**Name:** OECD_SIDS / SUBSTANCE : Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt / 70974-33-3 Fri, 16 Dec 2022, 16:08:08+0900 /

**Legal entity owner:** National Institute of Health Sciences

**Printing date:** 2022-12-16T16:08:08.710+09:00

# Table of Contents

# DOSSIER:

**UUID:** 0
**Dossier UUID:**
**Author:**
**Date:** 2022-12-16T16:08:08.533+09:00
**Remarks:**

## Dossier header

## Dossier submission type

**Name**
OECD SIDS

**Version**
core 7.0

**Name (given by user)**

## Dossier subject

**Dossier subject**
Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt / 70974-33-3

**Public name**

**Submitting legal entity**
National Institute of Health Science

**Dossier creation date/time**
Fri, 16 Dec 2022, 16:08:08+0900

**Used in category**

# LEGAL_ENTITY: National Institute of Health Science

| | |
|---|---|
| **UUID:** | f51e7b54-9211-4863-90ce-fcf8a155d647 |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2022-11-07T16:24:02.822+09:00 |
| **Remarks:** | |

## General information

**Legal entity name**
National Institute of Health Science

# Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt

## General information

### Identification

#### Identification

**SUBSTANCE: Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt**

| | |
|---|---|
| **UUID:** | IUC5-45e7d1b9-a09e-4bc1-bcc0-0ef3107af152 |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2022-12-16T16:07:58.287+09:00 |
| **Remarks:** | |

**Substance name**
Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt

**Legal entity**
National Institute of Health Sciences / Kawasaki / Japan

## Identification of substance

**Reference substance**
Benzenesulfonic acid, 4-hydroxy-, tin(2+) salt / 70974-33-3

| EC number | EC name |
|---|---|
| **CAS number** | **CAS name** |
| 70974-33-3 | |
| **IUPAC name** | |

## Role in the supply chain

**Manufacturer**
false

**Importer**
false

**Only representative**
false

**Downstream user**
false

## Assessment approach (assessment entities)

### FIXED_RECORD: Assessment approach

| | |
|---|---|
| **UUID:** | 7d3a51a7-4c77-3461-99c4-12b71f878a30 |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2019-09-03T16:38:13.000+09:00 |
| **Remarks:** | |

# Toxicological information

## Acute Toxicity

### Acute toxicity: oral

**ENDPOINT_STUDY_RECORD: Acute toxicity: oral.001**

**UUID:** IUC5-f949fdfb-b2fe-45c3-84d5-ecf2977221e1
**Dossier UUID:**
**Author:**
**Date:** 2022-12-16T16:03:14.386+09:00
**Remarks:**

## Administrative data

**Endpoint**
acute toxicity: oral

**Type of information**
experimental study

**Adequacy of study**
other information

**Robust study summary**
false

**Used for classification**
false

**Used for SDS**
false

**Reliability**
1 (reliable without restriction)

**Rationale for reliability incl. deficiencies**
other: OECD Test Guideline study under GLP condition

## Data source

**Reference**

Single Dose Oral Toxicity Test of Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt in Rats / MHLW, Japan / study report

**Data protection claimed**
yes

## Materials and methods

**Test guideline**

**Qualifier**
according to guideline

**Guideline**
OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method)

**Deviations**
no

**GLP compliance**
yes

**Test type**
acute toxic class method

**Limit test**
yes

## Test material

**Test material information**
Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt

**Specific details on test material used for the study**
- Name of test material (as cited in study report): Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt
- Chemical structure: [C6H4(OH)SO3]2Sn
- Chemical formula: C12H10O8S2Sn
- Molecular weight: 465.05
- Puitality: >95%
- Impurities: Benzenesulfonic acid, 2-hydroxy-, tin(2+)salt; <2% ; Benzenesulfonic acid, 2,4-hydroxy-, tin(2+)salt; <2%
- Solubility: 420 mg/mL in water
- Supplier: Daiwakasei Industry Co., Ltd
- Physical state: White crystalline solid
- Stability: Stability during the test period was confirmed by the Daiwakasei Industry Co., Ltd (May 19, 2006).
- Storage condition of test material: Room temperature

## Test animals

**Species**
rat
common species

**Strain**
Crj: CD(SD)
rat

**Sex**
female

**Details on test animals or test system and environmental conditions**
TEST ANIMALS
- Source: Charles River Japan Inc.
- Age at the time of purchase: 7 weeks old
- Weight at dosing: Females, 191 - 205 g- Fasting period before study: Approximately 16 hrs
- Housing: One animal/cage- Diet (e.g. ad libitum): Ad libitum except fasting period for 16 hrs before administration to 3 hrs after administration
- Water (e.g. ad libitum): Ad libitum
- Acclimation period: 7 - 14 days

. ENVIRONMENTAL CONDITIONS
- Temperature (°C): 22.6 - 23.6
- Humidity (%): 45.6 - 62.2- Ventilation (per hr): Approximately > 12 times
- Photoperiod (hrs light / hrs dark): 12/12

## Administration / exposure

**Route of administration**
oral: gavage

**Vehicle**
water

**Details on oral exposure**
VEHICLE
- Concentration in vehicle: 3 and 20 w/v%
- Lot no.: 5K91 produced by Otsuka Pharmaceutical Factory, Inc.
MAXIMUM DOSE VOLUME APPLIED: 10 ml/kg bw.

**Doses**
300 and 2000 mg/kg bw

**No. of animals per sex per dose**
First time of administration: 300 mg/kg bw, 3 females (animal ID No. 8, 9, 12), 2000 mg/kg bw, 3 fem ales (animal ID No. 5, 6, 11)
Second time of administration: 300 mg/kg, 3 females (animal ID No. 1, 4, 7), 2000 mg/kg bw, 3 female s (animal ID No. 2, 3, 10)

**Control animals**
no

**Details on study design**
- Duration of observation period following administration: 14 days- Frequency of observations:
Day 1 (day of administration): within 30 minutes and 1, 2, 3, 4, 5 and 6 hrs after administration.
After Day 2: once a day
- Frequency of weighing: Days 1 (before administration), 7, 14
- Necropsy of survivors performed: Yes

**Statistics**
No

## Results and discussion

**Effect levels**

**Key result**
false

**Sex**
female

**Dose descriptor**
LD50

**Effect level**

| | | |
|---|---|---|
| > | 2000 | mg/kg bw |

**Based on**
act. ingr.

**Mortality**
No deaths were observed at 300 and 2000 mg/kg bw

**Clinical signs**
other: Salivation was observed in one rat receiving 300 mg/kg bw just after administration. Loose stool was observed on the day of administration, and dirty nose and no-feces were observed on the 1 -2 days after administration in rats receiving 2000 mg/kg bw.

**Gross pathology**
No effects.

## Applicant's summary and conclusion

**Conclusions**
The LD50 value was more than 2000 mg/kg bw for female rats.

**Executive summary**

The acute oral LD50 of benzenesulfonic acid, 4-hydroxy-, tin (2+) salt was > 2000 mg/kg bw in female rats based on a study conducted according to the OECD TG 423. No deaths were observed at 2000 mg/kg bw. The substance caused transient salivation at 300 mg/kg bw, and the transient effects of dirty nose, loose stool, and no feces at 2000 mg/kg bw.

# Repeated dose toxicity

## Repeated dose toxicity: oral

### ENDPOINT_STUDY_RECORD: Repeated dose toxicity: oral.001

**UUID:** IUC5-bbba114e-e7d4-4069-b75d-26ba2b028116
**Dossier UUID:**
**Author:**
**Date:** 2022-12-16T16:05:07.833+09:00
**Remarks:**

## Administrative data

**Endpoint**
short-term repeated dose toxicity: oral

**Type of information**
experimental study

**Adequacy of study**
other information

**Robust study summary**
false

**Used for classification**
false

**Used for SDS**
false

**Reliability**
1 (reliable without restriction)

**Rationale for reliability incl. deficiencies**
other: OECD Test Guideline study under GLP condition

**Cross-reference**

**Reason / purpose for cross-reference**
reference to same study

**Remarks**
7.8.1 Toxicity to reproduction: Toxicity to reproduction.001

## Data source

**Reference**

A combined repeated-dose/reproductive-developmental toxicity study of Benzenesulfonic acid, 4-hydrox / MHLW, Japan / study report

**Data access**
data published

## Materials and methods

**Test guideline**

**Qualifier**
according to guideline

**Guideline**
OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

**Deviations**
no

**GLP compliance**
yes

**Limit test**
no

## Test material

**Test material information**
Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt

## Test animals

**Species**
rat
common rodent species

**Strain**
Crj: CD(SD)
rat

**Sex**
male/female

**Details on test animals or test system and environmental conditions**
TEST ANIMALS
- Source: Atsugi Breeding Center, Charles River Laboratories Japan, Inc.
- Age at study initiation:10 weeks of age
- Weight at study initiation: 340-409 g for males and 205-257 g for females
- Housing: bracket-type metallic wire-mesh cages (W 250 × D 350 × H 200 mm)
- Diet (e.g. ad libitum):ad libitum
- Water (e.g. ad libitum):ad libitum
- Acclimation period:15 days
ENVIRONMENTAL CONDITIONS
- Temperature (°C):21 to 26°C
- Humidity (%): 38 to 63%
- Air changes (per hr):10 to 15 times per hour
- Photoperiod (hrs dark / hrs light):12-hour lighting per day

## Administration / exposure

**Route of administration**
oral: gavage

**Vehicle**
water

**Details on oral exposure**
PREPARATION OF DOSING SOLUTIONS: Test substance was dissolved in distilled water for injection.
VEHICLE
- Justification for use and choice of vehicle: No data
- Amount of vehicle (if gavage): 5 mL/kg bw
- Lot/batch no. (if required): No data
- Dosing volume: 5 mL/kg
- Storage condition of test solution: Stored in a refrigerator

**Analytical verification of doses or concentrations**
yes

**Details on analytical verification of doses or concentrations**
Test suspensions at each concentration to be used for males in week 1 and 6 of administration were analyzed by the HPLC method at Bozo Research Center Inc. Results showed that the concentration of the test article in each suspension was 94.5 to 107.5% of the nominal concentration, and both values were within the acceptable range (concentration: percentage of the nominal concentration, 100 ± 10%; C.V.: 10% or below)

**Duration of treatment / exposure**
All males and females without mating: 42 days
Females with mating: up to 51 days including 14 days pre-mating, mating and gestation periods and until day 4 of lactation

**Frequency of treatment**
Daily: 7 times / week

**Doses / concentrations**

**Remarks**
Doses / Concentrations:
0 (vehicle), 12, 60 and 300 mg/kg bw/day
Basis:
actual ingested

**No. of animals per sex per dose**
12 animals/sex/dose with mating (main dose group), 5 animals/sex/dose at 0 and 300 mg/kg bw/day without mating (recovery group)

**Control animals**
yes, concurrent vehicle

**Details on study design**
- Dose selection rationale: A preliminary study was conducted to determine the doses to be employed. Male and female rats were receiving 0, 100, 300, and 1000 mg/kg bw/day (5 animals/sex/dose) of the substance was administered for 14 days. As the results, thickening in limiting ridge of the stomach was observed in 2 males and 2 females receiving 100 mg/kg bw/day. Thickening in limiting ridge of the stomach and dilatation in the cecum were observed in almost all animals receiving 300 mg/kg bw/day or more. Decreases in body weights in males and food consumption in both sexes, and increases in AST and ALT activities were observed in an early administration period at 1000 mg/kg bw/day. Therefore, the high dose was set at 300 mg/kg/day, and the middle and low dose were set at 60 and 12 mg/kg/day using common ratio 5.

## Examinations

**Observations and examinations performed and frequency**
CAGE SIDE OBSERVATIONS: Yes
- Time schedule:
Males and females: once a day before the start of administration, 3 times/day during the admini stration period, and once a day during the recovery period
DETAILED CLINICAL OBSERVATIONS: Yes
- Time schedule:
Males: once before the start of administration, once a week during the administration and recovery periods
Females: once before the start of administration, days 1, 7, 14 and 20 of gestation, and day 4 of lac tation
BODY WEIGHT: Yes
- Time schedule for examinations:
Males in the main groups were weighed on days 1, 4, 8, 11, 15, 18, 22, 25, 29, 32, 36, 39 and 42 of administration and on the day of necropsy, and males and females in the recovery groups were weighed on days 1, 4, 8, 11 and 14 of recovery and on the day of necropsy.
Females in the main groups were weighed on days 1, 4, 8, 11 and 15 of administration (uncopulated animals were weighed on day 18 and 22 of administration as well), days 0, 4, 7, 11, 14, 17 and 20 of gestation, days 0 and 4 of lactation and the day of necropsy.
FOOD CONSUMPTION : Yes
Measurement of food consumption was conducted on all animals at the following frequencies:
males in the main groups: on days 1, 4, 8, 11, 15, 32, 36, 39 and 42 of administration; males and females in the recovery groups on days 1, 4, 8, 11 and 14 of recovery in addition to the measureme nt days for males in the main groups; and females in the main groups on days 1, 4, 8, 11 and 15 of a dministration, days 1, 4, 7, 11, 14, 17 and 20 of gestation and days 2 and 4 of lactation.
FOOD INTAKE: No
HAEMATOLOGY: Yes
- Time schedule for collection of blood: On the next day of the last administration and on the last day of the recovery period
- Anaesthetic used for blood collection: Yes (identity)
- Animals fasted: Yes
- How many animals:5 animals/sex/group
- Parameters examined: red blood cell count, hemoglobin, hematocrit, mean corpuscular volume, mean corpuscular hemoglobin, mean corpuscular hemoglobin concentration, reticulocyte percentage , platelet count, white blood cell count, differential white blood cell count, absolute number of each white blood cell, prothrombin time, activated partial thromboplastin time, fibrinogen volume
CLINICAL CHEMISTRY: Yes
- Time schedule for collection of blood: On the next day of the last administration and on the last day of the recovery period
- Animals fasted: Yes
- How many animals: 5 animals/sex/group
- Parameters checked: ALP, total cholesterol, triglyceride, phospholipids, total bilirubin, glucose, blood urea nitrogen, creatinine, sodium, potassium, chloride, calcium, inorganic phosphorus, total protein, a lbumin, A/G ratio, AST (GOT), ALT (GPT), LDH, γ-GTP
URINALYSIS: Yes
- Time schedule for collection of urine (males): final week of administration period (days 37 to 38 of administration) and in the final week of recovery period (days 9 to 10 of recovery)
- Metabolism cages used for collection of urine: Yes
- Animals fasted: Yes
Collection of four-hour urine samples under fasting but ad libitum drinking conditions, followed by collection of 20-hour urine samples under ad libitum feeding and drinking conditions.
- Parameters checked: pH, protein, ketones. glucose, occult blood, bilirubin, urobilinogen, color, sedim ent, urine volume (4-hour sample), osmotic pressure, urine volume (20-hour sample), water intake (4-hour+20-hour volume)
BLOOD HORMONE: No

- Time schedule for collection of serum: No
- Parameters checked: No
NEUROBEHAVIOURAL EXAMINATION: Yes
- Time schedule for examinations: Manipulative test and measurements of grip strength and motor a ctivity were conducted on 5 animals per group with the following frequencies: males in the main grou ps were examined in the final week of administration (day 36 of administration), females in the main groups on day 4 of lactation (day 42 and 43 of administration) after necropsy of F1 pups, and males and females in the recovery groups in the final week of administration (day 36 of administration) and in the final week of recovery (day 8 of recovery).
- Dose groups that were examined: All animals were examined for detailed clinical signs once before the start of administration. Thereafter, males in the main groups were examined once weekly during the administration period, whereas females were observed once weekly during the pre-mating admini stration period and mating period as well as on designated days during the gestation and lactation p eriods (days 1, 7, 14 and 20 of gestation, and day 4 of lactation). Animals in the recovery groups were examined once weekly during the administration and recovery periods.
- Battery of functions tested:
1) Open field observation. Arousal, gait, posture, tremor, convulsion, rearing count, defecation (defeca tion count, urination), stereotypy (grooming, circling, etc.), abnormal behavior (self-biting, backward walking, etc.)
2) Manipulative Test. Auditory response, approach response, touch response, tail pinch response, pupi llary reflex, aerial righting reflex, landing foot splay
3) Measurement of Grip Strength. Following manipulative test, grip strength of forelimb and hind limb was measured by CPU gauge MODEL-9502A (AIKOH Engineering Co., Ltd.).
4) Measurement of Motor Activity.Following measurement of grip strength, motor activity was measured by a motor activity sensor for experimental animals NS-AS01 (NeuroScience, Inc). The measurement was conducted for 1 hour, and measured values at 10-minute intervals and from 0 to 6 0 minutes were recorded.

**Sacrifice and pathology**
GROSS PATHOLOGY AND ORGAN WEIGHTS：Yes
Brain, thyroids(including parathyroids), thymus, heart, liver, spleen, kidneys, adrenals, testes, and epididymis
HISTOPATHOLOGY: Yes
Cerebrum, cerebellum, pituitary, spinal cord (thoracic), thyroid, parathyroid, adrenal glands, thymus, spleen, submandibular lymph nodes, mesenteric lymph nodes, heart, lung (including bronchial), stomach, duodenum, jejunum, ileum, cecum, colon, rectum, liver, kidney, bladder, testis, epididymis, ovary, uterus, seminal vesicles, sternum and femur (including bone marrows), macroscopic lesions, a nd parts for identification (auricles)

**Statistics**
The data were analyzed for homogeneity of variance by the Bartlett test (level of significance: 0.01, two-tailed). If variances were homogeneous, data were analyzed by the Dunnett test, whereas hetero geneous data were analyzed by the Steel test. In the recovery test, these values of two groups were analyzed by F test and Student or Aspin-Welch t-test. Frequency data were analysed by Fisher test. S tatistical significance was set at < 5% by two-sided

# Results and discussion

## Results of examinations

**Clinical signs**
effects observed, treatment-related

**Mortality**
mortality observed, treatment-related

**Body weight and weight changes**
no effects observed

**Food consumption and compound intake (if feeding study)**
no effects observed

**Food efficiency**
not examined

**Haematological findings**
effects observed, treatment-related

**Clinical biochemistry findings**
effects observed, treatment-related

**Urinalysis findings**
no effects observed

**Behaviour (functional findings)**
no effects observed

**Organ weight findings including organ / body weight ratios**
no effects observed

**Gross pathological findings**
effects observed, treatment-related

**Histopathological findings: non-neoplastic**
effects observed, treatment-related

**Histopathological findings: neoplastic**
not specified

**Details on results**
CLINICAL SIGNS AND MORTALITY: Mortality: No animal died in any group.Clinical signs: Salivation was observed in six males (main group) receiving 300 mg/kg bw/day on week 4 of the dosing period. This effect was considered to be due to irritating property of the test substance.
DETAILED CLINICAL OBSERVATIONS, MANIPULATIVE TEST, GRIP STRENGTH TEST AND LOCOMOTOR ACTIVITY MEASUREMENT:
Home cage observation: No effects
In-the-hand observation: No effects
Open field observation: No effects
Manipulative test: A significant decrease in landing foot splay was observed in females receiving 300 mg/kg bw/day on Day 4 of the lactation period, but it was considered to be spontaneous.
Measurement of grip strength: No effects
Measurement of Motor Activity: No effects
BODY WEIGHT: No effects
FOOD CONSUMPTION: No effects
URINALYSIS: No effects
HAEMATOLOGY: Significant decreases in hemoglobin and hematocrit levels were observed in females receiving 300 mg/kg bw/day at the end of the dosing period. Significant increases in hemogl obin and hematocrit levels and a significant decrease in reticulocyte counts were observed in females receiving 300 mg/kg bw/day at the end of the recovery period.
CLINICAL CHEMISTRY: A significant increase in ALT and a decrease in total protein level were obs erved in males receiving 300 mg/kg bw/day at the end of the dosing period.
ORGAN WEIGHTS: There were no changes related to the test substance in any group during the dosi ng and recovery periods.
GROSS PATHOLOGY:
At the End of the Administration Period
Cecum: Dilatation was observed in eight males and two females receiving 300 mg/kg bw/day.

Stomach: Thickening in limiting ridge was observed in four males and two females receiving 300 mg/kg bw/day.
At the End of the Recovery Period
There were no lesions related to the test substance in any group.
HISTOPATHOLOGY: NON-NEOPLASTIC:
At the End of the Administration Period
Both sexes had minimal hypertrophy of the duodenal mucosal epithelia at 300 mg/kg bw/day
Intestine: Diverticulum in ileum was observed in one control male.
Kidney: Cyst was observed in one control male.
Spleen: Focus in raised was observed in one control male.
At the End of the Recovery Period
There were no lesions related to the test substance in any group.

## Effect levels

**Key result**
false

**Dose descriptor**
NOAEL

**Effect level**

60 mg/kg bw/day (actual dose received)

**Based on**
act. ingr.

**Sex**
male/female

**Basis for effect level**
other: Decreases in hemoglobin and hematocrit levels(females), increases in ALT (males), and lesions in the caecum, stomach and duodenum at 300 mg/kg bw/day.

## Target system / organ toxicity

**Key result**
false

**Critical effects observed**
not specified

## Any other information on results incl. tables

***Figures and Tables (in English) are available in the following full report of the study.***

http://dra4.nihs.go.jp/mhlw_data/home/pdf/PDF70974-33-3d.pdf

## Applicant's summary and conclusion

**Conclusions**
Based on the changes in the blood and gastrointestinal organs, the NOAEL of repeated dose toxicity w as determined to be 60 mg/kg bw/day in male and female rats.

**Executive summary**

A combined repeated oral dose toxicity study with the reproduction/developmental toxicity screening test was performed according to the OECD TG 422. Male and female rats (12 animals/sex/dose) were administered benzenesulfonic acid, 4-hydroxy-, tin (2+) salt at 0, 12, 60, and 300 mg/kg bw/day. Males were dosed for 42 days, including a 14-day pre-mating period and subsequent mating period. Females were dosed for 41–51 days, including 14 day pre-mating, mating, and gestation periods, and the time until lactation day 4. Five animals/sex/dose administered 0 and 300 mg/kg bw/day were treated as a recovery group and examined after a 14 day recovery period.

Salivation was observed after 4 weeks of administration in males at 300 mg/kg bw/day. After the administration period, rats administered 300 mg/kg bw/day showed decreased hemoglobin and hematocrit levels in females and increased serum alanine transaminase levels in males. By gross pathology, both sexes exhibited thickening of the limiting ridge of the stomach and dilatation of the cecum at 300 mg/kg bw/day. Upon histopathological examination, both sexes had minimal hypertrophy of the duodenal mucosal epithelia at 300 mg/kg bw/day. These changes resolved after the recovery period. Based on the changes in the blood and gastrointestinal organs, the NOAEL of repeated dose toxicity was determined to be 60 mg/kg bw/day in male and female rats.

## Genetic toxicity

### Genetic toxicity in vitro

#### ENDPOINT_STUDY_RECORD: Genetic toxicity in vitro.001

| | |
|---|---|
| **UUID:** | IUC5-4d2b2168-6941-4ce9-b59d-04e3420efc36 |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2022-12-12T15:29:42.065+09:00 |
| **Remarks:** | |

## Administrative data

**Endpoint**
in vitro gene mutation study in bacteria Type of genotoxicity: gene mutation

**Type of information**
experimental study

**Adequacy of study**
other information

**Robust study summary**
false

**Used for classification**
false

**Used for SDS**
false

**Reliability**
1 (reliable without restriction)

**Rationale for reliability incl. deficiencies**
other: OECD Test Guideline study under GLP condition

## Data source

**Reference**

Reverse Mutation Test of Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt on Bacteria. / MHLW, Japan / study report

**Data access**
data published

## Materials and methods

**Test guideline**

**Qualifier**
according to guideline

**Guideline**
OECD Guideline 471 (Bacterial Reverse Mutation Assay)
in vitro gene mutation study in bacteria

**Deviations**
no

**Qualifier**
according to guideline

**Guideline**
JAPAN: Guidelines for Screening Mutagenicity Testing Of Chemicals

**GLP compliance**
yes

**Type of assay**
bacterial reverse mutation assay
in vitro gene mutation study in bacteria

## Test material

**Test material information**
Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt

**Specific details on test material used for the study**
- Name of test material (as cited in study report): Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt
- Chemical structure: [C6H4(OH)SO3]2Sn
- Chemical formula: C12H10O8S2Sn
- Molecular weight: 465.05
- Puitality: >95%
- Impurities: Benzenesulfonic acid, 2-hydroxy-, tin(2+)salt; <2% ; Benzenesulfonic acid, 2,4-hydroxy-, tin(2+)salt; <2%
- Solubility: 420 mg/mL in water
- Supplier: Daiwakasei Industry Co., Ltd
- Physical state: White crystalline solid
- Stability: Stability during the test period was confirmed by the Daiwakasei Industry Co., Ltd (May 19, 2006).
- Storage condition of test material: Room temperature

## Method

**Species / strain**

**Species / strain / cell type**
other: Salmonella typhimurium TA1535, TA1537, TA98, TA100 and Escherichia coli WP2 uvrA

**Metabolic activation**
with and without

**Metabolic activation system**
S9 mix; rat liver, induced by phenobarbital and 5,6-benzoflavone

**Test concentrations with justification for top dose**
-S9 mix: 156, 313, 625, 1250, 2500, 5000 µg/plate (TA100, TA1535, TA98, TA1537, WP2uvrA strains)
+S9 mix: 156, 313, 625, 1250, 2500, 5000 µg/plate (TA100, TA1535, TA98, TA1537, WP2uvrA strains)

**Vehicle / solvent**
- Vehicle(s)/solvent(s) used: water

**Controls**

**Untreated negative controls**
no

**Negative solvent / vehicle controls**
yes

**True negative controls**
no

**Positive controls**
yes

**Positive control substance**
other:

**Remarks**
S9 mix: 2-(2-Furyl)-3-(5-nitro-2-furyl) acrylamide (TA 100, TA98 and WP2 uvrA), sodium azide (TA1535) and 9-aminoacridine hydrochloride (TA1537). +S9 mix: 2-aminoanthracene (all strains)

**Details on test system and experimental conditions**
METHOD OF APPLICATION: Preincubation
DURATION- Preincubation period: 20 min at 37 °C - Exposure duration:48 hrs
NUMBER OF PLATES: 3
NUMBER OF REPLICATIONS: 2
DETERMINATION OF CYTOTOXICITY- growth inhibition

**Evaluation criteria**
When the mean number of revertant colonies per plate increased twice more than that of the negative control and when a dose-related and reproducible increase was observed, the chemical was judged to be mutagenic.

**Statistics**
No

# Results and discussion

**Test results**

**Key result**
false

**Species / strain**
other: Salmonella typhimurium TA1535, TA1537, TA98, TA100 and Escherichia coli WP2 uvrA

**Metabolic activation**
with and without

**Genotoxicity**
negative

**Cytotoxicity / choice of top concentrations**
cytotoxicity

**Vehicle controls validity**
valid

**Positive controls validity**
valid

**Additional information on results**
RANGE-FINDING/SCREENING STUDIES:Concentration: 8.19, 20.5, 51.2, 128, 320, 800, 2000, 5000 µg/plate
Cytotoxic conc.: Yes TA1537 at 5000 ug/plate with S9 mix.

**Remarks on result**
other: all strains/cell types tested Migrated from field 'Test system'.

## Any other information on results incl. tables

Figures and Tables (in English) are available in the following full report of the study.

http://dra4.nihs.go.jp/mhlw_data/home/pdf/PDF70974-33-3e.pdf

## Applicant's summary and conclusion

**Conclusions**
Interpretation of results (migrated information):
negative with and without S9mix

Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt did not induce gene mutations in the in vitro bacteria test.

**ENDPOINT_STUDY_RECORD: Genetic toxicity in vitro.002**

**UUID:** IUC5-680c7bae-5540-4e98-8666-ad76fea19cfc
**Dossier UUID:**
**Author:**
**Date:** 2022-12-12T15:29:58.178+09:00
**Remarks:**

## Administrative data

**Endpoint**
in vitro cytogenicity / chromosome aberration study in mammalian cells Type of genotoxicity: gene mutation

**Type of information**
experimental study

**Adequacy of study**
other information

**Robust study summary**
false

**Used for classification**
false

**Used for SDS**
false

**Reliability**
1 (reliable without restriction)

**Rationale for reliability incl. deficiencies**
other: OECD Test Guideline study under GLP condition

## Data source

**Reference**

In Vitro Chromosomal Aberration Test of Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt on Cultured Ch / MHLW, Japan / study report

**Data access**
data published

## Materials and methods

**Test guideline**

**Qualifier**
according to guideline

**Guideline**
OECD Guideline 473 (In Vitro Mammalian Chromosome Aberration Test)
in vitro cytogenicity / chromosome aberration study in mammalian cells

**Deviations**
no

**Qualifier**
according to guideline

**Guideline**
JAPAN: Guidelines for Screening Mutagenicity Testing Of Chemicals

**Deviations**
no

**GLP compliance**
yes

**Type of assay**
in vitro mammalian chromosome aberration test
chromosome aberration

## Test material

**Test material information**
Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt

**Specific details on test material used for the study**
- Name of test material (as cited in study report): Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt
- Chemical structure: [C6H4(OH)SO3]2Sn
- Chemical formula: C12H10O8S2Sn
- Molecular weight: 465.05
- Puitality: >95%
- Impurities: Benzenesulfonic acid, 2-hydroxy-, tin(2+)salt; <2% ; Benzenesulfonic acid, 2,4-hydroxy-, tin(2+)salt; <2%
- Solubility: 420 mg/mL in water
- Supplier: Daiwakasei Industry Co., Ltd
- Physical state: White crystalline solid
- Stability: Stability during the test period was confirmed by the Daiwakasei Industry Co., Ltd (May 19, 2006).
- Storage condition of test material: Room temperature

## Method

**Species / strain**

**Species / strain / cell type**
mammalian cell line, other: Chinese hamster lung(CHL/IU) cells
mammalian cell line

**Metabolic activation**
with and without

**Metabolic activation system**
S9 mix; rat liver, induced by phenobarbital and 5,6-benzoflavone

**Test concentrations with justification for top dose**
-S9 mix (continuous treatment): 0, 181, 259, 370, 528, 755, 1078 ug/mL
-S9 mix (short-term treatment): 0, 370, 528, 755, 1078, 1540 ug/mL
+S9 mix (short-term treatment): 0, 370, 528, 755, 1078, 1540, 2200 ug/mL

**Vehicle / solvent**
- Vehicle(s)/solvent(s) used: water

**Controls**

**Untreated negative controls**
no

**Negative solvent / vehicle controls**
yes

**True negative controls**
no

**Positive controls**
yes

**Positive control substance**
other:

**Remarks**
[continuous treatment and short time treatment, -S9]: mitomycin C; [short-term treatment, +S9]: cyclophosphamide

**Details on test system and experimental conditions**
METHOD OF APPLICATION: Exposure duration: [continuous treatment]: 24 hrs [short-term treatment]:6 hrs + 18 hr
SPINDLE INHIBITOR: Colcemid
STAIN: Giemsa stain for 12 min.
NUMBER OF REPLICATIONS: 2
NUMBER OF CELLS EVALUATED: 200 cells / dose
DETERMINATION OF CYTOTOXICITY
- Method: relative total growth
RANGE-FINDING/SCREENING STUDIES:
1st test; Concentration: 9.08, 18.2, 36.3, 72.7, 145, 291, 581, 1163, 2325, and 4650 µg/mL (10 mM)
Visible precipitation was observed at 1163 ug/mL and higher
2nd test to confirm cytotoxicity; Concentration: 581, 1163, 2325, and 4650 ug/mL (10 mM)
50% growth inhibitions were observed at 1086 ug/mL for -S9, 1796 ug/mL for +S9, 510 ug/mL for contentious treatment

**Evaluation criteria**
For the evaluation of the frequencies of structural aberrations and of polyploidy induced, the following criteria, which are usually used for chromosomal aberration testing with CHL, were employed.Appearance incidence of cell with chromosomal aberrations:Negative(-): less than 5%Equivocal(±): 5% or more, less than 10%Positive(+): 10% or more

**Statistics**
Fisher and Chochran-Armitage trend tests (one-sided test, P = 2.5%)

# Results and discussion

**Test results**

**Key result**
false

**Species / strain**
mammalian cell line, other: Chinese hamster lung (CHL/IU) cells
mammalian cell line

**Metabolic activation**
with and without

**Genotoxicity**
positive

**Cytotoxicity / choice of top concentrations**
cytotoxicity

**Vehicle controls validity**
valid

**Positive controls validity**
valid

**Remarks on result**
other: all strains/cell types tested Migrated from field 'Test system'.

## Any other information on results incl. tables

***Figures and Tables (in English) are available in the following full report of the study.***

http://dra4.nihs.go.jp/mhlw_data/home/pdf/PDF70974-33-3f.pdf

## Applicant's summary and conclusion

**Conclusions**
Interpretation of results (migrated information):
positive

Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt induce chromosomal aberrations in cultured cells with and without S9 mix under the conditions of this study. The positive control showed expected results.

# Toxicity to reproduction

## Toxicity to reproduction

### ENDPOINT_STUDY_RECORD: Toxicity to reproduction.001

**UUID:** IUC5-c6d5ef64-4719-4fbb-8394-78905f3abbe7
**Dossier UUID:**
**Author:**
**Date:** 2022-12-16T16:07:45.474+09:00
**Remarks:**

## Administrative data

**Endpoint**
screening for reproductive / developmental toxicity based on test type (migrated information)

**Type of information**
experimental study

**Adequacy of study**
other information

**Robust study summary**
false

**Used for classification**
false

**Used for SDS**
false

**Reliability**
1 (reliable without restriction)

**Rationale for reliability incl. deficiencies**
other: OECD Test Guideline study under GLP condition

**Cross-reference**

**Reason / purpose for cross-reference**
reference to same study

**Remarks**
7.5.Repeated dose toxicity: oral: Repeated dose toxicity: oral.001

## Data source

**Reference**

A combined repeated-dose/reproductive-developmental toxicity study of Benzenesulfonic acid, 4-hydrox / MHLW, Japan / study report

**Data access**
data published

## Materials and methods

**Test guideline**

**Qualifier**
according to guideline

**Guideline**
OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

**Deviations**
no

**GLP compliance**
yes

**Limit test**
no

## Test material

**Test material information**
Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt

**Specific details on test material used for the study**
- Name of test material (as cited in study report): Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt
- Lot No.: 060501
- Supplier: Daiwakasei Industry Co., Ltd
- Chemical structure: [C6H4(OH)SO3]2Sn
- Chemical formula: C12H10O8S2Sn
- Molecular weight: 465.05
- Puitality: 96.0%
- Impurities: Benzenesulfonic acid, 2-hydroxy-, tin(2+)salt; <2% ; Benzenesulfonic acid, 2,4-hydroxy-, tin(2+)salt; <2%
- Boiling point: 300°C or more
- Solubility: White turbidity in 2% ethanol
- Storage condition of test material: Cold dark place at 2 - 8°C

## Test animals

**Species**
rat

**Strain**
Crj: CD(SD)
rat

**Sex**
male/female

**Details on test animals or test system and environmental conditions**
TEST ANIMALS
- Source: Atsugi Breeding Center, Charles River Laboratories Japan, Inc.
- Age at study initiation:10 weeks of age
- Weight at study initiation: 340-409 g for males and 205-257 g for females
- Housing: bracket-type metallic wire-mesh cages (W 250 × D 350 × H 200 mm)- Diet (e.g. ad libitum):ad libitum

- Water (e.g. ad libitum):ad libitum
- Acclimation period:15 days
ENVIRONMENTAL CONDITIONS
- Temperature (°C):21 to 26°C
- Humidity (%): 38 to 63%
- Air changes (per hr):10 to 15 times per hour
- Photoperiod (hrs dark / hrs light):12-hour lighting per day

## Administration / exposure

**Route of administration**
oral: gavage

**Vehicle**
water

**Details on exposure**
PREPARATION OF DOSING SOLUTIONS: Test substance was dissolved in distilled water for injection.
VEHICLE
- Justification for use and choice of vehicle: No data
- Amount of vehicle (if gavage): 5 ml/kg bw
- Lot/batch no. (if required): No data
- Dosing volume: 5 mL/kg
- Storage condition of test solution: Stored in a refrigerator

**Analytical verification of doses or concentrations**
yes

**Details on analytical verification of doses or concentrations**
Test suspensions at each concentration to be used for males in week 1 and 6 of administration were analyzed by the HPLC method at Bozo Research Center Inc. Results showed that the concentration of the test article in each suspension was 94.5 to 107.5% of the nominal concentration, and both values were within the acceptable range (concentration: percentage of the nominal concentration, 100 ± 10%; C.V.: 10% or below)

**Duration of treatment / exposure**
All males and females without mating: 42 days
Females with mating: up to 51 days including 14 days pre-mating, mating and gestation periods and until day 4 of lactation

**Frequency of treatment**
Daily: 7 times / week

**Doses / concentrations**

**Remarks**
Doses / Concentrations:
0 (vehicle), 12, 60 and 300 mg/kg bw/day
Basis:
actual ingested

**No. of animals per sex per dose**
12 animals/sex/dose with mating (main dose group), 5 animals/sex/dose at 0 and 300 mg/kg bw/day without mating (recovery group)

**Control animals**
yes, concurrent vehicle

**Details on study design**
- Dose selection rationale: A preliminary study was conducted to determine the doses to be employed. Male and female rats were receiving 0, 100, 300, and 1000 mg/kg bw/day (5 animals/sex/dose) of the substance was administered for 14 days. As the results, thickening in limiting ridge of the stomach was observed in 2 males and 2 females receiving 100 mg/kg bw/day. Thickening in limiting ridge of the stomach and dilatation in the cecum were observed in almost all animals receiving 300 mg/kg bw/day or more. Decreases in body weights in males and food consumption in both sexes, and increases in AST and ALT activities were observed in an early administration period at 1000 mg/kg bw/day. Therefore, the high dose was set at 300 mg/kg/day, and the middle and low dose were set at 60 and 12 mg/kg/day using common ratio 5.

## Examinations

**Parental animals: Observations and examinations**
See 7.5.1 Repeated dose toxicity: oral Endpoint study record: Repeated dose toxicity: oral.001 for observations and examinations for general toxicity

**Oestrous cyclicity (parental animals)**
Vaginal smears were collected from all females in the main groups and microscopically examined every day from the day after the start of administration until the day copulation was confirmed. During the pre-mating administration period, vaginal smear pictures were classified as proestrus, estrus, metestrus or diestrus and examined for the frequency of estrus and interval between estruses (estrous cycle). During the mating period, vaginal smears were examined for the presence of sperm.

**Sperm parameters (parental animals)**
Parameters examined in P male parental generations: testes weight, epididymides weight

**Litter observations**
PARAMETERS EXAMINED: Number and sex of pups, stillbirths, live births, postnatal mortality, presence of gross anomalies, and weight gain.
GROSS EXAMINATION OF DEAD PUPS: Yes, for external and internal abnormalities.

**Postmortem examinations (parental animals)**
SACRIFICE: Male animals: Rats were euthanized by exsanguination under ether anesthesia on the day after the last administration. Maternal animals: Rats were euthanized by exsanguination under ether anesthesia on day 4 of lactation.
GROSS PATHOLOGY AND ORGAN WEIGHTS：Yes
Brain, thyroids(including parathyroids), thymus, heart, liver, spleen, kidneys, adrenals, testes, and epididymis
HISTOPATHOLOGY: Yes
Cerebrum, cerebellum, pituitary, spinal cord (thoracic), thyroid, parathyroid, adrenal glands, thymus, spleen, submandibular lymph nodes, mesenteric lymph nodes, heart, lung (including bronchial), stomach, duodenum, jejunum, ileum, cecum, colon, rectum, liver, kidney, bladder, testis, epididymis, ovary, uterus, seminal vesicles, sternum and femur (including bone marrows), macroscopic lesions, and parts for identification (auricles)

**Postmortem examinations (offspring)**
SACRIFICE: The F1 pups were euthanized on PND 4 by exsanguination under ether anesthesia.
GROSS NECROPSY: Yes

**Statistics**
The data were analyzed for homogeneity of variance by the Bartlett test (level of significance: 0.01, two-tailed). If variances were homogeneous, data was analyzed by the Dunnett test, whereas heterogeneous data was analyzed by a Steel test. In the recovery test, these values of two groups were anal

yzed by F test and Student or Aspin-Welch t-test. Frequency data were analysed by Fisher test. Stati stical significance was set at < 5% by two-sided

**Reproductive indices**
Each parameter was determined by the following equations:
Copulation index (%) = (No. of copulated animals/No. of co-housed animals) × 100
Fertility index (%) = (No. of pregnant females/No. of copulated females) × 100
Insemination index (%) = (No. of pregnant females/No. of copulated males) × 100
Duration of gestation (days) = day 0 of lactation – day 0 of gestation
Delivery index (%) = (No. of females delivered liveborn pups/No. of pregnant females) × 100
Implantation index (%) = (No. of implantation sites/No. of corpora lutea) × 100
Stillborn index (%) = (No. of stillborn pups/Total No. of pups born) × 100
Liveborn index (%) = (No. of liveborn pups/Total No. of pups born) × 100
External abnormalities (%) = (No. of pups with external abnormalities/No. of liveborn pups) × 100
Sex ratio = No. of males/(No. of males + No. of females)
Viability index (%) = (No. of surviving pus on day 4 after birth/No. of liveborn pups on day 0 after birth) × 100

**Offspring viability indices**
Number of live pups on day 0 of lactationBirth index (%) = (Number of live pups on day 0/Number of i mplantation sites) ×100
Live birth index (%) = (Number of live pups on day 0/Number of pups born) ×100
Pups weight on day 0 of lactationSex ratio on day 0 of lactation
Number of live pups on day 4 of lactation
Pups weight on day 4 of lactation
Sex ratio on day 4 of lactation
Viability index = (Number of live pups on day 4 after birth/Number of live pups born) ×100

# Results and discussion

## Results: P0 (first parental generation)

## General toxicity (P0)

**Clinical signs**
effects observed, treatment-related

**Body weight and weight changes**
effects observed, treatment-related

**Food consumption and compound intake (if feeding study)**
effects observed, treatment-related

**Organ weight findings including organ / body weight ratios**
no effects observed

**Description (incidence and severity)**
on reproductive organ

**Gross pathological findings**
no effects observed

**Description (incidence and severity)**
on reproductive organ

**Histopathological findings: non-neoplastic**
no effects observed

**Description (incidence and severity)**
on reproductive organs

**Other effects**
not examined

## Reproductive function / performance (P0)

**Reproductive function: oestrous cycle**
no effects observed

**Reproductive performance**
no effects observed

## Details on results (P0)

1) Estrous Cycle
There were no animals showing abnormal estrous cycles, and there were no significant differences in the average length of the estrous cycle between the control group and any treatment group.
2) Results of Mating
There were no significant differences in the number of elapsed days until copulation, copulation index, insemination index or fertility index between the control group and any treatment groups.
3) Delivery Data and Delivery
There were no significant differences in the delivery index, duration of gestation, number of corpora lutea, number of implantation sites, implantation index, stillborn index, number of liveborn pups or liveborn index between the control group and any treatment groups.No changes in nesting, gather the pups, and breast-feeding behavior were observed in all dams during the lactation period.

## Effect levels (P0)

**Key result**
false

**Dose descriptor**
NOAEL

**Effect level**

300 mg/kg bw/day (actual dose received)

**Based on**
act. ingr.

**Sex**
male/female

**Basis for effect level**
other: Noeffects on reproduction

# Results: F1 generation

## General toxicity (F1)

**Clinical signs**
no effects observed

**Mortality / viability**
no mortality observed

**Body weight and weight changes**
no effects observed

**Gross pathological findings**
no effects observed

## Effect levels (F1)

**Key result**
false

**Dose descriptor**
NOAEL

**Generation**
F1

**Effect level**

300 mg/kg bw/day (actual dose received)

**Based on**
act. ingr.

**Sex**
male/female

**Basis for effect level**
other: No effects on development

## Overall reproductive toxicity

**Key result**
false

**Reproductive effects observed**
not specified

## Any other information on results incl. tables

***Figures and Tables (in English) are available in the following full report of the study.***

http://dra4.nihs.go.jp/mhlw_data/home/pdf/PDF70974-33-3d.pdf

## Applicant's summary and conclusion

**Executive summary**

In the combined repeated oral dose toxicity study with the reproduction/developmental toxicity screening test (OECD TG 422), there were no effects on reproductive and developmental parameters

at 300 mg/kg bw/day. The NOAEL for the rat reproductive/developmental toxicity of benzenesulfonic acid, 4-hydroxy-, tin(2+) salt was determined to be 300 mg/kg bw/day, the highest dose tested.

# References

## Reference Substances

### REFERENCE_SUBSTANCE: 70974-33-3

**UUID:** d2f7327d-0f8a-3ab2-a827-e4339ea06bf6
**Dossier UUID:**
**Author:**
**Date:** 2017-01-18T15:00:11.000+09:00
**Remarks:**

**Reference substance name**
70974-33-3

**IUPAC name**
70974-33-3

#### Inventory

**CAS number**
70974-33-3

# REFERENCE_SUBSTANCE: Benzenesulfonic acid, 4-hydroxy-, tin(2+) salt

| | |
|---|---|
| **UUID:** | 98ffb958-bfec-47e8-94da-2934cfb3e897 |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2019-09-03T16:38:07.000+09:00 |
| **Remarks:** | |

**Reference substance name**
Benzenesulfonic acid, 4-hydroxy-, tin(2+) salt

## Inventory

**CAS number**
70974-33-3

# Test Materials

## TEST_MATERIAL_INFORMATION: Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt

**UUID:** 4fe9d66e-438c-3ab2-b743-a623fc4ee0a9
**Dossier UUID:**
**Author:**
**Date:** 2022-12-12T15:23:43.580+09:00
**Remarks:**

**Name**
Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt

## Composition

**Composition**

**Type**
Constituent

**Reference substance**
70974-33-3 / 70974-33-3 / 70974-33-3

| EC number | EC name |
|---|---|
| CAS number | CAS name |
| 70974-33-3 | |

**IUPAC name**
70974-33-3

# Literatures

## LITERATURE: A combined repeated-dose/reproductive-developmental toxicity study of Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt by oral administration in rats.

**UUID:** e04fcd9b-5edc-34b4-95e1-a71c4e81b070
**Dossier UUID:**
**Author:**
**Date:** 2017-01-18T15:46:34.000+09:00
**Remarks:**

## General information

**Reference Type**
study report

**Title**
A combined repeated-dose/reproductive-developmental toxicity study of Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt by oral administration in rats.

**Author**
MHLW, Japan

**Year**
2009

**Bibliographic source**
Japan Existing Chemical Data Base (JECDB)

**Testing facility**
BoZo Research Center Inc

**Report date**
2009-04-10

**Report number**
R-945

# LITERATURE: In Vitro Chromosomal Aberration Test of Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt on Cultured Chinese Hamster Cells.

**UUID:** 8d0fc545-3aee-3f58-b439-4febb72e2944
**Dossier UUID:**
**Author:**
**Date:** 2017-01-18T17:06:07.000+09:00
**Remarks:**

## General information

**Reference Type**
study report

**Title**
In Vitro Chromosomal Aberration Test of Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt on Cultured Chinese Hamster Cells.

**Author**
MHLW, Japan

**Year**
2006

**Bibliographic source**
Japan Existing Chemical Data Base (JECDB)

**Testing facility**
Biosafety Research Center, Foods, Drugs and Pesticides (Anpyo Center)

**Report date**
2006-09-19

**Report number**
9053 (115-204)

# LITERATURE: Reverse Mutation Test of Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt on Bacteria.

**UUID:** 7c3c1ace-5565-39db-9bf7-705153fd0090
**Dossier UUID:**
**Author:**
**Date:** 2017-01-18T16:47:14.000+09:00
**Remarks:**

## General information

**Reference Type**
study report

**Title**
Reverse Mutation Test of Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt on Bacteria.

**Author**
MHLW, Japan

**Year**
2006

**Bibliographic source**
Japan Existing Chemical Data Base (JECDB)

**Testing facility**
Biosafety Research Center, Foods, Drugs and Pesticides (Anpyo Center)

**Report date**
2006-09-19

**Report number**
9052 (115-203)

# LITERATURE: Single Dose Oral Toxicity Test of Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt in Rats

**UUID:** a2820de3-8cd5-3360-b920-e24bbb2bf4a4
**Dossier UUID:**
**Author:**
**Date:** 2017-01-18T15:00:11.000+09:00
**Remarks:**

## General information

**Reference Type**
study report

**Title**
Single Dose Oral Toxicity Test of Benzenesulfonic acid, 4-hydroxy-, tin(2+)salt in Rats

**Author**
MHLW, Japan

**Year**
2007

**Bibliographic source**
Japan Existing Chemical Data Base (JECDB)

**Testing facility**
Biosafety Research Center, Foods, Drugs and Pesticides (An-Pyo Center)

**Report date**
2007-01-26

**Report number**
9079 (115-206)

# Legal Entities

## LEGAL_ENTITY: National Institute of Health Sciences

**UUID:** IUC4-b036ff75-0f3c-323b-b200-ed5f46cf5101
**Dossier UUID:**
**Author:**
**Date:** 2022-11-07T15:49:29.000+09:00
**Remarks:**

## General information

**Legal entity name**
National Institute of Health Sciences

**Remarks**
Disclaimer: The contents in this document were created based on the MHLW (Ministry of Health, Labour and Welfare) peer reviewed study reports (in Japanese) in JECDB (Japan Existing Chemical Database) at http://dra4.nihs.go.jp/mhlw_data/jsp/SearchPageENG.jsp. Authorship is in the Division of Risk Assessment, the National Institute of Health Sciences, and the contents do not reflect any o fficial MHLW opinions or any other regulatory policies.

## Address

**Address 1**
Tonomachi 3-25-26

**Address 2**
Kawasaki-ku

**Postal code**
210-9501

**Town**
Kawasaki

**Region / State**
Kanagawa

**Country**
Japan
JP

## Identifiers

**Other IT system identifiers**

| |
|---|
| **IT system**<br>LEO<br><br>**ID**<br>10767 |
| **IT system**<br>IUCLID4 |

**ID**
16558402024DIV750