLANTS
 - 4.6.3 TOXICITY TO OTHER NON-MAMMALIAN TERRESTRIAL SPECIES (INCLUDING BIRDS)
- 4.7 BIOLOGICAL EFFECTS MONITORING (INCLUDING BIOMAGNIFICATION)
- 4.8 BIOTRANSFORMATION AND KINETICS
- 4.9 ADDITIONAL REMARKS

5. TOXICITY

- 5.1 * ACUTE TOXICITY
 - 5.1.1 ACUTE ORAL TOXICITY
 - 5.1.2 ACUTE INHALATION TOXICITY
 - 5.1.3 ACUTE DERMAL TOXICITY
 - 5.1.4 ACUTE TOXICITY BY OTHER ROUTES OF ADMINISTRATION
- 5.2 CORROSIVENESS/IRRITATION

- 5.2.1 SKIN IRRITATION/CORROSION
- 5.2.2 EYE IRRITATION/CORROSION
- 5.3 SKIN SENSITISATION
- 5.4 * REPEATED DOSE TOXICITY
- 5.5 * GENETIC TOXICITY IN VITRO
 - A. BACTERIAL TEST
 - B. NON-BACTERIAL IN VITRO TEST
- 5.6 * GENETIC TOXICITY IN VIVO
- 5.7 CARCINOGENICITY
- 5.8 * TOXICITY TO REPRODUCTION
- 5.9 * DEVELOPMENTAL TOXICITY / TERATOGENICITY
- 5.10 OTHER RELEVANT INFORMATION
 - A. SPECIFIC TOXICITIES (NEUROTOXICITY, IMMUNOTOXICITY etc.)
 - B. TOXICODYNAMICS, TOXICOKINETICS
- 5.11 * EXPERIENCE WITH HUMAN EXPOSURE

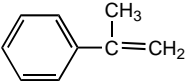
6. REFERENCES

Note: *;Data elements in the SIDS

†;Data elements specially required for inorganic chemicals

SIDS PROFILE

DATE: January 29, 1998

1.01 A.	CAS No.	98-83-9
1.01 C.	CHEMICAL NAME (OECD Name)	(1-Methylethenyl)benzene
1.01 D.	CAS DESCRIPTOR	
1.01 G.	STRUCTURAL FORMULA	
	OTHER CHEMICAL IDENTITY INFORMATION	
1.5	QUANTITY	15,075 tonnes/year in 1993 (Japan) 36,287 tonnes/year in 1987 (USA)
1.7	USE PATTERN	In Japan, Intermediate in closed system No consumer use are known.
1.9	SOURCES AND LEVELS OF EXPOSURE	In Japan, 1. Amount released from production sites to water is 1,000 kg/year. 2. Amount released to air is negligible. 3. No consumer exposure.
ISSUES FOR DISCUSSION (IDENTIFY, IF ANY)	SIDS testing required: Solubility in water Biodegradation Acute toxicity to algae Chronic toxicity to daphnia Combined repeat dose and reproductive toxicity Genotoxic test in bacteria Chromosomal aberration in vitro	

SIDS SUMMARY

DATE: January 29, 1998

CAS NO: 98-83-9		Information	OECD Study	GLP	Other Study	Estimation Method	Acceptable	SIDS Testing Required
STUDY		Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
PHYSICAL-CHEMICAL DATA								
2.1	Melting Point	Y	N	N			Y	N
2.2	Boiling Point	Y	N	N			Y	N
2.3	Density	Y	N	N			Y	N
2.4	Vapour Pressure	Y	N	N			Y	N
2.5	Partition Coefficient	Y	Y	Y			Y	Y
2.6	Water Solubility	Y	Y	Y			Y	Y
	pH and pKa values	N						N
2.12	Oxidation: Reduction potential	N						N
OTHER P/C STUDIES RECEIVED								
ENVIRONMENTAL FATE and PATHWAY								
3.1.1	Photodegradation	N						N
3.1.2	Stability in water	Y	Y	Y			Y	Y
3.2	Monitoring data	Y					Y	Y
3.3	Transport and Distribution	Y					Y	Y
3.5	Biodegradation	Y	Y	Y			Y	Y
OTHER ENV FATE STUDIES RECEIVED								
ECOTOXICITY								
4.1	Acute toxicity to Fish	Y	Y	Y			Y	Y
4.2	Acute toxicity to Daphnia	Y	Y	Y			Y	Y
4.3	Toxicity to Algae	Y	Y	Y			Y	Y
4.5.2	Chronic toxicity to Daphnia	Y	Y	Y			Y	Y
4.6.1	Toxicity to Soil dwelling organisms	N						N
4.6.2	Toxicity to Terrestrial plants	N						N
4.6.3	Toxicity to Birds	N						N
OTHER ECOTOXICITY STUDIES RECEIVED								
TOXICITY								
5.1.1	Acute Oral	Y	N	N	Y	N	Y	N
5.1.2	Acute Inhalation	Y	N	N	Y	N	Y	N
5.1.3	Acute Dermal	Y	N	N	Y	N	Y	N
5.4	Repeated Dose	N						Y
5.5	Genetic Toxicity <i>in vitro</i>							
	. Gene mutation	N						Y
	. Chromosomal aberration	N						Y
5.6	Genetic Toxicity <i>in vivo</i>	N						N
5.8	Reproduction Toxicity	N						Y
5.9	Development / Teratogenicity	N						N
5.11	Human experience	N						N
OTHER TOXICITY STUDIES RECEIVED								

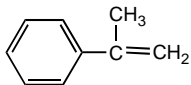
1. GENERAL INFORMATION**1.01 SUBSTANCE INFORMATION**

- *A. Cast number** 98-83-9
- B. Name (IUPAC name)** 2-Phenylpropene
- *C. Name (OECD name)** (1-Methylethenyl)benzene

†D. CAS Descriptor

- E. EINECS-Number** 202-705-0

- F. Molecular Formula** C₉H₁₀

G. Structural Formula****H. Substance Group*I. Substance Remark**

- J. Molecular Weight** 119.18

1.02 OECD INFORMATION

- A. Sponsor Country:** Japan

B. Lead Organisation:

Name of Lead Organisation: Ministry of Health and Welfare (MHW)
Ministry of International Trade and Industry (MITI)
Environment Agency (EA)
Ministry of Labour (MOL)
Contact person: Mr. Kenichi Suganuma
Director, Second International Organization Bureau
Ministry of Foreign Affairs
Address:

Street: 2-2-1 Kasumigaseki, Chiyoda-ku, Tokyo 100, Japan
Tel: 81-3-3581-0018
Fax: 81-3-3503-3136

C. Name of responder

Name: Same as above contact person

1.1 GENERAL SUBSTANCE INFORMATION**A. Type of Substance**

element []; inorganic []; natural substance []; organic [X]; organometallic [];
petroleum product []

B. Physical State (*at 20°C and 1.013 hPa*)

gaseous []; liquid [X]; solid []

C. Purity

99.6 %

1.2 SYNONYMS

1-methyl-1-phenylethylene; Isopropenylbenzene; 2-Phenylpropene;
2-Phenyl-1-propene; as-methylphenylethylene;
beta-phenylpropene; 2-phenylpropylene; beta-phenylpropylene; alpha-methylstyrol;
1-phenyl-1-methylethylene; 2-phenyl-2-propene;

1.3 IMPURITIES

Unknown

1.4 ADDITIVES

None

***1.5 QUANTITY**

- (1) 15,075 tonnes/year in 1993 (Japan)
- (2) 36,287 tonnes/year in 1987 (USA)

Remarks:

Reference: (1) MITI, Japan (1997)
(2,3) ECDIN Database

1.6 LABELLING AND CLASSIFICATION**1.6.1 Labelling**

Labelling: as in Directive 67/548/EEC
Symbols: Xi
Specific limits: no yes
R-Phrases: (10) Flammable
(20/22) Harmful by inhalation and if swallowed.
(36/37) Irritating to eyes and respiratory system
S-Phrases: (2) Keep out of reach of children
Marking: non confidential

1.6.2 Classification

Classification: as in Directive 67/548/EEC

Class of danger: irritant
 R-Phrases: (36/37) Irritating to eye and respiratory system
 Marking: non confidential
 Reference: IUCLID Database

Classification: as in Directive 67/548/EEC
 Class of danger:
 R-Phrases: (10) Flammable
 Marking: non confidential
 Reference: IUCLID Database

*1.7 USE PATTERN

A.	Type of Use:	Category:
(a)	main industrial use	Intermediate Intermediate in closed system Intermediate for fragrances and coatings. Polymerization monomer, especially for polyester resins and plastics
(a)	main industrial use	Direct use Solvent and functional fluid Heat-resistance improver in ABS plastics

Reference: ECDIN Database

B. Uses in Consumer Products

No consumer use are known in Japan.

Reference: MITI, Japan (1997)

1.8 OCCUPATIONAL EXPOSURE LIMIT

No occupational exposure limit value are available in Japan.

Type of limit: TWA
 Limit value: 50 ppm (240 mg/m³)
 Country: Australia, Belgium, Denmark, Switzerland
 Source: RTECS Database

Type of limit: TWA
 Limit value: 100 ppm (480 mg/m³)
 Country: Finland, Germany, UK, USA
 Source: RTECS Database

*1.9 SOURCES OF EXPOSURE

In Japan, p-tert-butylphenol is produced by 2 companies.

(a) Source: Media of release: Bay
 Quantities per media: 200 kg/year

Remarks:

Reference: MITI, Japan (1997)

(b) Source: Media of release: Bay
Quantities per media: 1,000 kg/year

Remarks:
Reference: MITI, Japan (1997)

1.10 ADDITIONAL REMARKS

A. Options for disposal

No information are available.

B. Other remarks

None

2. PHYSICAL-CHEMICAL DATA

*2.1 MELTING POINT

Value: - 23.2 °C
Decomposition: Yes [] No [X] Ambiguous []
Sublimation: Yes [] No [X] Ambiguous []
Method: Unkown
GLP: Yes [] No [X] ? []
Remarks:
Reference: Kagaku daijiten (Chemical dictionary)

Value: - 23.2 °C
Decomposition: Yes [] No [X] Ambiguous []
Sublimation: Yes [] No [X] Ambiguous []
Method: Unkown
GLP: Yes [] No [] ? [X]
Remarks:
Reference: IUCLID Database (Phenolchemie GmbH Gladbeck)

*2.2 BOILING POINT

Value: 161 - 162 °C
Pressure: at 1,013 hPa
Decomposition: Yes [] No [X] Ambiguous []
Method: Unknown
GLP: Yes [] No [X] ? []
Remarks:
Reference: Kagaku Daijiten (Chemical dictionary)

Value: 165 °C
Pressure: at 1,013 hPa
Decomposition: Yes [] No [X] Ambiguous []
Method: Unknown
GLP: Yes [] No [] ? [X]
Remarks:
Reference: IUCLID Database Database (Phenolchemie GmbH Gladbeck)

***2.3 DENSITY (relative density)**

Type: Bulk density []; Density [X]; Relative Density []
 Value: 0.9106 g/cm³
 Temperature: 20 °C
 Method: unknown
 GLP: Yes [] No [] ? [X]
 Reference: IUCLID Database (Phenolchemie GmbH Gladbeck)

***2.4 VAPOUR PRESSURE** (if more than one, identify the recommended value)

Value: (1) 2.8 x 10² Pa (2) 6.9 x 10² Pa
 Temperature: (1) 20 °C (2) 37.7 °C
 Method: calculated []; measured [X]
 GLP: Yes [] No [] ? [X]
 Remarks:
 Reference: The Sigma-Aldrich Library of Regulatory and Safety Data

Value: 3 hPa
 Temperature: 20 °C
 Method: calculated []; measured [X]
 GLP: Yes [] No [] ? [X]

Remarks:
 Reference: IUCLID Database (Phenolchemie GmbH Gladbeck)

***2.5 PARTITION COEFFICIENT log₁₀P_{ow}**

*Log Pow: 3.48
 Temperature: 25 °C
 Method: calculated []; measured [X]
 OECD TG 107
 GLP: Yes [X] No [] ? []
 Remarks: Test was performed by CITI, Japan
 Reference: MITI, Japan (1997)

2.6 WATER SOLUBILITY*A. Solubility**

Value: 100 mg/l
 Temperature: 25 °C
 Description: Miscible []; Of very high solubility [];
 Of high solubility []; Soluble []; Slightly soluble [X];
 Of low solubility []; Of very low solubility []; Not soluble []
 Method: OECD TG 105
 GLP: Yes [X] No [] ? []
 Remarks: Test was performed by CITI, Japan
 Reference: MITI, Japan (1997)

B. pH Value, pKa Value

No ionizable functional group.

2.7 FLASH POINT (liquids)

Value: ca. 40 °C

Type of test: Closed cup ; Open cup []; Other []
 Method: Other: DIN 51758
 GLP: Yes [] No [] ?
 Remarks:
 Reference: IUCLID Database (Phenolchemie GmbH Gladbeck)

2.8 AUTO FLAMMABILITY (*solid/gases*)

Value: 420 °C
 Pressure: 1013 hPa
 Method: unknown
 GLP: Yes [] No [] ?
 Remarks:
 Reference: IUCLID Database (Phenolchemie GmbH Gladbeck)

2.9 FLAMMABILITY

Results: Extremely flammable []; Extremely flammable - liquified gas [];
 Highly Flammable []; Flammable ; Non flammable [];
 Spontaneously flammable in air []; Contact with water liberates highly
 flammable gases []; Other []
 Method: unknown
 GLP: Yes [] No [] ?
 Remarks:
 Reference: IUCLID Database (Phenolchemie GmbH Gladbeck)

2.10 EXPLOSIVE PROPERTIES

Results: Explosive under influence of a flame [];
 More sensitive to friction than m-dinitrobenzene [];
 More sensitive to shock than m-dinitrobenzene []; Not explosive [];
 Other
 Method: unknown
 GLP: Yes [] No [] ?
 Remarks: Lower and upper explosion limits are 0.9% and 6.6% vol, respectively.
 Reference: IUCLID Database (Phenolchemie GmbH Gladbeck)

2.11 OXIDISING PROPERTIES

Results: Maximum burning rate equal or higher than reference mixture [];
 Vigorous reaction in preliminary test [];
 No oxidising properties ; Other []
 Method: unknown
 GLP: Yes [] No [] ? []
 Remarks:
 Reference: (Phenolchemie GmbH Gladbeck)

†2.12 OXIDATION: REDUCTION POTENTIAL

2.13 ADDITIONAL DATA

None

3. ENVIRONMENTAL FATE AND PATHWAYS

3.1 STABILITY***3.1.1 PHOTODEGRADATION**

No data are available.

***3.1.2 STABILITY IN WATER**

Type: Abiotic (hydrolysis) [**X**]; biotic (sediment)[]
 Degradation: Stable at pH 4, 7 and 9 at 25 °C
 Method: OECD TG 111
 GLP: Yes [**X**] No [] ? []
 Test substance: 1-Methylethnyl benzene, purity: 99%
 Remarks: Test was performed by CITI, Japan
 Reference: MITI, Japan (1997)

3.1.3 STABILITY IN SOIL

No data are available.

***3.2 MONITORING DATA (ENVIRONMENTAL)**

(a)

Type of Measurement: Background []; At contaminated site []; Other [**X**]
 Media: Surface water (sea)
 Results: ND (Detection limits: 0.004 mg/l) in 1 area in Japan as of 1977
 Remarks: ND: Not detected
 Reference: Chemicals in the environment, EA, Japan (1977)

(b)

Type of Measurement: Background []; At contaminated site []; Other [**X**]
 Media: Sediment (sea)
 Results: ND (Detection limits: 0.01 mg/kg) in 1 area in Japan as of 1977
 Remarks: ND: Not detected
 Reference: Chemicals in the environment, EA, Japan (1977)

3.3 TRANSPORT AND DISTRIBUTION BETWEEN ENVIRONMENTAL COMPARTMENTS INCLUDING ESTIMATED ENVIRONMENTAL CONCENTRATIONS AND DISTRIBUTION***3.3.1 TRANSPORT**

No data are available.

***3.3.2 THEORETICAL DISTRIBUTION (FUGACITY CALCULATION)**

Media: Air-biota []; Air-biota-sediment-soil-water [**X**]; Soil-biota [];
 Water-air []; Water-biota []; Water-soil []; Other []
 Method: Fugacity level I []; Fugacity level II []; Fugacity level III [**X**]; Fugacity
 level IV []; Other (calculation) []; Other (measurement)[]
 Results:

Compartment	Release 100% to air	Release 100% to water	Release 100% to soil
Air	97.0 %	28.4 %	2.0 %
Water	1.1 %	69.7 %	0.1 %

Soil	1.9 %	0.6 %	97.9 %
Sediment	0.0 %	1.3 %	0.0 %

Reference: MITI and EA, Japan (1997)

3.4 IDENTIFICATION OF MAIN MODE OF DEGRADABILITY IN ACTUAL USE

No information are available.

*3.5 BIODEGRADATION

*Type: aerobic [**X**]; anaerobic []
 Inoculum: adapted []; non-adapted [**X**];
 Concentration of the chemical: related to COD []; DOC []; test substance [**X**]
 Medium: water [**X**]; water-sediment []; soil []; sewage treatment []
 Degradation: 0 % after 2 weeks
 Results: readily biodeg. []; inherently biodeg. []; under test condition no biodegradation observed [**X**], other []
 Method: OECD TG 301C
 GLP: Yes [**X**] No [] ? []
 Test substance: (1-Methylethenyl)benzene, purity: 99%.
 Remarks: Test was performed in CITI, Japan.
 Reference: M.I.T.I. (1997)

3.6 BOD₅, COD OR RATIO BOD₅/COD

No data are available.

3.7 BIOACCUMULATION

Species: Carp(*Cyprinus carpio*)
 Exposure period: 8 weeks
 Temperature: 25 °C
 Concentration: (1) 0.3 mg/l
 (2) 0.03 mg/l
 BCF: (1) 15 - 140
 (2) 12 - 113
 Method: OECD TG 305C
 Type of test: calculated []; measured [**X**]
 static []; semi-static []; flow-through [**X**]; other (*e.g. field test*) []
 GLP: Yes [] No [] ? []
 Test substance: (1-methylethenyl)benzene, purity: 99 %
 Remarks: Test was performed by CITI, Japan.
 Reference: MITI, Japan (1997)

3.8 ADDITIONAL REMARKS

A. Sewage treatment

No information are available.

B. Other information

None

4. ECOTOXICITY***4.1 ACUTE/PROLONGED TOXICITY TO FISH**

Type of test: static []; semi-static [X]; flow-through []; other []
 open-system [X]; closed-system []

Species: *Oryzias latipes* (Himedaka)

Exposure period: 96 h

Results: LC₅₀ (24h) = 15 mg/l
 LC₅₀ (48h) = 15 mg/l
 LC₅₀ (72h) = 15 mg/l
 LC₅₀ (96h) = 15 mg/l
 NOEC = mg/l
 LOEC = mg/l

Analytical monitoring: Yes [] No [X] ? []

Method: OECD TG 203 (1992)

GLP: Yes [] No [X] ? []

Test substance: As prescribed by 1.1 - 1.4 , purity: 99.6%

Remarks: Group of ten Himedaka were exposed to nominal concentrations of 6.3, 9.5, 14, 21 and 32 mg/l, DMSO & HCO-40 (4:1 weight ratio, 100 mg/l) control and laboratory water control. The LC₅₀ (96h) was determined to be 15 mg/l with a 95 % confidence level of 14 mg/l to 18 mg/l.

Reference: Environment Agency of JAPAN (1995)

4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES***A. Daphnia**

Type of test: static []; semi-static [X]; flow-through []; other []
 open-system [X]; closed-system []

Species: *Daphnia Magna*

Exposure period: 48 h

Results: EC₅₀ (24h) = 56 mg/l
 EC₅₀ (48h) = 54 mg/l
 NOEC = 18 mg/l

Analytical monitoring: Yes [] No [X] ? []

Method: OECD TG 202 .

GLP: Yes [] No [X] ? []

Test substance: As prescribed by 1.1 - 1.4 , purity: 99.6 %

Remarks: 20 daphnids (4 replicates; 5 organisms per replicate) were exposed to nominal concentrations of 10, 18, 32, 56 and 100 mg/l, solubilizer (DMSO : HCO-40 = 4:1 weight ratio, 100 mg/l) control and laboratory water control. The EC₅₀ (48h) was determined to be 54 mg/l with a 95 % confidence level of 46 mg/l to 65 mg/l.

Reference: Environment Agency of JAPAN (1995)

B. Other aquatic organisms

No data are available.

***4.3 TOXICITY TO AQUATIC PLANTS, e.g. algae**

Species: *Selenastrum capricornutum* ATCC 22662
 Endpoint: Biomass []; Growth rate [X]; Other []
 Exposure period: 72 h
 Results: Growth rate EC_{50} (72h) = 52.6 mg/l
 (Endpoint) NOEC = 40 mg/l
 LOEC = 50 mg/l
 Analytical monitoring: Yes [X] No [] ? []
 Method: OECD TG 201 (1984)
 open-system [X]; closed-system []
 GLP: Yes [] No [X] ? []
 Test substance: As prescribed by 1.1 - 1.4 , purity: 99.6 %
 Remarks: Static test. The EC_{50} value for growth rate (% inhibition) was calculated based on 5 nominal concentrations(40, 50, 60, 70 and 80 mg/l). Minimal amount of Tween 80 - acetone (1:1) or DMSO - HCO-40 (9:1) is used as solubilizer.
 Reference: Environment Agency of JAPAN (1995)

4.4 TOXICITY TO BACTERIA

Type: Aquatic []; Field []; Soil []; Other []
 Species: *Pseudomonas putida*
 Exposure Period: 18 hr
 Results: EC_{10} (18 h) = 283 mg/l
 Analytical monitoring: Yes [] No [] ? [X]
 Method: Other
 GLP: Yes [] No [] ? [X]
 Test substance: purity: unknown
 Remarks:
 Reference: IUCLID Database

4.5 CHRONIC TOXICITY TO AQUATIC ORGANISMS

4.5.1 CHRONIC TOXICITY TO FISH

No data are available.

(*4.5.2 CHRONIC TOXICITY TO AQUATIC INVERTEBRATES

Type of test: static []; semi-static [X]; flow-through []; other (*e.g. field test*) []; open-system [X]; closed-system []
 Species: *Daphnia Magna*
 Endpoint: Mortality []; Reproduction rate [X]; Other []
 Exposure period: 21 d
 Results: Reproduction rate: EC_{50} (21 d) = 4.7 mg/l
 (Endpoint) NOEC = 1.8 mg/l
 LOEC = 5.6 mg/l
 Analytical monitoring: Yes [] No [X] ? []
 Method: OECD TG 202 (1984)
 GLP: Yes [] No [X] ? []
 Test substance: As prescribed by 1.1 - 1.4 , purity: 99.6 %
 Remarks: 40 daphnids (4 replicate; 10 daphnids per replicate) were exposed to 5 concentrations (0.56, 1.8, 5.6, 18, 56 mg/l) in dechlorinated tap water (pH : 7.6 to 8.0; Hardness : 48 to 111 mg/l). DMSO and HCO-40 (4:1 mixture, 56 mg/l) is added as solubilizer.
 Reference: Environment Agency of JAPAN (1995)

4.6 TOXICITY TO TERRESTRIAL ORGANISMS**4.6.1 TOXICITY TO SOIL DWELLING ORGANISMS**

No data are available.

4.6.2 TOXICITY TO TERRESTRIAL PLANTS

No data are available.

4.6.3 TOXICITY TO OTHER NON MAMMALIAN TERRESTRIAL SPECIES (INCLUDING AVIAN)

No data are available.

4.7 BIOLOGICAL EFFECTS MONITORING (INCLUDING BIOMAGNIFICATION)

No data are available.

4.8 BIOTRANSFORMATION AND KINETICS

No data are available.

4.9 ADDITIONAL REMARKS

None

5. TOXICITY***5.1 ACUTE TOXICITY****5.1.1 ACUTE ORAL TOXICITY**

Type: LD₀ []; LD₁₀₀ []; LD₅₀ [X]; LDL₀ []; Other []
 Species/strain: Rat
 Value: 4,900 mg/kg b.w.:
 Method: unknown
 GLP: Yes [] No [X] ? []
 Test substance:
 Remarks:
 Reference: RTECS Database (Archiv. Ind. Health, 14, 387 (1956))

5.1.2 ACUTE INHALATION TOXICITY

Type: LC₀ []; LC₁₀₀ []; LC₅₀ []; LCL₀ [X]; Other []
 Species/strain: Rat
 Exposure time: 6 hours
 Value: 3,000 ppm
 Method: unknown
 GLP: Yes [] No [] ? [X]
 Test substance:
 Remarks:
 Reference: IUCLID Database (Phenolchemie GmbH Gladbeck)

5.1.3 ACUTE DERMAL TOXICIT

Type: LD₀ []; LD₁₀₀ []; LD₅₀ [X]; LDL₀ []; Other []
 Species/strain: Rabbit
 Value: 16 ml/kg b.w.:
 Method: unknown
 GLP: Yes [] No [] ? [X]
 Test substance:
 Remarks:
 Reference: RTECS Database (Union Carbide data sheet)

5.1.4 ACUTE TOXICITY, OTHER ROUTES OF ADMINISTRATION

No data are available.

5.2 CORROSIVENESS/IRRITATION**5.2.1 SKIN IRRITATION/CORROSION**

Species/strain: Rabbit
 Results: Highly corrosive []; Corrosive []; Highly irritating [];
 Irritating []; Moderate irritating [X]; Slightly irritating [];
 Not irritating []
 Classification: Highly corrosive (causes severe burns) [];
 Corrosive (causes burns) []; Irritating [X]; Not irritating []
 Method: Standard Draize Test
 GLP: Yes [] No [] ? [X]
 Test substance: purity: unknown
 Remarks: Dose: 100%
 Reference: RTECS Database (Achiev. Ind. Health, 14, 386 (1956))

5.2.2 EYE IRRITATION/CORROSION

Species/strain: Rabbit
 Results: Highly corrosive []; Corrosive []; Highly irritating [];
 Irritating []; Moderate irritating [X]; Slightly irritating [];
 Not irritating []
 Classification: Highly corrosive (causes severe burns) [];
 Corrosive (causes burns) []; Irritating []; Not irritating []
 Method: Standard Draize test
 GLP: Yes [] No [] ? [X]
 Test substance: purity: unknown
 Remarks: Dose: 86 mg
 Reference: RTECS Database (Achiev. Ind. Health, 14, 387 (1956))

***5.4 REPEATED DOSE TOXICITY**

Species/strain: Rat/Crj:CD(SD)
 Sex: Female []; Male []; Male/Female [X]; No data []
 Route of Administration: Oral (gavage)
 Exposure period: Male, 44 days
 Female, from 14 days before mating to day 3 of lactation
 Frequency of treatment:
 Post exposure observation period:
 Dose: 0 (Vehicle), 40, 200, 1000 mg/kg/day

Control group:	Yes <input checked="" type="checkbox"/> ; No <input type="checkbox"/> ; No data <input type="checkbox"/> ; Olive oil Concurrent no treatment <input type="checkbox"/> ; Concurrent vehicle <input checked="" type="checkbox"/> ; Historical <input type="checkbox"/>
NOEL:	40 mg/kg/day
LOEL:	200 mg/kg/day
Results:	(1-Methylethenyl)benzene was studied for oral toxicity in SD(Crj:CD) rats in an OECD combined repeat dose and reproductive/developmental toxicity screening test at doses 0, 40, 200 and 1,000 mg/kg/day. In the 1,000 mg/kg group, male rats showed suppression of body weight gain, and a decrease in food consumption, and one animal died due to ischuria with urinary calculi. Female rats of 1,000 mg/kg group showed a slight suppression of body weight gain in the late gestation period. Histopathological examination demonstrated acidophilic change of hepatocytes and increase of fatty droplets in the fascicular zone of the adrenals in both sexes, increase of hyaline droplets and basophilic changes in the renal tubular epithelium and hyperplasia of the mucosal epithelium in the urinary bladder in male rats, and vacuolation and infiltration of lymphocytes in the renal tubular epithelium and atrophy of the thymus in female rats. Blood chemical examination in male rats showed increase in GPT, urea nitrogen and potassium, and a decrease in triglyceride. In the 200 mg/kg group, similar histopathological changes were found in the liver and kidneys of both sexes, and the thymus of female rats. An increase in GPT was also observed in male rats.
Method:	OECD Combined Repeat Dose and Reproductive/Developmental Toxicity Screening Test
GLP:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> ? <input type="checkbox"/>
Test substance:	(1-Methylethenyl)benzene, purity: 94.6%
Reference:	MHW, Japan (1997)

*5.5 GENETIC TOXICITY IN VITRO

A. BACTERIAL TEST

Type:	Bacterial gene mutation assay
System of testing:	<i>S. typhimurium</i> TA98, TA100, TA1535, TA1537 <i>E. coli</i> WP2 <i>uvrA</i>
Procedure	Plate incorporation method
Solvent	Dimethylsulfoxide
positive control	-S9 mix, AF-2 (TA100, TA98, WP2), sodium azide (TA1535) and 2-aminoanthracene (TA1537) +S9 mix, 2-Aminoanthracene (all strains)
Doses	0, 12.5, 25, 50, 100, 200, 400 µg /plate
S-9	Rat liver, induced with phenobarbital and 5,6-benzoflavone
Plates/test	3
Number of replicates	2
Metabolic activation:	With <input type="checkbox"/> ; Without <input type="checkbox"/> ; With and Without <input checked="" type="checkbox"/> ; No data <input type="checkbox"/>
Results:	
Cytotoxicity conc:	With metabolic activation: Without metabolic activation:
Precipitation conc:	
Genotoxic effects:	+ ? - With metabolic activation: <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Without metabolic activation: <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
Method:	
GLP:	Yes <input type="checkbox"/> No <input type="checkbox"/> ? <input checked="" type="checkbox"/>
Test substance:	(1-Methylethenyl)benzene, purity: 99.6%

Remarks:
Reference: MHW, Japan (1997)

B. NON-BACTERIAL IN VITRO TEST

Type: Chromosomal aberration test
Type of cells used: Chinese hamster lung (CHL/IU) cells
Test method:
Solvent: Dimethylsulfoxide
Positive control: -S9, Mitomycin C; +S9, Cyclophosphamide
Dose: -S9 (continuous treatment): 0, 0.04, 0.09, 0.17 mg/ml
-S9 (short-term treatment): 0, 0.04, 0.09, 0.17 mg/ml
+S9 (short-term treatment): 0, 0.06, 0.12, 0.23 mg/ml
S-9: Rat liver, induced with phenobarbital and 5,6-benzoflavone
Metabolic activation: With []; Without []; With and Without [X]; No data []
Plates/test: 2
Results: Cytogenetic effect was not seen under the conditions of this test.
Cytotoxicity conc: With metabolic activation:
Without metabolic activation:
Precipitation conc:
Genotoxic effects:

	clastogenicity			polyproidy		
	+	?	-	+	?	-
With metabolic activation:	[]	[]	[X]	[]	[]	[X]
Without metabolic activation:	[]	[]	[X]	[]	[]	[X]

Method: Guidelines for Screening Mutagenicity Testing of Chemicals (Japan)
GLP: Yes [X] No [] ? []
Test substance: (1-Methylethenyl)benzene purity: 99.6%
Remarks:
Reference: MHW, Japan (1997)

* 5.6 GENETIC TOXICITY IN VIVO

No data are available.

5.7 CARCINOGENICITY

No data are available.

*5.8 TOXICITY TO REPRODUCTION

Type: Fertility []; One-generation study []; Two-generation study [];
Other [X]
Species/strain: Rat/Crj:CD(SD)
Sex: Female []; Male []; Male/Female [X]; No data []
Route of Administration: Oral (gavage)
Exposure period: Male, 44 days; Female, from 14 days before mating to day 3 of lactation
Frequency of treatment:
Post exposure observation period:
Premating exposure period: male: , female:
Duration of the test:
Doses: 0 (Vehicle), 40, 200, 1000 mg/kg/day
Control group: Yes [X]; No []; No data []; Olive oil
Concurrent no treatment []; Concurrent vehicle [X]; Historical []
NOEL Parental: 1,000 mg/kg/day for male; 200 mg/kg/day for female
NOEL F1 Offspring: 1,000 mg/kg/day

NOEL F2 Offspring:

Results: The chemical had no effects on reproductive parameters such as the mating index, the fertility index, gestation length, number of corpora lutea or implantations, the implantation index, the gestation index, the delivery index or parturition. Two dams of the 1,000 mg/kg group, however, did not nurse their litters and lost all of them within 2 days. There were no significant differences in numbers of offspring or live offspring at birth, the sex ratio, the live birth index, or body weight gain after birth. No abnormal findings ascribable to the compound were found for external examination, clinical signs, or necropsy of the offspring.

Method: OECD Combined Repeat Dose and Reproductive/Developmental Toxicity Screening Test

GLP: Yes No ?

Test substance: (1-Methylethenyl)benzene, purity: 99.6%

Reference: MHW, Japan (1997)

***5.9 DEVELOPMENTAL TOXICITY/ TERATOGENICITY**

No data are available.

5.10 OTHER RELEVANT INFORMATION

None

***5.11 EXPERIENCE WITH HUMAN EXPOSURE**

None

6. REFERENCES

EXTRACT FROM IRPTC LEGAL FILES

file: 17.01 LEGAL rn : 100148
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : STYRENE-ALPHA-METHYL
 cas no : 98-83-9 rtecs no : WL5250000
 area : ARG type : REG

subject	specification	descriptor
AIR	OCC	MPC

8H-TWA : 240 MG/M3 (50 PPM), 15MIN-STEL : 485 MG/M3 (100 PPM) (MAXIMUM 4
 TIMES/DAY WITH INTERVALS OF AT LEAST 60 MINUTES).
 entry date: OCT 1991 effective date: 29MAY1991

title: LIMIT VALUES FOR CHEMICAL SUBSTANCES IN THE WORKING
 ENVIRONMENT-RESOLUTION NO. 444/1991 OF THE MINISTRY OF WORK AND SOCIAL
 SECURITY (AMENDING REGULATION DECREE NO. 351/1979 UNDER LAW NO.
 19587/1972: HYGIENE AND SAFETY AT WORK)
 original : ARGOB*, BOLETIN OFICIAL DE LA REPUBLICA ARGENTINA(ARGENTIAN
 OFFICIAL BULLETIN), 24170 , I , 1 , 1979
 amendment: ARGOB*, BOLETIN OFICIAL DE LA REPUBLICA ARGENTINA(ARGENTIAN
 OFFICIAL BULLETIN), 27145 , I , 4 , 1991

file: 17.01 LEGAL rn : 300192
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : alpha-methyl styrene
 cas no : 98-83-9 rtecs no : WL5250000
 area : CAN type : REG

subject	specification	descriptor
AIR	OCC	TLV

TWA: 50 ppm, 240 mg/m3; STEL: 100 ppm, 485 mg/m3. Prescribed by the
 Canada Occupational Safety and Health Regulations, under the Canada
 Labour Code (administered by the Department of Employment and
 Immigration). The regulations state that no employee shall be exposed to
 a concentration of an airborne chemical agent in excess of the value for
 that chemical agent adopted by ACGIH (American Conference of
 Governmental Industrial Hygienists) in its publication entitled:
 "Threshold Limit Value and Biological Exposure Indices for 1985-86". The
 regulations also state that the employer shall, where a person is about
 to enter a confined space, appoint a qualified person to verify by means
 of tests that the concentration of any chemical agent or combination of
 chemical agents will not result in the exposure of the person to a
 concentration in excess of the value indicated above. These regulations
 prescribe standards whose enforcement will provide a safe and healthy
 workplace.
 entry date: OCT 1994 effective date: 24MCH1994

amendment: CAGAAK, CANADA GAZETTE PART II, 128 , 7 , 1513 , 1994

file: 17.01 LEGAL rn : 303362
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : alpha-methylstyrene
 cas no : 98-83-9 rtecs no : WL5250000
 area : CAN type : REG

subject	specification	descriptor
USE	OCC	RQR
STORE		
LABEL		

Ingredient Disclosure List - Concentration: 1% weight/weight. The Workplace Hazardous Materials Information System (WHMIS) is a national system providing 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. The regulations also 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.
 entry date: APR 1991 effective date: 31DEC1987

amendment: CAGAAK, CANADA GAZETTE PART II, 122 , 2 , 551 , 1988

file: 17.01 LEGAL rn : 304641
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : Isopropenylbenzene
 cas no : 98-83-9 rtecs no : WL5250000
 area : CAN type : REG

subject	specification	descriptor
TRNSP		CLASS
LABEL		RQR
PACK		

Schedule II, List II - Dangerous Goods other than Explosives: PIN (Product Identification No.): UN2303. Class (3): Flammable liquids. Packing group III, (I=Great danger, III=Minor danger). Passenger Vehicles: 60 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 comprehensive regulations applicable to all modes of transport across Canada. These are based on United Nations recommendations. The act and regulations should be consulted for details. Information is entered under the proper shipping name found in the regulations; this may include general groups of chemical substances.
 entry date: OCT 1994 effective date: 02DEC1993

amendment: CAGAAK, CANADA GAZETTE PART II, 127 , 25 , 4056 , 1993

file: 17.01 LEGAL rn : 532466
 !!! WARNING - not original IRPTC record - WARNING !!!
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : Isopropenyl benzene
 cas no : 98-83-9 rtecs no : WL5250000
 area : DEU type : REG

subject	specification	descriptor
AIR	EMI	MPC

THIS SUBSTANCE BELONGS TO CLASS II. THE AIR EMISSIONS OF ORGANIC COMPOUNDS MUST NOT EXCEED (AS THE SUM OF ALL COMPOUNDS IN ONE CLASS) THE FOLLOWING MASS CONCENTRATIONS: CLASS I - 20 MG/M3 AT A MASS FLOW OF >= 0.1 KG/H; CLASS II - 100 MG/M3 AT A MASS FLOW OF >= 2 KG/H; CLASS III - 150 MG/M3 AT A MASS FLOW OF >= 3 KG/H. IF COMPOUNDS FROM DIFFERENT CLASSES ARE PRESENT, THE MASS CONCENTRATION MUST NOT EXCEED 150 MG/M3 AT A TOTAL MASS FLOW OF >= 3 KG/H.

entry date: JAN 1995 effective date: 01MCH1986

title: Technical Instructions on Air Quality Control (Technische Anleitung zur Reinhaltung der Luft)
 original : GMSMA6, Gemeinsames Ministerialblatt, , 7 , 93 , 1986

file: 17.01 LEGAL rn : 540543
 !!! WARNING - not original IRPTC record - WARNING !!!
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : .alpha.-Methyl styrene
 cas no : 98-83-9 rtecs no : WL5250000
 area : DEU type : REC

subject	specification	descriptor
AIR	OCC	MAK

MAK value (8-hour time-weighted average): 100 ml/m3 (ppm) or 490 mg/m3 (20 C, 1013 hPa). Peak limitation category I: Substance for which local irritant effects determine the MAK value; excursion factor = 1 (peak level is 1 x MAK). - Vapour pressure: 3 hPa at 20 C.
 entry date: MAY 2001

title: List of MAK and BAT Values 2000. Maximum Concentrations and Biological Tolerance Values at the Workplace. (MAK- und BAT-Werte-Liste 2000. Maximale Arbeitsplatzkonzentrationen und Biologische Arbeitsstofftoleranzwerte.)
 original : MPGDFD, Mitteilung der Senatskommission zur Pruefung gesundheitsschaedlicher Arbeitsstoffe, 36 , , , 2000

file: 17.01 LEGAL rn : 1010308
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : .alpha.-Methylstyrene
 cas no : 98-83-9 rtecs no : WL5250000
 area : MEX type : REG

subject	specification	descriptor
AIR	OCC	MXL

AT ANY WORKPLACE WHERE THIS SUBSTANCE IS PRODUCED, STORED OR HANDLED A MAXIMUM PERMISSIBLE LEVEL OF 240MG/M3 (50PPM) MUST BE OBSERVED FOR A PERIOD OF 8 HOURS OR 485MG/M3 (100PPM) FOR 15 MINUTES FOUR TIMES A DAY WITH INTERVALS OF AT LEAST 1 HOUR.

entry date: DEC 1991

effective date: 28MAY1984

title: INSTRUCTION NO.10 RELATED TO SECURITY AND HYGIENIC CONDITIONS AT WORKPLACES. (INSTRUCTIVO NO. 10, RELATIVO A LAS CONDICIONES DE SEGURIDAD E HIGIENE DE LOS CENTROS DE TRABAJO).

original : DOMEX*, DIARIO OFICIAL, , , , 1984

file: 17.01 LEGAL rn : 1121045
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : .alpha.-Methyl styrene
 cas no : 98-83-9 rtecs no : WL5250000
 area : RUS type : REG

subject	specification	descriptor
AIR	OCC	MAC CLASS

CLV : 5.0 MG/M3 (VAPOUR) HAZARD CLASS: III

entry date: MAY 1990

effective date: 01JAN1989

amendment: GOSTS*, GOSUDARSTVENNYI STANDART SSSR (STATE STANDARD OF USSR), 12.1.005 , , , 1988

file: 17.01 LEGAL rn : 1122071
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : .alpha.-Methyl styrene
 cas no : 98-83-9 rtecs no : WL5250000
 area : RUS type : REG

subject	specification	descriptor
AIR	AMBI	MAC

0.04 MG/M3 1X/D, 0.04 MG/M3 AV/D.

entry date: SEP 1985

effective date: AUG1984

amendment: PDKAV*, PREDELNO DOPUSTIMYE KONTSENTRATSII (PDK)
 ZAGRYAZNYAYUSHCHIKH VESHCHESTV V ATMOSFERNOM VOZDUKHE
 NASELENNYKH MEST (MAXIMUM ALLOWABLE CONCENTRATIONS (MAC) OF
 CONTAMINANTS IN THE AMBIENT AIR OF RESIDENTIAL AREAS),
 3086-84 , , , 1984

file: 17.01 LEGAL rn : 1123105
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : .alpha.-Methyl styrene
 cas no : 98-83-9 rtecs no : WL5250000
 area : RUS type : REG

subject	specification	descriptor
AQ	SURF	MAC CLASS

0.1MG/L HAZARD CLASS: III

entry date: JUL 1990

effective date: 1JAN1989

amendment: SPNPV*, SANITARNYE PRAVILA I NORMY OKHRANY POVERKHNOSTNYKH
 VOD OT ZAGRIAZNENIA (HEALTH REGULATION AND STANDARDS OF
 SURFACE WATER PROTECTION FROM CONTAMINATION), 4630-88 , , ,
 1988

file: 17.01 LEGAL rn : 1193276
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : alphamethylstyrene
 cas no : 98-83-9 rtecs no : WL5250000
 area : RUS type : REG

subject	specification	descriptor
SOIL		MAC

0.5 mg/kg (air migration criteria of harmfulness).

entry date: NOV 1994

effective date: 19NOV1991

title: Predelno dopustimye kontsentratsii (PDK) i orientirovochnye
 dopustimye kolichestva (ODK) khimicheskikh veshchestv v pochve (Maximum
 Allowable Concentrations and Guidance Allowable Quantities of Chemicals
 in Soil)
 original : , , 2 , , 45-50 , 1993

file: 17.01 LEGAL rn : 1325079
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene

reported name :alpha-methyl styrene
 cas no :98-83-9 rtecs no :WL5250000
 area : USA type : REC

subject	specification	descriptor
SAFTY	OCC	MXL
USE	OCC	MXL

5000 PPM

entry date: OCT 1991

effective date: JUN1990

title: POCKET GUIDE TO CHEMICAL HAZARDS

original : XPHPAW, US PUBLIC HEALTH SERVICE PUBLICATION, 90 , 117 , 154
 , 1990

amendment: XPHPAW, US PUBLIC HEALTH SERVICE PUBLICATION, 90 , 117 , 154
 , 1990

file: 17.01 LEGAL rn : 1340939

systematic name: Benzene, (1-methylethenyl)-

common name :.alpha.-methylstyrene

reported name :alpha-methyl styrene

cas no :98-83-9 rtecs no :WL5250000

area : USA type : REC

subject	specification	descriptor
AIR	OCC	TLV

Time Weighted Avg (TWA) 50 ppm, 242 MG/M3; Short Term Exposure Limit (STEL) 100 ppm, 484 MG/M3; Summary - THIS THRESHOLD LIMIT VALUE IS INTENDED FOR USE IN THE PRACTICE OF INDUSTRIAL HYGIENE AS A GUIDELINE OR RECOMMENDATION IN THE CONTROL OF POTENTIAL HEALTH HAZARDS.

entry date: DEC 1991

effective date: 1989

title: THRESHOLD LIMIT VALUES

original : ACGIH*, AMERICAN CONFERENCE OF GOVERNMENT INDUSTRIAL HYGIENISTS, , , 11 , 1989

amendment: ACGIH*, AMERICAN CONFERENCE OF GOVERNMENT INDUSTRIAL HYGIENISTS, , , 11 , 1991

file: 17.01 LEGAL rn : 1345079

systematic name: Benzene, (1-methylethenyl)-

common name :.alpha.-methylstyrene

reported name :alpha-methylstyrene

cas no :98-83-9 rtecs no :WL5250000

area : USA type : REG

subject	specification	descriptor
MONIT		RQR

; Summary - THIS IS A CHEMICAL OR MIXTURE FOR WHICH REPORTING IS CURRENTLY REQUIRED UNDER THE TOXIC SUBSTANCE CONTROL ACT HEALTH AND

SAFETY STUDIES SECTION 2607D. PERSONS WHO CURRENTLY MANUFACTURE OR PROCESS CHEMICAL SUBSTANCES OR MIXTURES FOR COMMERCIAL PURPOSES, THOSE WHO PROPOSE TO DO SO, AND THOSE WHO ARE NOT CURRENTLY INVOLVED WITH A LISTED CHEMICAL BUT WHO MANUFACTURED OR PROCESSED IT OR PROPOSED TO DO SO ANY TIME DURING THE TEN YEAR PERIOD PRIOR TO THE TIME IT BECAME LISTED MUST SUBMIT TO THE ADMINISTRATOR OF THE U.S. EPA STUDIES OR LISTS OF HEALTH AND SAFETY STUDIES CONDUCTED ON THIS SUBSTANCE FOR EVALUATION.
 entry date: OCT 1991 effective date: 1986

title: HEALTH AND SAFETY DATA REPORTING RULES SECTION 8(D)
 original : FEREAC, FEDERAL REGISTER, 51 , , 32726 , 1986
 amendment: CFRUS*, CODE OF FEDERAL REGULATIONS, 40 , 716 , 120 , 1990

file: 17.01 LEGAL rn : 1408589
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : alpha-methylstyrene
 cas no : 98-83-9 rtecs no : WL5250000
 area : EEC type : REG

subject	specification	descriptor
FOOD		RQR
GOODS		MXL
GOODS		PRMT

THE SUBSTANCE IS INCLUDED IN THE LIST OF MONOMERS AND OTHER STARTING SUBSTANCES, WHICH MAY CONTINUE TO BE USED FOR THE MANUFACTURE OF PLASTICS AND ARTICLES INTENDED TO COME INTO CONTACT WITH FOODSTUFFS UNTIL 1 JANUARY 1997 PENDING A DECISION ON THEIR INCLUSION IN THE LIST OF AUTHORIZED SUBSTANCES. THE USE OF THE SUBSTANCE IS SUBJECT TO THE RESTRICTIONS SPECIFIED THEREIN. PLASTIC MATERIALS AND ARTICLES SHALL NOT TRANSFER THEIR CONSTITUENTS TO FOODSTUFFS IN QUANTITIES EXCEEDING 10MG/DM2 OF SURFACE AREA OF MATERIAL OR ARTICLE OR 60 MG/KG OF FOODSTUFFS IN THE SPECIFIED CASES. VERIFICATION OF COMPLIANCE WITH THE MIGRATION LIMITS SHALL BE CARRIED OUT IN ACCORDANCE WITH DIRECTIVES 82/711/EEC AND 85/572/EEC.
 entry date: SEP 1995 effective date: 01JAN1991

title: COMMISSION DIRECTIVE OF 23 FEBRUARY 1990 RELATING TO PLASTICS MATERIALS AND ARTICLES INTENDED TO COME INTO CONTACT WITH FOODSTUFFS (90/128/EEC)
 original : OJEC**, OFFICIAL JOURNAL OF THE EUROPEAN COMMUNITIES, L75 , , 19 , 1990
 amendment: OJEC**, OFFICIAL JOURNAL OF THE EUROPEAN COMMUNITIES, L90 , , 26 , 1993

file: 17.01 LEGAL rn : 1470251
 !!! WARNING - not original IRPTC record - WARNING !!!
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : 2-Phenylpropene
 cas no : 98-83-9 rtecs no : WL5250000
 area : EEC type : REG

subject	specification	descriptor
MANUF	INDST	CLASS
IMPRT	INDST	CLASS

The substance is included in a list of existing substances produced or imported within the Community in quantities exceeding 1000 tonnes per year. - A system of data reporting by any manufacturer who has produced or any importer who has imported the substance, as such or in a preparation, in quantities exceeding 10 tonnes per year is established.
 entry date: AUG 1999 effective date: 04JUN1993

title: Council Regulation (EEC) No 793/93 of 23 March 1993 on the evaluation and control of the risks of existing substances
 original : OJECFC, Official Journal of the European Communities, L84 , , 1 , 1993

file: 17.01 LEGAL rn : 1660290
 !!! WARNING - not original IRPTC record - WARNING !!!
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : .alpha.-Methylstyrene
 cas no : 98-83-9 rtecs no : WL5250000
 area : IMO type : REG

subject	specification	descriptor
AQ	EMI	PRO
TRNSP	MARIN	RQR

Category A substance: Noxious liquid substances which if discharged into the sea from tank cleaning or deballasting operations would present a major hazard to either marine resources or human health and therefore justify the application of stringent anti-pollution measures. - Category A substances are bioaccumulated and liable to produce a hazard to aquatic life or human health, or are highly toxic to aquatic life (TLm less than 1 ppm), or are categorized because of other special characteristics . - The discharge into sea of substances in Category A or ballast water, tank washings, or other residues or mixtures containing such substances shall be prohibited. If tanks containing such substances or mixtures are to be washed, the resulting residues shall be discharged to a reception facility until the concentration of the substance in the effluent to such facility is at or below 0.1 % by weight (0.05 % within the special areas: Baltic Sea, Black Sea and Antarctic area) and until the tank is empty. - Technical requirements for reception facilities and cargo unloading terminal arrangements in the ports are given. Requirements on the design, equipment and operation of ships for minimizing accidental pollution are given.
 entry date: JUN 1999 effective date: 03MCH1996

title: Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk (Annex II of MARPOL 73/78)
 original : MARPO*, International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), Consolidated Edition, , , 1997

file: 17.01 LEGAL rn : 1661991
 !!! WARNING - not original IRPTC record - WARNING !!!
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : Isopropenylbenzene
 cas no : 98-83-9 rtecs no : WL5250000
 area : IMO type : REC

subject	specification	descriptor
TRNSP	MARIN	CLASS
LABEL		RQR
PACK		RQR

UN No. 2303. Class: 3 = Flammable liquid. Packing group: III = Low danger.

entry date: NOV 2000

effective date: 01JAN2001

title: IMDG Code - Dangerous Goods List
 original : IMDGC*, International Maritime Dangerous Goods Code,
 Amendment 30-00, Volume 2 , , , 2000

file: 17.01 LEGAL rn : 1760991
 !!! WARNING - not original IRPTC record - WARNING !!!
 systematic name: Benzene, (1-methylethenyl)-
 common name : .alpha.-methylstyrene
 reported name : Isopropenylbenzene
 cas no : 98-83-9 rtecs no : WL5250000
 area : UN type : REC

subject	specification	descriptor
TRNSP		CLASS
LABEL		RQR
PACK		RQR

UN No. 2303. Class: 3 = Flammable liquid. Packing group: III = Low danger.

entry date: NOV 2000

title: UN Orange Book - Dangerous Goods List
 original : !RTDGFK, Recommendations on the Transport of Dangerous Goods
 prepared by the United Nations Committee of Experts on the
 Transport of Dangerous Goods, 11th revised ed., , , 1999