**Name:** COMPLETE / SUBSTANCE : 2-Chlorobenzoyl chloride / 2-chlorobenzoyl chloride / 609-65-4 Fri, 16 Dec 2022, 14:20:21+0900 /

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

**Printing date:** 2022-12-16T14:20:21.257+09:00

# Table of Contents

# DOSSIER:

**UUID:** 0
**Dossier UUID:**
**Author:**
**Date:** 2022-12-16T14:20:21.074+09:00
**Remarks:**

## Dossier header

## Dossier submission type

**Name**
Complete table of contents

**Version**
core 7.0

**Name (given by user)**

## Dossier subject

**Dossier subject**
2-Chlorobenzoyl chloride / 2-chlorobenzoyl chloride / 609-65-4

**Public name**

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

**Dossier creation date/time**
Fri, 16 Dec 2022, 14:20:21+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

# 2-Chlorobenzoyl chloride

## CORE

### General information

#### Assessment approach (assessment entities)

**FIXED_RECORD: Assessment approach**

| | |
|---|---|
| **UUID:** | f339c3fd-7c2b-3cec-9059-443b0668bd5e |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2019-03-27T09:57:48.000+09:00 |
| **Remarks:** | |

# OECD

## Health Effects

### Acute toxicity: oral

#### ENDPOINT_STUDY_RECORD: Acute toxicity: oral.001

| | |
|---|---|
| **UUID:** | c812f88c-ec7f-4d62-9d47-96f16e5249ae |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2022-12-12T10:24:17.698+09:00 |
| **Remarks:** | |

## Administrative data

**Endpoint**
acute toxicity: oral

**Type of information**
experimental study

**Adequacy of study**
key study

**Robust study summary**
true

**Used for classification**
false

**Used for SDS**
false

**Reliability**
1 (reliable without restriction)

**Rationale for reliability incl. deficiencies**
guideline study
Reliability 1

## Data source

**Reference**

Single Dose Oral Toxicity Test of 2-Chlorobenzoyl chloride / MHLW (Ministry of Health, Labour and Welfare), Japan / study report

**Data access**
data published

## Materials and methods

**Test guideline**

**Qualifier**
according to guideline

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

**GLP compliance**
yes

**Test type**
acute toxic class method

**Limit test**
yes

## Test material

**Test material information**
2-Chlorobenzoyl chloride

**Specific details on test material used for the study**
- Name of test material (as cited in study report): 2-chlorobenzoyl chloride
- Lot No.: GK01 (Tokyo Chemical Industry Co., Ltd.)
- Purity: 99.2%
- Solubility: soluble in corn oil
- Physical state: Colorless liquid
- Storage condition of test material: in cool (2-10 degree C) and dark place

## 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 or 8 weeks old
- Weight at dosing: 184-204 g
– Used animal number: A total of 12 females (3 animals/step)
- Housing: one animal/cage
- Diet (e.g. ad libitum): Ad libitum
- Water (e.g. ad libitum): Ad libitum
- Acclimation period: 5 days.
ENVIRONMENTAL CONDITIONS
- Temperature (°C): 22±3°C（21-24 °C）
- Humidity (%): 50±20%（47-69%）
- Ventilation (per hr): 10-15 times

- Photoperiod (hrs light / hrs dark): 12/12

## Administration / exposure

**Route of administration**
oral: gavage

**Vehicle**
corn oil

**Details on oral exposure**
MAXIMUM DOSE VOLUME APPLIED:5 ml/kg b.w.

**Doses**
2000 mg/kg bw (1st and 2nd steps)

**No. of animals per sex per dose**
3 females/dose

**Control animals**
no

**Details on study design**
- Duration of observation period following administration: 14 days
- Frequency of observations: for one hour after dosing, and 2 and 4h after dosing (1st step). For one h our after dosing, and 2, 4, and 6h after dosing (2nd step). Thereafter, twice a day on Days 2 to 13, and once a day on Day 14.
- Frequency of weighing: One day before dosing, before administration, and on Days 1, 3, 5, 7, 10 and 1 4.
- Necropsy of survivors performed: Yes

**Statistics**
not used

# Results and discussion

**Effect levels**

**Key result**
true

**Sex**
female

**Dose descriptor**
LD50

**Effect level**

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

**Based on**
act. ingr.

**Mortality**
No deaths were observed in the first and second dosing groups.

**Clinical signs**
other: Diarrhea, mucous feces, soil of perianal fur and soil of perigenital fur were observed spo radically.

**Gross pathology**
There were no changes related to the test substance.

## Applicant's summary and conclusion

**Conclusions**
The acute oral LD50 of 2-Chlorobenzoyl chloride was >2000 mg/kg bw in female rats based on the study conducted according to the OECD TG 423.

## Repeated dose toxicity: oral

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

| | |
|---|---|
| **UUID:** | 4b62f0bf-a629-474c-b38b-5cdd85e8a20c |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2022-12-16T14:17:52.105+09:00 |
| **Remarks:** | |

# Administrative data

**Endpoint**
repeated dose toxicity: oral, other

**Type of information**
experimental study

**Adequacy of study**
key study

**Robust study summary**
false

**Used for classification**
false

**Used for SDS**
false

**Reliability**
1 (reliable without restriction)

**Rationale for reliability incl. deficiencies**
guideline study
Reliability 1

**Cross-reference**

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

**Related information**
OECD / Toxicity to reproduction / Toxicity to reproduction.001 / 2-Chlorobenzoyl chloride / 2-chlorobenzoyl chloride / 609-65-4

# Data source

**Reference**

A combined repeated dose/reproductive developmental toxicity study of 2-chlorobenzoyl chloride by or / Ministry of Health, Labor and Welfare, 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**
2-Chlorobenzoyl chloride

**Specific details on test material used for the study**
- Name of test material (as cited in study report): 2-chlorobenzoyl chloride
- Analytical purity: 99.2%
- Storage condition of test material: at a cold (temperature 2-10°C) and dark place, with airtight stopper.
- Stability under test conditions: The stability of test material was identified by analysis of the remainder.

## Test animals

**Species**
rat
common rodent species

**Strain**
other: Crl:CD(SD)

**Sex**
male/female

**Details on test animals or test system and environmental conditions**
TEST ANIMALS
- Source: Charles River Japan, Inc., Atsugi Breeding Center.
- Age at study initiation: 10 weeks old
- Weight at study initiation: Male: 398.6 g (366 -432 g), Female: 257.2 g (235-283 g)
- Housing: Animals were housed individually, except for during the acclimation (one or two animals by sex), mating (one male and one female) and lactation periods (one litter), in metallic bracket-type cages with wire mesh floors (300Wx 410D x 200H mm). From gestation day 17 to lactation day 4, individual dams and litters were reared on bedding.
- Diet: Solid feed (CRF-1: Oriental Yeast Co., ltd.) was given ad libitum.
- Water: Tap water was given ad libitum.
- Acclimation period: 14 days

ENVIRONMENTAL CONDITIONS

- Temperature (°C): 22±3 (actual temperature: 21-25°C)
- Humidity (%): 50±20% (actual humidity: 44-69%)
- Air changes (per hr): 10-15
- Photoperiod (hrs dark / hrs light): 12 hr dark/12 hr light (light: 8:00~20:00)

## Administration / exposure

**Route of administration**
oral: gavage

**Vehicle**
corn oil

**Details on oral exposure**
- Amount of vehicle (if gavage): 5 mL/kg
- Dosing volume: 5 mL/kg

**Analytical verification of doses or concentrations**
yes

**Duration of treatment / exposure**
(P) Males: 42 days including 14 days pre-mating
(P)Females: 42-49 days including 14 days pre-mating, mating and gestation periods and the days until day 4 of lactation
Female (no mating, satellite group): 42 days

**Frequency of treatment**
Once/day, 7 days/week

**Doses / concentrations**

| | |
|---|---|
| **Dose / conc.** | |
| 0 | mg/kg bw/day (actual dose received) |
| **Dose / conc.** | |
| 40 | mg/kg bw/day (actual dose received) |
| **Dose / conc.** | |
| 200 | mg/kg bw/day (actual dose received) |
| **Dose / conc.** | |
| 1000 | mg/kg bw/day (actual dose received) |

**No. of animals per sex per dose**
Main group:12 animals/sex/dose
Satellite (Recovery) group: 5 males/dose and 5 females/dose (0 and 1000 mg/kg bw/day)

**Control animals**
yes, concurrent vehicle

**Details on study design**
- Dose selection rationale: Based on the results of a 14-day preliminary study, the highest dose of 1000 mg/kg bw/day was selected as an expected obvious toxic dose, and the lowest dose of 40 mg/kg bw/day was selected as an expected no toxic dose. The middle dose levels of 200 mg/kg bw/day were selected.
- Rationale for animal assignment (if not random): Body weight-balanced randomization

[14-day preliminary study]
A 14-day repeated dose oral toxicity test (Crl:CD(SD) rats, doses: 0 (olive oil), 30, 100, 300 or 1000 mg/kg bw/day). Thickening of the forestomach mucosa was observed at 300 mg/kg bw/day or more. At 1000 mg/kg bw/day, decrease in body weight and body weight gain, decrease in food consumption, decrease in urine pH were observed in males, low value of red blood cell count and hemoglobin level were observed in females, high value of triglyceride, increase in liver and kidney weights were observed in both sexes.

## Examinations

**Observations and examinations performed and frequency**
CAGE SIDE OBSERVATIONS: Yes
- Time schedule: 2 times/day (am: before and after administration; pm) during the administration period. 2 times/day (am and pm) during the recovery period.

DETAILED CLINICAL OBSERVATIONS: Yes
- Time schedule: Once before the start of administration, and once every week by the end of the study period.

BODY WEIGHT: Yes
- Time schedule for examinations:
Males were weighed on Day 1, 3, 5, 7, 10, 14, 21, 28, 35, and 42 of administration, and weighed on Day 7 and 14 of recovery.
Female satellite groups were weighted same frequencies to male recovery groups.
Females in the main groups were weighed on Day 1, 3, 5, 7, 10 and 14 of administration and copulated females were weighed on Day 0, 1, 3, 5, 7, 14, 17 and 20 of gestation, and days 0, 1, and 4 of lactation.

FOOD CONSUMPTION AND COMPOUND INTAKE (if feeding study):
- Food consumption: Yes
Measurement of food consumption was conducted on all animals at the following frequencies:
Males in the main and recovery groups; on Day 1, 3, 5, 7, 10, 14, 21, 28, 35, and 42 of administration, and on Day 7 and 14 of recovery.
Female satellite groups were weighted same frequencies to male recovery groups.
Females in the main group; on Day 1, 3, 5, 7, 10, and 14 of administration and copulated females were weighed on Day 1, 3, 5, 7, 10, 14, 17 and 20 of gestation, and days 1 and 4 of lactation.

OPHTHALMOSCOPIC EXAMINATION: No

HAEMATOLOGY: Yes
- Time schedule for collection of blood: At the end of administration period, or at the end of recovery period in both sexes
- Anaesthetic used for blood collection: ether
- Animals fasted: Yes

- How many animals: 5 animals/sex/group
- Parameters examined included RBC, hemoglobin, hematocrit, MCV, MCH, MCHC, platelet, reticulocyte, PT, APTT, WBC and differential WBC.

CLINICAL CHEMISTRY: Yes
- Time schedule for collection of blood: At the end of administration period, or at the end of recovery period in both sexes
- Animals fasted: Yes
- How many animals: 5 animals/sex/group
- Parameters examined included total protein, protein fraction, albumin, A/G ratio, total bilirubin, glucose, total cholesterol, triglyceride, AST, ALT, ALP, gamma-GTP, BUN, creatinine, Na, K, Cl, Ca and IP.

URINALYSIS OF MALES: Yes
- Time schedule for collection of urine (male only): On Week 6 (Day 40-41) of administration, and on Week 2 (Day 12-13) of recovery.
- Metabolism cages used for collection of urine: Yes
- How many animals: 5 animals/group
- Parameters examined included color, urine volume, specific gravity, pH, protein, glucose, ketone body, bilirubin, occult blood and urobilinogen.

NEUROBEHAVIOURAL EXAMINATION: Yes
- Time schedule for examinations: On week 6 of the administration period, and on week 2 of the recovery period
- Dose groups that were examined: All dose groups (5 animals/sex/group)
- Battery of functions tested: sensory activity (hearing reaction, eye sight reaction, sense of touch reaction, pain reaction, proprioceptive, righting reflex), grip strength, motor activity

**Sacrifice and pathology**
GROSS PATHOLOGY: Yes

ORGAN WEIBHT: Yes [brain, thymus, heart, liver, kidney, adrenal gland, spleen, testis, epididymis]

HISTOPATHOLOGY: Yes, [brain, pituitary, spinal cord, thyroid, parathyroid, heart, thymus, trachea, lung, liver, kidney, adrenal, spleen, esophagus, stomach, pancreas, duodenum, jejunum, ileum, cecum, colon, rectum, eyeball and Harderian gland, sciatic nerve, bone, bone marrow, lymph nodes (mesenteric and mandibular lymph nodes), urinary bladder, testis, seminal vesicle, prostate, epididymis, mammary gland, ovary and uterus.]

**Statistics**
The data were analyzed for homogeneity of variance by the Bartlett test. If variances were homogeneous, data was analyzed by one-way ANOVA and the Dunnett test, whereas heterogeneous data was analyzed by Kruskal-Wallis test and the Mann-Whitney U test.
For findings two or more grades was observed, data was analyzed by Kruskal-Wallis test and the Mann-Whitney U test. For findings one grade was observed, data was analyzed by a multi-sample chi-square test and a two-sample chi-square test. For the comparison tests with the control group, the significance level was 5%.

# Results and discussion

## Results of examinations

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

**Mortality**
mortality observed, treatment-related

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

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

**Food efficiency**
not examined

**Water consumption and compound intake (if drinking water study)**
not examined

**Ophthalmological findings**
not examined

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

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

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

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

**Organ weight findings including organ / body weight ratios**
effects observed, treatment-related

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

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

**Histopathological findings: neoplastic**
not examined

**Details on results**
CLINICAL SIGNS AND MORTALITY:
Mortality: At 200 mg/kg bw/day, one pregnant female died on GD 22. At 1000 mg/kg bw/day, one non-pregnant female died on day 5 of the administration period, and one pregnant female died on GD23.
Clinical signs: At 200 mg/kg bw/day, transient salivation and soft feces were observed in females. At 1000 mg/kg bw/day, transient salivation, soil of perianal fur, soil of perigenital fur, mucous feces, and soft feces were observed in males and females.

DETAILED CLINICAL OBSERVATIONS, MANIPULATIVE TEST, GRIP STRENGTH TEST AND LOCOMOTOR ACTIVITY MEASUREMENT: There were no changes related to the test substance.

BODY WEIGHT:
[At the dosing period]: At 1000 mg/kg bw/day, decrease in body weight and body weight gain were observed in males.
[At the recovery period]: At 1000 mg/kg bw/day, decrease in body weight was observed in males.

FOOD CONSUMPTION:
[At the dosing period]: At 1000 mg/kg bw/day, low value of food consumption was observed in males at day 3.

[At the recovery period]: At 1000 mg/kg bw/day, low value of food consumption was observed in f emales at lactation day 4.

URINALYSIS:
[At the dosing period]: At 1000 mg/kg bw/day, low value of urinary pH was observed in both sexes, a nd increased urinary volume was observed in males at week 6.

HAEMATOLOGY:
[At the end of dosing period]: At 1000 mg/kg bw/day, increase in MCV and MCH were observed in males.
[At the end of recovery period]: There were no changes related to the test substance in any groups.

CLINICAL CHEMISTRY:
[At the end of dosing period]: At 1000 mg/kg bw/day, high value of A/G ration, increase in albumin fr action ratio, and decrease in beta-globulin fraction ratio were observed in males and females, incre ase in AST, ALT, and decrease in albumin alfa1-globulin ratio, total cholesterol, K, Cl, and IP were observed in males, decrease in BUN and Ca were observed in females.
[At the end of recovery period]: There were no changes related to the test substance in any groups.

ORGAN WEIGHTS:
[At the end of dosing period]: At 1000 mg/kg bw/day, increase in relative weights of the liver and kidne y were observed in males and females.
[At the end of recovery period]: There were no changes related to the test substance in any groups.

GROSS PATHOLOGY:
[At the end of dosing period]: At 1000 mg/kg bw/day, thickening of forestomach mucosa and th ickening in limiting ridge of stomach were observed in males and females.
[At the end of recovery period]: There were no changes related to the test substance in any groups.

HISTOPATHOLOGY: NON-NEOPLASTIC:
[At the end of dosing period]: At 200 mg/kg bw/day, squamous cell hyperplasia of forestomach was observed in males. At 1000 mg/kg bw\/day, squamous cell hyperplasia of forestomach, inflammato ry cell infiltration in submucosa of forestomach, squamous cell hyperplasia in limiting ridge of sto mach were observed in males and females, and edema in submucosa of forestomach was observe d in females. Spermatogenetic examination of the 1,000 mg/kg bw/day group found a decreased number of Sertoli cells at stages IX–XIV.
[At the end of recovery period]: At 1000 mg/kg bw/day, squamous cell hyperplasia of forestomach persisted in 3/5 males and 1/4 female after the end of the recovery period, but the grade had recove red to a slight level.

## Effect levels

**Key result**
true

**Dose descriptor**
NOAEL

**Effect level**

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

**Based on**
test mat.

**Sex**
male/female

**Basis for effect level**
clinical signs
At 200 mg/kg bw/day, transient salivation and soft feces were observed in females.
histopathology: non-neoplastic
At 200 mg/kg bw/day, squamous cell hyperplasia of forestomach was observed in males.
mortality
At 200 mg/kg bw/day, one pregnant female died on GD 22.

## 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/PDF609-65-4d.pdf*

## Applicant's summary and conclusion

**Executive summary**

A combined repeated study of oral-dose toxicity including reproduction/developmental toxicity screening was performed in accordance with OECD TG 422. Male and female rats (12 animals/sex/dose) were administered 2-chlorobenzoyl chloride at 0 (vehicle: corn oil), 40, 200, and 1,000 mg/kg bw/day. The males were dosed for 42 days, including a 14-day pre-mating period and a subsequent mating period. The females were dosed up to 49 days, including 14-day pre-mating, mating, and gestation periods, and until lactation day 5. Out of the 12 males dosed at 0 and 1,000 mg/kg bw/day, 5 were treated as a recovery group. Each five additional females at 0 and 1,000 mg/kg bw/day were dosed with 2-chlorobenzoyl chloride for 42 days without mating and examined after a 14-day recovery period.

One pregnant female died on GD 22 and another on GD23, having been administered 200 mg/kg bw/day and 1,000 mg/kg bw/day, respectively. A non-pregnant female also died on day 5 of the administration period. Salivation, soft feces, mucus feces, and/or soiling of the peri-genital or anal fur were observed in both sexes at 200 and 1,000 mg/kg bw/day groups. Decreases in body weight, weight gain, and food consumption were observed in the males of the 1,000 mg/kg bw/day group. Body weight was not affected by 2-chlorobenzoyl chloride treatment in females, but food consumption decreased during the lactation period for the 1,000 mg/kg bw/day group. The relative organ weights of the liver and kidney increased in both sexes in the 1,000 mg/kg bw/day group. After the administration period, (slight to severe) squamous cell hyperplasia of the forestomach was observed at 1,000 mg/kg bw/day for all animals in both sexes, and an increased tendency was observed in males of the 200 mg/kg bw/day group. This change persisted in 3/5 males and 1/4 female after the end of the recovery period, but the grade had recovered to a slight level. Spermatogenetic examination of the 1,000 mg/kg bw/day group found a decreased number of Sertoli cells at stages IX–XIV. After the recovery period, no adverse effects were observed, except in the forestomach. Judging from the changes in general condition and death at 200 mg/kg bw/day, the NOAEL for the repeated-dose toxicity of 2-chlorobenzoyl chloride was determined to be 40 mg/kg bw/day in rats.

### Genetic toxicity in vitro

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

| | |
|---|---|
| **UUID:** | 1576bd0d-68b9-4e42-a697-34fc006dbe4e |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2022-12-16T14:18:48.095+09:00 |
| **Remarks:** | |

## Administrative data

**Endpoint**
in vitro gene mutation study in bacteria

**Type of information**
experimental study

**Adequacy of study**
key study

**Robust study summary**
true

**Used for classification**
false

**Used for SDS**
false

**Reliability**
1 (reliable without restriction)

**Rationale for reliability incl. deficiencies**
guideline study
Reliability 1

## Data source

**Reference**

Reverse Mutation Test of 2-Chlorobenzoyl chloride / Ministry of Health, Labour and Welfare (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

**GLP compliance**
yes

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

## Test material

**Test material information**
2-Chlorobenzoyl chloride

**Specific details on test material used for the study**
- Name of test material (as cited in study report): 2-chlorobenzoyl chloride
- Lot No.: GK01 (Tokyo Chemical Industry Co., Ltd.)
- Purity: 99.2%
- Solubility: soluble in acetone
- Physical state: Colorless liquid
- Storage condition of test material: in cool (2-8 degree C) and dark place

## Method

**Species / strain**

**Species / strain / cell type**
S. typhimurium TA 1535, TA 1537, TA 98, TA 100 and E. coli WP2
bacteria

**Metabolic activation**
with and without

**Metabolic activation system**
S9 mix: Rat liver, induced with phenobarbital and 5,6-benzoflavone

**Test concentrations with justification for top dose**
Dosage of each strain with or without S9
-S9 mix: 0, 78.1, 156, 313, 625, 1250, 2500 and 5000 µg /plate
+S9 mix: 0, 156, 313, 625, 1250, 2500 and 5000 µg /plate

Maximum concentration was established based on the result of the preliminary test at concentration up to 5000 ug/plate. In this test, growth inhibition was observed at 1500 and 5000 µg/plate for all strains with and without S9 mix.

**Vehicle / solvent**
Acetone

**Controls**

**Untreated negative controls**
no

**Negative solvent / vehicle controls**
yes

**True negative controls**
no

**Positive controls**
yes

**Positive control substance**
sodium azide
without S9 mix (TA 1535)
other: without S9 mix:2-(2-Furyl)-3-(5-nitro -2-furyl)acrylamide (TA100, TA98, WP2uvrA), without S9 mix: 9-Aminoacridine hydrochloride hydrate(TA1537) with 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- Method: other: growth inhibition

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

**Statistics**
not used

# Results and discussion

**Test results**

**Key result**
true

**Species / strain**
S. typhimurium TA 1535
bacteria

**Metabolic activation**
with and without

**Genotoxicity**
negative

**Cytotoxicity / choice of top concentrations**
cytotoxicity at 1250 µg /plate and higher

**Vehicle controls validity**
valid

**Positive controls validity**
valid

**Key result**
true

**Species / strain**
S. typhimurium TA 1537
bacteria

**Metabolic activation**
with and without

**Genotoxicity**
negative

**Cytotoxicity / choice of top concentrations**
cytotoxicity at 1250 µg /plate and higher

**Vehicle controls validity**
valid

**Positive controls validity**
valid

**Key result**
true

**Species / strain**
S. typhimurium TA 98
bacteria

**Metabolic activation**
with and without

**Genotoxicity**
negative

**Cytotoxicity / choice of top concentrations**
cytotoxicity at 1250 µg /plate and higher

**Vehicle controls validity**
valid

**Positive controls validity**
valid

**Key result**
true

**Species / strain**
S. typhimurium TA 100
bacteria

**Metabolic activation**
with and without

**Genotoxicity**
negative

**Cytotoxicity / choice of top concentrations**
cytotoxicity at 1250 µg /plate and higher

**Vehicle controls validity**
valid

**Positive controls validity**
valid

**Key result**
true

**Species / strain**
E. coli WP2 uvr A pKM 101
bacteria

**Metabolic activation**
with and without

**Genotoxicity**
negative

**Cytotoxicity / choice of top concentrations**
cytotoxicity Precipitation was observed at 1250 µg /plate and higher

**Vehicle controls validity**
valid

**Positive controls validity**
valid

**Additional information on results**
Precipitation was observed at 1250 µg /plate and higher

## Any other information on results incl. tables

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

*http://dra4.nihs.go.jp/mhlw_data/home/pdf/PDF609-65-4e.pdf*

## Applicant's summary and conclusion

**Conclusions**
With metabolic activation: Negative
Without metabolic activation: Negative

**Executive summary**

In a bacterial reverse mutation assay using S. typhimuriumTA100, TA1535, TA98, and TA1537, and E. coli WP2uvrA/pKM101 (OECD TG 471), negative results were obtained for 2-chlorobenzoyl chloride with or without metabolic activation.

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

| | |
|---|---|
| **UUID:** | 59b92994-7521-40db-9d85-2ff58564c4b5 |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2022-12-12T10:29:50.875+09:00 |
| **Remarks:** | |

## Administrative data

**Endpoint**
in vitro cytogenicity / chromosome aberration study in mammalian cells

**Type of information**
experimental study

**Adequacy of study**
key study

**Robust study summary**
true

**Used for classification**
false

**Used for SDS**
false

**Reliability**
1 (reliable without restriction)

**Rationale for reliability incl. deficiencies**
guideline study
Reliability 1

## Data source

**Reference**

In Vitro Chromosomal Aberration Test of 2-Chlorobenzoyl chloride on Cultured Chinese Hamster Cells / MHLW (Ministry of Health, Labour and Welfare), 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

**Qualifier**
according to guideline

**Guideline**
JAPAN: Guidelines for Screening Mutagenicity Testing Of Chemicals
genetic toxicity in vitro, other

**GLP compliance**
yes

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

## Test material

**Test material information**
2-Chlorobenzoyl chloride

**Specific details on test material used for the study**
- Name of test material (as cited in study report): 2-chlorobenzoyl chloride
- Lot No.: GK01 (Tokyo Chemical Industry Co., Ltd.)
- Purity: 99.2%
- Solubility: soluble in acetone
- Physical state: Colorless liquid
- Storage condition of test material: in cool (2-8 degree C) and dark place

## Method

**Species / strain**

**Species / strain / cell type**
other:

**Details on mammalian cell type (if applicable)**
Chinese hamster lung(CHL/IU) cell

**Metabolic activation**
with and without

**Metabolic activation system**
S9 mix: Rat liver, induced with phenobarbital and 5,6- benzoflavone

**Test concentrations with justification for top dose**
Short-term treatment(+S9 mix): 0, 109, 219, 329, 438, 657, 875 µg/mL
Short-term treatment(-S9 mix): 0, 109, 219, 274, 329, 384, 438 µg/mL
Continuous treatment: 0, 35.5, 55.0, 72.0, 90.0, 91.5, 98.5 µg/mL

Cell-growth inhibition test was conducted up to the limited concentration of 1750 µg/mL (10 mM).
IC50s were determined to be 386 µg/mL (short-term, -S9), 651 µg/mL (short-term, +S9), and 372 µg/mL (continuous treatment).

**Vehicle / solvent**
acetone

**Controls**

**Untreated negative controls**
no

**Negative solvent / vehicle controls**
yes

**True negative controls**
no

**Positive controls**
yes

**Positive control substance**
benzo(a)pyrene
(with S9 mix)
mitomycin C
(without S9 mix)

**Details on test system and experimental conditions**
METHOD OF APPLICATION: Exposure duration: [short-term treatment]:6 h + 18 h, [continuous t reatment]: 24h
NUMBER OF CELLS EVALUATED: 200 cells /concentration (100 cells/plate x 2)
Plates/test: 2

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

**Statistics**
Not used

# Results and discussion

**Test results**

**Key result**
true

**Species / strain**
other: Chinese hamster lung(CHL/IU) cells

**Metabolic activation**
with and without

**Genotoxicity**
negative

**Cytotoxicity / choice of top concentrations**
cytotoxicity >50% growth inhibition was observed at 438 µg/mL (short-term treatment, -S9 mix), 657 µg/mL (short-term treatment, +S9 mix), and 438 µg/mL (continuous treatment)

**Vehicle controls validity**
valid

**Positive controls validity**
valid

**Additional information on results**
Precipitation was observed at the beginning and end of treatment for short-term treatment with S9 mi x at 875 µg/mL. Decreases of pH in culture medium were detected at the beginning of treatment at 384 and 438 µg/mL for all treatment groups, and at the end of treatment at 657 µg/mL for short-term treatment with S9 mix. In the confirmation tests, 2-Chlorobenzoyl chloride did not induce structural ab errations with and without S9 mix. Polyploidy was not observed in any test conditions. Positive and vehicle control groups were valid.

## Any other information on results incl. tables

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

*http://dra4.nihs.go.jp/mhlw_data/home/pdf/PDF609-65-4f.pdf*

## Applicant's summary and conclusion

**Conclusions**
In an in vitro chromosomal aberration test using CHL/IU cells (OECD TG 473), negative results were o btained with or without metabolic activation.

**Executive summary**

In an in vitro chromosomal aberration test using CHL/IU cells (OECD TG 473), negative results were obtained with or without metabolic activation for 2-Chlorobenzoyl chloride.

## Toxicity to reproduction

### ENDPOINT_STUDY_RECORD: Toxicity to reproduction.001

| | |
|---|---|
| **UUID:** | dcd79d36-4b12-4bb1-befa-f7c6696e653b |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2022-12-16T14:19:59.337+09:00 |
| **Remarks:** | |

# Administrative data

**Endpoint**
reproductive toxicity, other A combined repeated dose/reproductive developmental toxicity study

**Type of information**
experimental study

**Adequacy of study**
key study

**Robust study summary**
false

**Used for classification**
false

**Used for SDS**
false

**Reliability**
1 (reliable without restriction)

**Rationale for reliability incl. deficiencies**
guideline study
Reliability 1

**Cross-reference**

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

**Related information**
OECD / Repeated dose toxicity: oral / Repeated dose toxicity: oral.001 / 2-Chlorobenzoyl chloride / 2-chlorobenzoyl chloride / 609-65-4

# Data source

**Reference**

A combined repeated dose/reproductive developmental toxicity study of 2-chlorobenzoyl chloride by or / Ministry of Health, Labor and Welfare, 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**
2-Chlorobenzoyl chloride

**Specific details on test material used for the study**
- Name of test material (as cited in study report): 2-chlorobenzoyl chloride
- Analytical purity: 99.2%
- Storage condition of test material: at a cold (temperature 2-10°C) and dark place, with airtight stopper.
- Stability under test conditions: The stability of test material was identified by analysis of the remainder.

## Test animals

**Species**
rat

**Strain**
other: Crl:CD(SD)

**Sex**
male/female

**Details on test animals or test system and environmental conditions**
TEST ANIMALS
- Source: Charles River Japan, Inc., Atsugi Breeding Center.
- Age at study initiation: 10 weeks old
- Weight at study initiation: Male: 398.6 g (366 -432 g), Female: 257.2 g (235-283 g)
- Housing: Animals were housed individually, except for during the acclimation (one or two animals by sex), mating (one male and one female) and lactation periods (one litter), in metallic bracket-type cages with wire mesh floors (300Wx 410D x 200H mm). From gestation day 17 to lactation day 4, individual dams and litters were reared on bedding.
- Diet: Solid feed (CRF-1: Oriental Yeast Co., ltd.) was given ad libitum.
- Water: Tap water was given ad libitum.
- Acclimation period: 14 days

ENVIRONMENTAL CONDITIONS
- Temperature (°C): 22±3 (actual temperature: 21-25°C)
- Humidity (%): 50±20% (actual humidity: 44-69%)
- Air changes (per hr): 10-15
- Photoperiod (hrs dark / hrs light): 12 hr dark/12 hr light (light: 8:00~20:00)

## Administration / exposure

**Route of administration**
oral: gavage

**Vehicle**
corn oil

**Details on exposure**
- Amount of vehicle (if gavage): 5 mL/kg
- Dosing volume: 5 mL/kg

**Analytical verification of doses or concentrations**
yes

**Duration of treatment / exposure**
(P) Males: 42 days including 14 days pre-mating
(P)Females: 42-49 days including 14 days pre-mating, mating and gestation periods and the days until day 4 of lactation
Female (no mating, satellite group): 42 days

**Frequency of treatment**
Once/day, 7 days/week

**Doses / concentrations**

| | |
|---|---|
| **Dose / conc.** | |
| 0 | mg/kg bw/day (actual dose received) |
| **Dose / conc.** | |
| 40 | mg/kg bw/day (actual dose received) |
| **Dose / conc.** | |
| 200 | mg/kg bw/day (actual dose received) |
| **Dose / conc.** | |
| 1000 | mg/kg bw/day (actual dose received) |

**No. of animals per sex per dose**
Main group:12 animals/sex/dose
Satellite (Recovery) group: 5 males/dose and 5 females/dose (0 and 1000 mg/kg bw/day)

**Control animals**
yes, concurrent vehicle

**Details on study design**
- Dose selection rationale: Based on the results of a 14-day preliminary study, the highest dose of 1000 mg/kg bw/day was selected as an expected obvious toxic dose, and the lowest dose of 40 mg/kg bw/day was selected as an expected no toxic dose. The middle dose levels of 200 mg/kg bw/day were selected.
- Rationale for animal assignment (if not random): Body weight-balanced randomization

[14-day preliminary study]
A 14-day repeated dose oral toxicity test (Crl:CD(SD) rats, doses: 0 (olive oil), 30, 100, 300 or 1000 mg/kg bw/day). Thickening of the forestomach mucosa was observed at 300 mg/kg bw/day or more. At 1000 mg/kg bw/day, decrease in body weight and body weight gain, decrease in food consumption, decrease in urine pH were observed in males, low value of red blood cell count and hemoglobin level were observed in females, high value of triglyceride, increase in liver and kidney weights were observed in both sexes.

## Examinations

**Parental animals: Observations and examinations**
CAGE SIDE OBSERVATIONS: Yes
- Time schedule: 2 times/day (am: before and after administration; pm) during the administration period. 2 times/day (am and pm) during the recovery period.

DETAILED CLINICAL OBSERVATIONS: Yes
- Time schedule: Once before the start of administration, and once every week by the end of the study period.

BODY WEIGHT: Yes
- Time schedule for examinations:
Males were weighed on Day 1, 3, 5, 7, 10, 14, 21, 28, 35, and 42 of administration, and weighed on Day 7 and 14 of recovery.
Female satellite groups were weighted same frequencies to male recovery groups.
Females in the main groups were weighed on Day 1, 3, 5, 7, 10 and 14 of administration and copulated females were weighed on Day 0, 1, 3, 5, 7, 14, 17 and 20 of gestation, and days 0, 1, and 4 of lactation.

FOOD CONSUMPTION AND COMPOUND INTAKE (if feeding study):
- Food consumption: Yes
Measurement of food consumption was conducted on all animals at the following frequencies:
Males in the main and recovery groups; on Day 1, 3, 5, 7, 10, 14, 21, 28, 35, and 42 of administration, and on Day 7 and 14 of recovery.
Female satellite groups were weighted same frequencies to male recovery groups.
Females in the main group; on Day 1, 3, 5, 7, 10, and 14 of administration and copulated females were weighed on Day 1, 3, 5, 7, 10, 14, 17 and 20 of gestation, and days 1 and 4 of lactation.

OPHTHALMOSCOPIC EXAMINATION: No

HAEMATOLOGY: Yes
- Time schedule for collection of blood: At the end of administration period, or at the end of recovery period in both sexes
- Anaesthetic used for blood collection: ether
- Animals fasted: Yes
- How many animals: 5 animals/sex/group

- Parameters examined included RBC, hemoglobin, hematocrit, MCV, MCH, MCHC, platelet, reticulocyte, PT, APTT, WBC and differential WBC.

CLINICAL CHEMISTRY: Yes
- Time schedule for collection of blood: At the end of administration period, or at the end of recovery period in both sexes
- Animals fasted: Yes
- How many animals: 5 animals/sex/group
- Parameters examined included total protein, protein fraction, albumin, A/G ratio, total bilirubin, glucose, total cholesterol, triglyceride, AST, ALT, ALP, gamma-GTP, BUN, creatinine, Na, K, Cl, Ca and IP.

URINALYSIS: Yes
- Time schedule for collection of urine: On Week 6 (Day 40-41) of administration, and on Week 2 (Day 12-13) of recovery.
- Metabolism cages used for collection of urine: Yes
- How many animals: 5 animals/group
- Parameters examined included color, urine volume, specific gravity, pH, protein, glucose, ketone body, bilirubin, occult blood and urobilinogen.

NEUROBEHAVIOURAL EXAMINATION: Yes
- Time schedule for examinations: On week 6 of the administration period, and on week 2 of the recovery period
- Dose groups that were examined: All dose groups (5 animals/sex/group)
- Battery of functions tested: sensory activity (hearing reaction, eye sight reaction, sense of touch reaction, pain reaction, proprioceptive, righting reflex), grip strength, motor activity

**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.

**Sperm parameters (parental animals)**
Parameters examined in all P male parental generations: testis weight, epididymis weight, histopathological examinations for testes, epididymides, seminal vesicle including coagulating gland and ventral prostate.
Stages of spermatogenesis examined in male control group and 1000 mg/kg bw/day group.

**Litter observations**
PARAMETERS EXAMINED: The following parameters were examined in F1 offspring: number and sex of pups, stillbirths, live births, postnatal mortality, presence of gross anomalies, weight gain, physical or behavioral abnormalities.

**Postmortem examinations (parental animals)**
METHOD OF SACRIFICED: All animals were sacrificed by exsanguination under ether anesthesia.

SACRIFICE: Male animals: On Day 42, Maternal animals: on Day 6 of lactation, and Male recovery and female satellite animals: on next Day 14 of recovery.

GROSS PATHOLOGY: Yes

ORGAN WEIBHT: Yes [brain, thymus, heart, liver, kidney, adrenal gland, spleen, testis, epididymis]

HISTOPATHOLOGY: Yes, [brain, pituitary, spinal cord, thyroid, parathyroid, heart, thymus, trachea, lung, liver, kidney, adrenal, spleen, esophagus, stomach, pancreas, duodenum, jejunum, ileum, cecum, colon, rectum, eyeball and Harderian gland, sciatic nerve, bone, bone marrow, lymph nodes (mesenteric and mandibular lymph nodes), urinary bladder, testis, seminal vesicle, prostate, epididymis, mammary gland, ovary and uterus.]

**Postmortem examinations (offspring)**
SACRIFICE
- The F1 offspring were sacrificed at 4 days of age.

GROSS NECROPSY
- Gross necropsy consisted of external and internal examinations including the cervical, thoracic, and abdominal viscera.

HISTOPATHOLOGY / ORGAN WEIGTHS
- Not examined.

**Statistics**
The data were analyzed for homogeneity of variance by the Bartlett test. If variances were homogeneous, data was analyzed by one-way ANOVA and the Dunnett test, whereas heterogeneous data was analyzed by Kruskal-Wallis test and the Mann-Whitney U test.
For findings two or more grades was observed, data was analyzed by Kruskal-Wallis test and the Ma nn-Whitney U test. For findings one grade was observed, data was analyzed by a multi-sample chi-square test and a two-sample chi-square test. For the comparison tests with the control group, the significance level was 5%.

**Reproductive indices**
Estrous cycle: Mean estrous cycle
Copulation index (%) = (No. of pairs with successful copulation/No. of pairs mated) × 100
Fertility index (%) = (No. of pregnant females/No. of pairs with successful copulation) × 100
Gestation index (%) = (No. of females with live pups/No. of pregnant females) × 100
Implantation index (%) = (No. of implantation sites/No. of corpora lutea) × 100
Delivery index (%) = (No. of pups born/No. of implantation sites) × 100
Live birth index (%) = (No. of live pups on day 0/No. of pups born) × 100
Sex ratio =Total number of male pups/Total number of female pups
Nursing index (%) = (No. of females nursing live pups on lactation day 4/No. of females with live pups delivery) × 100

**Offspring viability indices**
Viability index (%) = (No. of live pups on day 4/No. of live pups on day 0) × 100

# Results and discussion

## Results: P0 (first parental generation)

### General toxicity (P0)

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

**Description (incidence and severity)**
See 7.5.1

**Mortality**
mortality observed, treatment-related

**Description (incidence)**
See 7.5.1

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

**Description (incidence and severity)**
See 7.5.1

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

**Description (incidence and severity)**
See 7.5.1

**Food efficiency**
not examined

**Water consumption and compound intake (if drinking water study)**
not examined

**Ophthalmological findings**
not examined

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

**Description (incidence and severity)**
See 7.5.1

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

**Description (incidence and severity)**
See 7.5.1

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

**Description (incidence and severity)**
See 7.5.1

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

**Immunological findings**
not examined

**Organ weight findings including organ / body weight ratios**
effects observed, treatment-related

**Description (incidence and severity)**
See 7.5.1

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

**Description (incidence and severity)**
See 7.5.1

**Neuropathological findings**
not examined

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

**Description (incidence and severity)**
See 7.5.1

**Histopathological findings: neoplastic**
not examined

## Reproductive function / performance (P0)

**Reproductive function: oestrous cycle**
effects observed, treatment-related

**Description (incidence and severity)**
An increased tendency was found for abnormal estrus cyclicity at 1,000 mg/kg bw/day.

**Reproductive function: sperm measures**
effects observed, treatment-related

**Description (incidence and severity)**
Spermatogenetic examination of the 1,000 mg/kg bw/day group found a decreased number of Sertoli cells at stages IX–XIV.

**Reproductive performance**
effects observed, treatment-related

**Description (incidence and severity)**
At 200 mg/kg bw/day, one pregnant female died on GD 22. At 1000 mg/kg bw/day, one pregnant female died on GD23.
A decreased tendency was found for the fertility index at 1,000 mg/kg bw/day.

## Effect levels (P0)

**Key result**
true

**Dose descriptor**
NOAEL

**Effect level**

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

**Based on**
test mat.

**Sex**
male/female

**Basis for effect level**
reproductive performance
One pregnant female died on GD 22 at 200 mg/kg bw/day.

# Results: F1 generation

## General toxicity (F1)

**Clinical signs**
no effects observed

**Mortality / viability**
no mortality observed

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

**Description (incidence and severity)**
Low values of body weights of male and female pups were observed on PND 0, 1, and 4 at 1000 mg/kg bw/day.

**Gross pathological findings**
no effects observed

## Effect levels (F1)

**Key result**
true

**Dose descriptor**
NOAEL

**Generation**
F1

**Effect level**

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

**Based on**
test mat.

**Sex**
male/female

**Basis for effect level**
body weight and weight gain
Low values of body weights of male and female pups were observed on PND 0, 1, and 4 at 1000 mg/kg bw/day.

## 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/PDF609-65-4d.pdf*

## Applicant's summary and conclusion

**Executive summary**

The above-described combination of repeated oral-dose toxicity research and of a reproduction/developmental toxicity screening test (OECD TG 422), included observations of deaths in each one dam, before or during the delivery at 200 or 1,000 mg/kg bw/day, which was considered to be reproduction toxicity. Further, an increased tendency was found for abnormal estrus cyclicity and a tendency of decrease in the fertility index at 1,000 mg/kg bw/day. The body weights of the male and female pups were lower on PND 0, 1, and 4 at 1,000 mg/kg bw/day. The maternal death at 200 mg/kg bw/day leads to

the conclusion that the NOAEL for rat reproduction/developmental toxicity of 2-chlorobenzoyl chloride is 40 mg/kg bw/day.

# DOMAIN

## Substance

### SUBSTANCE: 2-Chlorobenzoyl chloride

**UUID:** 4b13eca6-c0a4-400d-b113-88278d1a3219
**Dossier UUID:**
**Author:**
**Date:** 2022-12-16T14:19:59.337+09:00
**Remarks:**

**Substance name**
2-Chlorobenzoyl chloride

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

## Identification of substance

**Reference substance**
2-chlorobenzoyl chloride / 2-chlorobenzoyl chloride / 609-65-4 / 210-194-0

| EC number | EC name |
|---|---|
| 210-194-0 | EC Inventory |
| **CAS number** | **CAS name** |
| 609-65-4 | |
| **IUPAC name** | |
| 2-chlorobenzoyl chloride | |

## Role in the supply chain

**Manufacturer**
false

**Importer**
false

**Only representative**
false

**Downstream user**
false

# References

## Reference Substances

### REFERENCE_SUBSTANCE: 2-chlorobenzoyl chloride

**UUID:** ECB5-221169d3-09a9-42f6-8b52-bdcafa61e7fe
**Dossier UUID:**
**Author:**
**Date:** 2007-05-10T18:00:00.000+09:00
**Remarks:**

**Reference substance name**
2-chlorobenzoyl chloride

**IUPAC name**
2-chlorobenzoyl chloride

## Inventory

**Inventory number**

**Inventory name**
2-chlorobenzoyl chloride

**Inventory**
EC Inventory

**Inventory number**
210-194-0

**CAS number**
609-65-4

**Molecular formula**
C7H4Cl2O

**Description**

**CAS number**
609-65-4

## Synonyms

**Synonyms**

**Identity**
Benzoyl chloride, 2-chloro-

**Identity**
Benzoyl chloride, 2-chloro-

## Molecular and structural information

**Molecular formula**
C7H4Cl2O

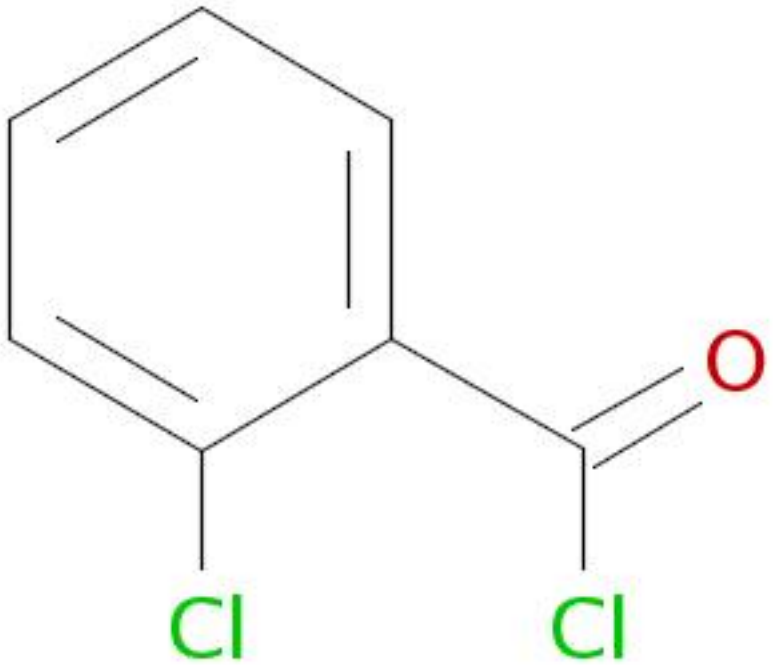
**Molecular weight**

175.0121

**SMILES notation**
ClC(=O)c1ccccc1Cl

**InChI**
InChI=1/C7H4Cl2O/c8-6-4-2-1-3-5(6)7(9)10/h1-4H

**Structural formula**




## Related substances

**Group / category information**
USEPA Category: Acid Chlorides;Neutral Organics

# Test Materials

## TEST_MATERIAL_INFORMATION: 2-Chlorobenzoyl chloride

**UUID:** 00e78d28-5a54-4588-be11-005ce8de3158
**Dossier UUID:**
**Author:**
**Date:** 2022-12-12T10:20:07.866+09:00
**Remarks:**

**Name**
2-Chlorobenzoyl chloride

# Literatures

## LITERATURE: A combined repeated dose/reproductive developmental toxicity study of 2-chlorobenzoyl chloride by oral administration in rats.

**UUID:** 552d9d44-22d6-4679-bd2e-2c8f187c02a0
**Dossier UUID:**
**Author:**
**Date:** 2019-03-22T10:19:39.000+09:00
**Remarks:**

## General information

**Reference Type**
study report

**Title**
A combined repeated dose/reproductive developmental toxicity study of 2-chlorobenzoyl chloride by oral administration in rats.

**Author**
Ministry of Health, Labor and Welfare, Japan

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

**Testing facility**
Safety Research Institute  Chemical Compounds Co., Ltd.

**Report number**
SR06171

# LITERATURE: In Vitro Chromosomal Aberration Test of 2-Chlorobenzoyl chloride on Cultured Chinese Hamster Cells

**UUID:** 85a292dc-4187-4c03-a1e3-8130c942bfac
**Dossier UUID:**
**Author:**
**Date:** 2019-02-15T17:10:51.000+09:00
**Remarks:**

## General information

**Reference Type**
study report

**Title**
In Vitro Chromosomal Aberration Test of 2-Chlorobenzoyl chloride on Cultured Chinese Hamster Cells

**Author**
MHLW (Ministry of Health, Labour and Welfare), Japan

**Bibliographic source**
http://dra4.nihs.go.jp/mhlw_data/jsp/SearchPageENG.jsp

**Testing facility**
Safety Research Institute for Chemical Compounds Co., Ltd

# LITERATURE: Reverse Mutation Test of 2-Chlorobenzoyl chloride

| | |
|---|---|
| **UUID:** | 1b10b74b-81a1-455a-92f3-a2b96ee77776 |
| **Dossier UUID:** | |
| **Author:** | |
| **Date:** | 2019-02-15T16:58:29.000+09:00 |
| **Remarks:** | |

## General information

**Reference Type**
study report

**Title**
Reverse Mutation Test of 2-Chlorobenzoyl chloride

**Author**
Ministry of Health, Labour and Welfare (MHLW), Japan

**Bibliographic source**
http://dra4.nihs.go.jp/mhlw_data/jsp/SearchPageENG.jsp

**Testing facility**
Safety Research Institute for Chemical Compounds Co., Ltd

# LITERATURE: Single Dose Oral Toxicity Test of 2-Chlorobenzoyl chloride

**UUID:** 3f8d7050-a419-445a-a0b8-38a443c649df
**Dossier UUID:**
**Author:**
**Date:** 2019-02-15T15:47:07.000+09:00
**Remarks:**

## General information

**Reference Type**
study report

**Title**
Single Dose Oral Toxicity Test of 2-Chlorobenzoyl chloride

**Author**
MHLW (Ministry of Health, Labour and Welfare), Japan

**Bibliographic source**
http://dra4.nihs.go.jp/mhlw_data/jsp/SearchPageENG.jsp

**Testing facility**
Safety Research Institute for Chemical Compounds Co., Ltd

# 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**
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## Identifiers

**Other IT system identifiers**

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

**ID**
16558402024DIV750