Name: COMPLETE / SUBSTANCE : 1,3-cyclohexanedimethanamine / 2579-20-6 Tue, 13 Dec 2022, 16:46:18+0900 /

Legal entity owner: National Institute of Health Sciences

Printing date: 2022-12-13T16:46:20.272+09:00

Table of Contents

DOSSIER:

UUID: 0
Dossier UUID:
Author:
Date: 2022-12-13T16:46:18.830+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
1,3-cyclohexanedimethanamine / 2579-20-6

Public name

Submitting legal entity
National Institute of Health Science

Dossier creation date/time
Tue, 13 Dec 2022, 16:46:18+0900

Used in category

LEGAL_ENTITY: National Institute of Health Science

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

General information

Legal entity name
National Institute of Health Science

1,3-cyclohexanedimethanamine

CORE

General information

Assessment approach (assessment entities)

FIXED_RECORD: Assessment approach

UUID:	fe4f65e3-904c-3137-8fb8-46b7200e3a52
Dossier UUID:	
Author:	
Date:	2017-01-06T16:18:15.000+09:00
Remarks:	

OECD

Health Effects

Acute toxicity: oral

ENDPOINT_STUDY_RECORD: Acute toxicity: oral.001

UUID: IUC5-def78f2c-745c-45f4-9a6b-add50aad930e
Dossier UUID:
Author:
Date: 2017-01-05T11:10:20.000+09:00
Remarks:

Administrative data

Endpoint
acute toxicity: oral

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 1,3-Bis (aminomethyl) cyclohexane in Rats / MHW (Ministry of Health 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)

Deviations
no

GLP compliance
yes

Test type
acute toxic class method

Limit test
yes

Test material

Test material information
2579-20-6 / 219-941-5

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: 8-9 weeks old
- Weight at dosing: Females, 179 - 199 g (Third from first dosing)
– Used animal number: A total of 16 females - Fasting period before study: Approximately 17 hrs
- Housing: Three animal/cage- Diet (e.g. ad libitum): Ad libitum except fasting period for 17 hrs before administration to 3 hrs after administration
- Water (e.g. ad libitum): Ad libitum
- Acclimation period: 5 days. ENVIRONMENTAL CONDITIONS
- Temperature (°C): 21.0 – 22.6
- Humidity (%): 51.5 – 66.5
- Ventilation (per hr): Approximately 6 - 20 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: 30 and 200 mg/ml.
MAXIMUM DOSE VOLUME APPLIED: 10 ml/kg b.w.

Doses
300 mg/kg bw (first and second administration)

2000 mg/kg bw (third administration)

No. of animals per sex per dose
First and second administration (first purchase): each 3 females (animal ID No. 50101 – 50103 and 60101 - 60103)
Third administration (second purchase): 3 females (animal ID No. 70101– 70103)

Control animals
no

Details on study design
- Duration of observation period following administration: 14 days
- Frequency of observations: Before dosing, and 10 min, 30 min,1 h, 3h, and 6 h after dosing on the day of dosing. Thereafter once a day.
- Frequency of weighing: Days 1 (before administration), 4, 8 and 15
- Necropsy of survivors performed: Yes

Statistics
no

Results and discussion

Effect levels

Key result
false

Sex
female

Dose descriptor
LD50

Effect level

>	300	2000	mg/kg bw

Based on
act. ingr.

Mortality
No deaths were observed in the first and second administration groups. Three animals receiving 2000 mg/kg died on the day or next day of dosing.

Clinical signs
other: No changes related to the test substance were observed at 300 mg/kg bw. Prone, supine, and crouching positions, decrease in locomotor activity, irregular respiration, bradypnea, hypothermia, and potosis were observed in the dead animals at 2000 mg/kg bw.

Gross pathology
No changes related to the test substance were observed at 300 mg/kg. Abnormal contents, edema, and reddish change in the stomach, abnormal contents in the duodenum, jejunum, and ileum, and/or ascites in the abdominal cavity were observed in the dead animals.

Applicant's summary and conclusion

Conclusions
The acute oral LD50 of 1,3-cyclohexanedimethanamine was >300–2000 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:	IUC5-2c83f3d8-ebc6-474e-a65b-bdfd8e22d558
Dossier UUID:	
Author:	
Date:	2022-12-13T16:43:55.704+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 1,3-Bis (aminomethyl) cyclohex / MHW (Ministry of Health 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
2579-20-6 / 219-941-5

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: 9 weeks of age
- Weight at study initiation: 307-370 g for males and 197-239 g for females
- Housing: bracket-type metallic wire-mesh cages (W 195 × D 235 × H 180 mm)
- Diet (e.g. ad libitum):ad libitum
- Water (e.g. ad libitum):ad libitum
- Acclimation period: 5 days
ENVIRONMENTAL CONDITIONS
- Temperature (°C): 21.6 to 22.4°C
- Humidity (%): 52.9 to 64.9%
- Air changes (per hr): 6 to 20 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 olive oil 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
- Stability (test solutions): For 8 days
- Storage condition of test solution: Stored in a refrigerator (2.8 – 8.4°C).

Analytical verification of doses or concentrations
yes

Details on analytical verification of doses or concentrations
Test suspensions at each concentration of initial and final preparations were analyzed by the GC met hod at Mitsubishi Safety Institute Ltd. Results showed that the concentration of the test article in each concentration was 92.0 to 108.5% of the nominal concentration and both values were within the acceptable range (concentration: percentage of the nominal concentration, 100 ± 10%)

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

Frequency of treatment
Daily: 7 times / week

Doses / concentrations

Remarks
Doses / Concentrations:
0 (vehicle), 10, 60 and 300 mg/kg bw/day
Basis:
actual ingested

No. of animals per sex per dose
Main group:12 females/dose (0, 10, 60, and 300 mg/kg bw/day), 7, 12, 12, and 7 males/dose (0, 10, 6 0, and 300 mg/kg bw/day)
Satellite group: 5 females/dose (0 and 300 mg/kg bw/day)
Recovery group: 5 males/dose and 5 females (satellite group)/dose (0 and 300 mg/kg bw/day)

Control animals
yes, concurrent vehicle

Details on study design
- Dose selection rationale: A preliminary study was conducted to determine the doses to be employed. Three males and three female SD rats were administrated 0, 30, 100, 300, and 1000 mg/kg bw/day of the substance for 14 days. As a result, death or dying was observed in all males and females receivin g 1000 mg/kg bw/day. Edema of the forestomach was observed in all dead animals receiving 300 mg/kg bw/day. No changes attributable to the test substance were observed on both sexes receiving

30 and 100 mg/kg bw/day. Therefore, the high dose was set at 300 mg/kg bw/day, and the middle and low dose were set at 60 and 10 mg/kg bw/day by using common ratio 5.

Positive control
no

Examinations

Observations and examinations performed and frequency
CAGE SIDE OBSERVATIONS: Yes
- Time schedule:
Males and females: once before the start of administration, two times/day during the administration period, and once during the recovery period
DETAILED CLINICAL OBSERVATIONS: Yes
- Time schedule:
All animals; once before the start of administration, once every week until Week 6 of the administ ration period.
BODY WEIGHT: Yes
- Time schedule for examinations:
Males in the main and recovery groups were weighed on Day 1, 8, 15, 22, 29, 36, 42, and 43 of administration, and males of recovery groups were weighed on Day 50 and 56. Female satellite groups were weighted same frequencies to male recovery groups. Females in the main groups were weighed on Day 1, 8 and 15 of administration and copulated females were weighed on Day 0, 7, 14 and 20 of gestation, and days 0 and 4 of lactation.
FOOD CONSUMPTION : Yes
- Food consumption (g/day/rat) for each animal determined from the difference of the of the previous day's feeding amount: Yes
Measurement of food consumption was conducted on all animals at the following frequencies:
Males in the main and recovery groups; on Day 1-8, 8-15, 15-22, 22-29, 29-36, 36-38, 43-50, and 50-52. Females in the satellite group; on Day 1-8, 8-15, 15-22, 22-29, 29-36, 36-42, 43-50, and 50-56. Females in the main group; on Day 1, 8 and 15 of administration, on Day 0, 7, 14 and 20 of gestation, and on Da y 0 and 4 of lactation.
FOOD INTAKE: No
HAEMATOLOGY: Yes
- Time schedule for collection of blood: On Day 42 and 56 in males and satellite group females. On Day 4 of the lactation period in main group females.
- Anaesthetic used for blood collection: Yes
- 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 count, platelet count, white blood cell count, differential white blood cell count, prothrombin time, activated partial thromboplastin time
CLINICAL CHEMISTRY: Yes
- Time schedule for collection of blood: On the next day of the final administration and on the final day of the recovery period
- Animals fasted: Yes
- How many animals: 5 animals/sex/group
- Parameters checked: ASAT (GOT), ALAT (GPT), γ-GT, ALP, total bilirubin, blood urea nitrogen, creat inine, glucose, total cholesterol, triglyceride, total protein, albumin, A/G ratio, calcium, inorganic phosphorus, sodium, potassium, chloride
URINALYSIS OF MALES: Yes
- Time schedule for collection of urine (males only): Day 38 of administration
- Metabolism cages used for collection of urine: Yes
- Animals fasted: Yes
- How many animals: 5 animals/males/group
- Parameters checked: pH, protein, glucose, ketones, bilirubin, occult blood, urobilinogen
BLOOD HORMONE: No

NEUROBEHAVIOURAL EXAMINATION: Yes
Functional observation: Five males/dose at Week 6, and five females/dose during the lactation period. No tests conducted during the recovery period because no changes were observed during the administration period.
- Battery of functions tested:
1) Open field observation. Aerial righting reaction, arousal, urination, defecation, posture and body position, breathing, co-ordination movement, gait, tremor, clonic convulsion, tonic convulsion, stereotypy, and bizarre behavior.
2) Manipulative Test. Approach response, touch response, auditory response, tail pinch response, and aerial righting reflex
3) Measurement of Grip Strength. Following manipulative test, grip strength of forelimb and hind limb was measured by Digital force gauge MODEL-DPS-5 (IMADA CO., LTD.).
4) Measurement of Motor Activity.Motor activity was measured by a motor activity sensor for experimental animals SUPERMEX (Muromachi Kikai Co., Ltd.). The measurement was conducted for 1 hour, and measured values at 10-minute intervals and from 0 to 60 minutes was collected.

Sacrifice and pathology
GROSS PATHOLOGY AND ORGAN WEIGHTS：Yes, brain, heart, liver, kidneys, adrenals, thymus, spleen, testes, and epididymis.
HISTOPATHOLOGY: Yes, cerebrum, puitality, thymus, lymph nodes (including mesenteric and mandibular lymph nodes), trachea, lung, stomach, intestinal tract (duodenum, jejunum, ileum, cecum, colon, rectum), thyroids, parathyroid, heart, liver, spleen, kidneys, adrenals, urinary bladder, testes, epididymis, seminal vesicles (including the coagulating gland), prostate (ventral lobe), ovaries, uterus, vagina, bone marrow (one side femur), Sciatic nerve (one side femur), spinal cord, and gross abnormalities site.

Statistics
Parametric data such as grip strength, motor activity, body weight and gain, food consumption, urine volume, specific gravity, hematology, blood biochemistry, and absolute and relative organ weights were analyzed by Bartlett's test for homogeneity of distribution. When homogeneity was recognized, one-way analysis of variance was performed. When a significant difference was observed, Dunnett's multiple comparison test was conducted for comparison between control and treated groups. If not homogenous, analysis was performed using the Kruskal-Wallis ranking test. In consequence, if not homogenous, Dunnett's type mean rank sum test was conducted to compare to control and individual treatment groups. Qualitative value as the pathological findings was analyzed by Wilcoxon test and Fisher's exact test. Urinalyses data were analyzed by Kruskal-Wallis and Dunnet's type mean rank test. Significance level was set at 0.05 compared with the control group and among the groups.

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)
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
effects observed, treatment-related

Gross pathological findings
effects observed, treatment-related

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

Details on results
CLINICAL SIGNS AND MORTALITY: Mortality: One male animal died in the 300 mg/kg bw/day grou p.Clinical signs: Transient salivation was observed in all males and 16 females receiving 300 mg/kg bw/day, sporadically.
DETAILED CLINICAL OBSERVATIONS, MANIPULATIVE TEST, GRIP STRENGTH TEST AND LOCO MOTOR ACTIVITY MEASUREMENT: There were no changes related to the test substance in any group during the dosing.
BODY WEIGHT: Depression of body weight gains was observed in males receiving 300 mg/kg bw/day on Day 8 to 42. This change was recovered by withdraw. No changes in body weights were observed in both sexes receiving 10 and 30 mg/kg bw/day compared with the control groups.
FOOD CONSUMPTION: There were no changes related to the test substance in any groups during the dosing and recovery periods.
URINALYSIS: There were no changes related to the test substance in any groups at the end of the dosing period.
HAEMATOLOGY: Increases in reticulocyte count and increase tendencies in white blood cell count were observed in males receiving 300 mg/kg bw/day at end of the administration. No changes were observed in females receiving 300 mg/kg bw/day at end of the dosing and recovery periods c ompared with the control group.
CLINICAL CHEMISTRY: At the end of the dosing period, decreases in total protein level and increases in ALAT activity were observed in males and females receiving 300 mg/kg bw/day, respectively. ALP activity tended to increase at the end of the dosing period and significantly increased at the end of the recovery period in females at 300 mg/kg bw/day.
URINALYSES OF MALES: There were no changes related to the test substance.

ORGAN WEIGHTS: At the end of the dosing period, increases in absolute and relate adrenal weights were observed in males receiving 300 mg/kg bw/day and increases in relative kidney and adrenal weights were observed in females receiving 300 mg/kg bw/day. At the end of the recovery period, an increase in relative adrenal weight was observed in males receiving 300 mg/kg bw/day. No changes in absolute and relative organ weights were observed in both sexes receiving 10 and 60 mg/kg bw/ day compared with the control group.

GROSS PATHOLOGY: At the end of the dosing period, thickening forestomach wall was observed in all males and females receiving 300 mg/kg bw/day and ulcer in the forestomach mucosa and adhesion to the liver were observed in each female receiving 300 mg/kg bw/day. For the genital system, small sized testes and epididymis were observed in two males receiving 300 mg/kg bw/day. These lesion s were recovered at the end of the recovery period. Dark reddish changes in mucosa of the glandular stomach, abnormal contents (tar) in the duodenum, jejunum, and ileum, and dilatation in the cecum an d ileum were observed in dead animals receiving 300 mg/kg bw/day.

HISTOPATHOLOGY: NON-NEOPLASTIC:
Stomach: Focal hyperplasia of squamous, focal hyperkeratosis, ulcer and focal inflammatory cell infi ltration were observed in the forestomach of all males and females receiving 300 mg/kg bw/day. These lesions trended to recover at the end of the recovery period.
Testes: Atrophy of seminiferous tubule was observed in four males receiving 300 mg/kg bw/day and two males receiving 10 mg/kg bw/day. Diffuse hyperplasia of interstitial cell was observed in one m ale out of four males receiving 300 mg/kg bw/day. Atrophy of seminiferous tubule in the 10 mg/kg bw/day group was slight, and this lesion was not observed in the 60 mg/kg bw/day group. Therefore, this lesion was considered to be spontaneous. Atrophy of seminiferous tubule was observed in one male receiving 300 mg/kg bw/day at the end of the recovery period.
Epididymis: Cell debris in duct in two males, decreases in sperm of duct in two males, and atrophy in duct in one male were observed at 300 mg/kg bw/day.
In dead animals, there were focal hyperplasia of squamous and focal inflammatory cell infiltration in the forestomach, hemorrhage in the glandular stomach, atrophy in the spleen and thymus, and congestion and edema in the lungs.

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: see 'Remark'
One male died in the 300 mg/kg bw/day group. At this dose, salivation was observed in both sexes, and decreased body weight gain was observed in males. The relative and absolute weights of the adrenal gland in males and relative weights of the kidneys and adrenal gland in females increased in the 300 mg/kg bw/day groups. Upon histopathological examination, inflammatory cell infiltration, focal hyperkeratosis, focal squamous cell hyperplasia, and ulceration in the forestomach in both sexes, and atrophy of seminiferous tubules of the testis in males were observed 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/PDF2579-20-6d.pdf

Applicant's summary and conclusion

Conclusions

Based on the decreased body weight gain and histopathological changes in the forestomach, the NOAEL for the male and female rat repeated dose toxicity of 1,3-cyclohexanedimethanamine was determined to be 60 mg/kg bw/day.

Genetic toxicity in vitro

ENDPOINT_STUDY_RECORD: Genetic toxicity in vitro.001

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Dossier UUID:
Author:
Date: 2019-09-03T11:45:31.000+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 1,3-Bis (aminomethyl) cyclohexane on Bacteria. / MHW (Ministry of Health and Welfare), 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

Deviations
no

GLP compliance
yes

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

Test material

Test material information
2579-20-6 / 219-941-5

Method

Species / strain

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

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

Metabolic activation
with and without

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

Test concentrations with justification for top dose
-S9 mix: 39.1, 78.1, 156, 313, 625, 1250 µg/plate (TA100, TA 98, TA 1537, TA1535 strains),
156, 313, 625, 1250, 2500, 5000 µg/plate (P2uvrA/pKM101 strains)
+S9 mix: 39.1, 78.1, 156, 313, 1250 µg/plate (TA100, TA98, TA1537 strains), 9.77, 19.5, 39.1, 78.1, 156
, 313, 625, 1250 µg/plate (TA 1535)
39.1, 78.1, 156, 313, 625, 1250 µg/plate (WP2uvrA/pKM101 strain)

Vehicle / solvent
- Vehicle(s)/solvent(s) used: Distilled 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/pKM101), 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- 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 and reproducible increase was observed.

Statistics
no

Results and discussion

Test results

Key result
false

Species / strain
S. typhimurium TA 1535, TA 1537, TA 98 and TA 100
bacteria

Metabolic activation
with and without

Genotoxicity
negative

Cytotoxicity / choice of top concentrations
cytotoxicity

Vehicle controls validity
valid

Positive controls validity
valid

Key result
false

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

Metabolic activation
with and without

Genotoxicity
negative

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 Japanese) are available in the following full report of the study. http://dra4.nihs.go.jp/mhlw_data/home/pdf/PDF2579-20-6e.pdf

Tables (in English) are attachted to this document. Please download the export file to see the Tables.

Applicant's summary and conclusion

Conclusions
Interpretation of results (migrated information):
negative

In a bacterial reverse mutation assay using Salmonella typhimurium TA100, TA1535, TA98, and TA1537, and Escherichia coli WP2uvrA/pKM101 (OECD TG 471), 1,3-cyclohexanedimethanamine was negative with or without metabolic activation.

ENDPOINT_STUDY_RECORD: Genetic toxicity in vitro.002

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Dossier UUID:
Author:
Date: 2022-12-13T16:41:07.940+09:00
Remarks:

Administrative data

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

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 1,3-Bis (aminomethyl) cyclohexane on Cultured Chinese Hamste / MHW (Ministry of Health 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

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
2579-20-6 / 219-941-5

Method

Species / strain

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

Metabolic activation
with and without

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

Test concentrations with justification for top dose
Cell growth inhibition study
-S9 mix: 125, 250, 500, 750, 1000, 1250, 1500 ug/mL (IC50=297 ug/mL)
+S9 mix: 125, 250, 500, 750, 1000, 1250, 1500 ug/mL (IC50=353 ug/mL)
continuous treatment 1:12.5, 25, 50, 75, 100, 125, 150, 200 ug/mL
continuous treatment 2: 100, 150, 200, 250, 300, 350, 400, 450, 500 ug/mL (IC50=320 ug/mL)

Main study
-S9: 200, 250, 300, 350, 400, 450, 500 ug/mL
+S9: 250, 300, 350, 400, 500 ug/mL

Vehicle / solvent
- Vehicle(s)/solvent(s) used: Saline

Controls

Untreated negative controls
no

Negative solvent / vehicle controls
yes

True negative controls
no

Positive controls
yes

Positive control substance
other:

Remarks
[-S9]: mitomycin C; [+S9]: Benzo[a]pyrene

Details on test system and experimental conditions
METHOD OF APPLICATION: Exposure duration: [short-term treatment]:6 hrs + 18 hr
SPINDLE INHIBITOR: Colcemid
STAIN: Giemsa stain for 20 min.
NUMBER OF REPLICATIONS: 2
NUMBER OF CELLS EVALUATED: 500 cells /concentration
DETERMINATION OF CYTOTOXICITY
- Method: relative total growth

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
no

Results and discussion

Test results

Key result
false

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

Metabolic activation
without

Genotoxicity
positive

Cytotoxicity / choice of top concentrations
cytotoxicity

Vehicle controls validity
valid

Positive controls validity
valid

Key result
false

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

Metabolic activation
with

Genotoxicity
negative

Cytotoxicity / choice of top concentrations
cytotoxicity

Vehicle controls validity
valid

Positive controls validity
valid

Additional information on results
Figures and Tables (in Japanese) are available in the following full report of the study.
http://dra4.nihs.go.jp/mhlw_data/home/pdf/PDF2579-20-6f.pdf
Tables (in English) are attachted to this document. Please download the export file to see the Tables.

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

Applicant's summary and conclusion

Conclusions
Interpretation of results (migrated information):
positive without metabolic activation
negative with metabolic activation

The in vitro chromosomal aberration test using CHL/IU cells (OECD TG 473) was positive without m etabolic activation.

Genetic toxicity in vivo

ENDPOINT_STUDY_RECORD: Genetic toxicity in vivo.001

UUID:	IUC5-0e5723ed-e003-4aba-a6dc-8f7e0401ba4a
Dossier UUID:	
Author:	
Date:	2017-01-10T11:56:31.000+09:00
Remarks:	

Administrative data

Endpoint
in vivo mammalian somatic cell study: cytogenicity / erythrocyte micronucleus Type of genotoxicity: chromosome aberration

Type of information
experimental study

Adequacy of study
other information

Robust study summary
false

Used for classification
false

Used for SDS
false

Study period
11/10/2009-3/26/2010

Reliability
1 (reliable without restriction)

Rationale for reliability incl. deficiencies
other: GLP guideline study

Data source

Reference

Micronucleus test of 1,3-Bis (aminomethyl) cyclohexane on mouse / MHLW / study report

Data access
data published

Materials and methods

Test guideline

Qualifier
according to guideline

Guideline
OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
in vivo mammalian somatic cell study: cytogenicity / erythrocyte micronucleus

Deviations
no

Qualifier
according to guideline

Guideline
JAPAN: Guidelines for Screening Mutagenicity Testing Of Chemicals

Deviations
no

GLP compliance
yes (incl. QA statement)

Type of assay
micronucleus assay
chromosome aberration

Test material

Test material information
2579-20-6 / 219-941-5

Test animals

Species
mouse

Strain
other: Crlj:CD1(ICR)

Sex
male

Details on test animals or test system and environmental conditions
TEST ANIMALS
- ICR, [CD1 (ICR), SPF
- Source: Charles River Laboratories Japan, Inc.
- Age at study initiation: 9 weeks
- Weight at study initiation: range finding study, males: 32.5-37.4 g, females: 23.7-29.5 g: main study: males: 31.3-37.8 g
- Assigned to test groups randomly: yes

- Housing: bracket type TPX resin cage, (143W×293D×148Hmm)
- Diet: ad libitum
- Water: ad libitum
- Acclimation period: 7 days

ENVIRONMENTAL CONDITIONS
- Temperature (°C): 22.5-24.0
- Humidity (%): 49.0-69.0
- Air changes (per hr): 10-15/h
- Photoperiod : 12 h dark/12 h light (light time: 7:00 AM to 7:00 PM)

Administration / exposure

Route of administration
oral: gavage

Vehicle
- Vehicle(s)/solvent(s) used: Water for Injection
- Concentration of test material in vehicle: 12.5, 25, and 50 mg/mL
- Amount of vehicle: 10 mL/kg bw

Details on exposure
PREPARATION OF DOSING SOLUTIONS: It was administered within three days after the preparation

Duration of treatment / exposure
2 dyas

Frequency of treatment
Twice, 24 h interval

Post exposure period
24 h

Doses / concentrations

Remarks
Doses / Concentrations:
125, 250, and 500 mg/kg bw/day
Basis:
actual ingested

No. of animals per sex per dose
5 males/dose

Control animals
yes, concurrent vehicle

Positive control(s)
Cyclophosphamide monohydrate (CP)
- Route of administration: oral gavage
- Doses / concentrations: 50 mg/kg bw/day, single dose

Examinations

Tissues and cell types examined
polychromatic erythrocytes from the femur bone marrow

Details of tissue and slide preparation
TREATMENT AND SAMPLING TIMES: Cells for specimen were collected 24 h after the last admini stration.
DETAILS OF SLIDE PREPARATION: Cell suspensions were spread on a slide glass, dried, and fixed with methanol for five min. Each specimen was stained with acridine orange.
METHOD OF ANALYSIS: fluorescence microscopy, blind method.

Evaluation criteria
The test substance was determined to be positive if the micronucleated cells were statistically incr eased in the dosing groups compared with the negative control group

Statistics
Appearance frequency of micronuclei: Fisher's test (one-sided test) was conducted between the negative or positive control and treatment groups. The Bonferroni correction was used for consid eration of multiplicity. Significant level was set as 5 and 1% levels. Trend test of Chochran-Armitage (one-sided test) was used for frequency of micronuclei appearance.
Polychromatic erythrocytes in erythrocytes: These rates were analyzed using Bartlett's test for ho mogeneity of distribution excluding positive control, and homogeneity was observed. Difference between negative control group and each treatment groups was analysed by Dunnett's multiple com parison test (two-sided test). Difference between negative and positive controls was analyses by F-t est and Student's t-test. Significant levels were set as 5% for Bartlett's test and F-test, and as 1 and 5% for Dunnett's test and Student t-test.

Results and discussion

Test results

Key result
false

Sex
male

Genotoxicity
negative

Toxicity
yes Decrease in locomotor activity and piloerection were observed at 500 mg/kg bw/day

Vehicle controls validity
valid

Negative controls validity
not examined

Positive controls validity
valid

Additional information on results
RESULTS OF RANGE-FINDING STUDY
- Dose range: 0, 250, 500, 1000, and 2000 mg/kg bw/day (two times)
- Clinical signs of toxicity in test animals: Decreases in locomotor activity and piloerection with sa livation were observed in all males and one male receiving 500 mg/kg bw/day, respectively. Decrease s in locomotor activity, piloerection, lacrimation, staggering gait, subnormal temperature, prone po sition, and death (all males and one female) were observed in 1000 mg/kg bw/day groups. Decreases in locomotor activity, prone position, and decrease in respiration, death, and moribund condition were observed in 2000 mg/kg bw/day groups.

RESULTS OF DEFINITIVE STUDY
- Induction of micronuclei: appearance frequency of micronucleated cells (%MNPCE) for dose levels, 0 ,125, 250, and 500 mg/kg bw/day were 0.13%, 0.10%, 0.05%, and 0.08%, respectively.
- Frequency of PCEs for dose levels, 0,125, 250, and 500 mg/kg bw/day were 54.5%, 59.6%, 55.7%, and 51.2%, respectively.
- Body weight: not examined
- Statistical evaluation: yes

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/PDF2579-20-6g.pdf

Applicant's summary and conclusion

Conclusions
Interpretation of results (migrated information): negative
The test substance did not increase the frequency of micronucleated polychromatic erythrocytes or induce chromosomal aberrations in vivo.

Toxicity to reproduction

ENDPOINT_STUDY_RECORD: Toxicity to reproduction.001

UUID: IUC5-f5198f4a-19fa-4670-81e6-7283a5ca8d96
Dossier UUID:
Author:
Date: 2022-12-13T16:45:02.239+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 1,3-Bis (aminomethyl) cyclohex / MHW (Ministry of Health 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
2579-20-6 / 219-941-5

Test animals

Species
rat

Strain
other: Crj: CD(SD), SPF

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: 9 weeks of age
- Weight at study initiation: 307-370 g for males and 197-239 g for females
- Housing: bracket-type metallic wire-mesh cages (W 195 × D 235 × H 180 mm)- Diet (e.g. ad libit um):ad libitum
- Water (e.g. ad libitum):ad libitum
- Acclimation period: 5 days
ENVIRONMENTAL CONDITIONS
- Temperature (°C): 21.6 to 22.4°C
- Humidity (%): 52.9 to 64.9%
- Air changes (per hr): 6 to 20 times per hour
- Photoperiod (hrs dark / hrs light):12-hour lighting per day

Administration / exposure

Route of administration
oral: gavage

Vehicle
water

Details on mating procedure
- M/F ratio per cage: 1/1
- Length of cohabitation: up to 2 weeks
- Proof of pregnancy: vaginal plug / sperm in vaginal smear referred to as day 0 of pregnancy

Analytical verification of doses or concentrations
yes

Details on analytical verification of doses or concentrations
Test suspensions at each concentration of initial and final preparations were analyzed by the GC met hod at Mitsubishi Safety Institute Ltd. Results showed that the concentration of the test article in each concentration was 92.0 to 108.5% of the nominal concentration and both values were within the acceptable range (concentration: percentage of the nominal concentration, 100 ± 10%)

Duration of treatment / exposure
(P) Males: 42 days including 14 days pre-mating, mating, and thereafter 14 periods (subsequent 28 da ys)
(P) Females: Days including 14 days pre-mating, mating and gestation periods and the days until day 4 of lactation

Frequency of treatment
Daily: 7 times / week

Doses / concentrations

Remarks
Doses / Concentrations:
0 (vehicle), 10, 60 and 300 mg/kg bw/day
Basis:
actual ingested

No. of animals per sex per dose
12 females/dose (0, 10, 60, 300 mg/kg bw/day), 7, 12, 12, and 7 males of 0, 10, 60, and 300 mg/kg bw /day, respectively, 5 males (recovery group) and 5 females (satellite group) at 0 and at 0 and 300 mg/ kg bw/day

Control animals
yes, concurrent vehicle

Examinations

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. Mean estrous cycle (day) and abnormal estrous cycle animals (not 4 to 6 day in estrous cycle) were examined by dams.

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

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, and weight gain.

Postmortem examinations (parental animals)
METHOD OF SACRIFICED: All animals were sacrificed by exsanguination under pentobarbital sodium anesthesia, intraperitoneally.

SACRIFICE: Male animals: On Day 42, Maternal animals: on Day 4 of lactation, and Male recovery and female satellite animals: on Day 56.
GROSS PATHOLOGY AND ORGAN WEIGHTS：Yes Brain, heart, liver, kidneys, adrenals, thymus, spleen, testes, and epididymis.
HISTOPATHOLOGY: Yes Cerebrum, puitality, thymus, lymph nodes (including mesenteric and mandibular lymph nodes), trachea, lung, stomach, intestinal tract (duodenum, jejunum, ileum, cecum, colon, rectum), thyroids, parathyroid, heart, liver, spleen, kidneys, adrenals, urinary bladder, testes, epididymis, seminal vesicles (including the coagulating gland), prostate (ventral lobe), ovaries, uterus, vagina, bone marrow (one side femur), Sciatic nerve (one side femur), spinal cord, and gross abnormalities site.

Postmortem examinations (offspring)
SACRIFICE: The F1 pups were euthanized on PND 4 by exsanguination pentobarbital sodium anesthesia, intraperitoneally.
GROSS NECROPSY: Yes

Statistics
Parametric data such as grip strength, motor activity, body weight and gain, food consumption, urine volume, specific gravity, hematology, blood biochemistry, and absolute and relative organ weights were analyzed by Bartlett's test for homogeneity of distribution. When homogeneity was recognized, one-way analysis of variance was performed. When a significant difference was observed, Dunnett's multiple comparison test was conducted for comparison between control and treated groups. If not homogenous, analysis was performed using the Kruskal-Wallis ranking test. In consequence, if not homogenous, Dunnett's type mean rank sum test was conducted to compare to control and individual treatment groups. Qualitative value as the pathological findings was analyzed by Wilcoxon test and Fisher's exact test. Urinalyses data were analyzed by Kruskal-Wallis and Dunnet's type mean rank test. Significance level was set at 0.05 compared with the control group and among the groups.

Reproductive indices
1) Each parameter was determined by the following equations:
Mean estrus cycle, incidence of females with irregular estrus cycle, mating periods,
Copulation index (%) = (No. of copulated animals/No. of co-housed animals) × 100
Fertility index (%) = (No. of pregnant females/No. of copulated females) × 100
Gestation length, number of corpora lutea, number of implantation sites, total number of offspring,
Implantation index (%) = (No. of implantation sites/No. of corpora lutea) × 100
Delivery index (%) = (No. of females delivered liveborn pups/No. of pregnant females) × 100
Gestation index (%) = (No. of pregnant animals delivered live offspring/number of pregnant animals) × 100

Offspring viability indices
Total number of offspring at birth, number of live offspring at birth,
Number of live pups on day 0 of lactationBirth index (%) = (Number of live pups on day 0/Number of implantation sites) ×100
Viability index = (Number of live pups on day 4 after birth/Number of live pups born) ×100
External examination of offspring, necropsy finding
Pups weight on day 0 of lactation
Sex 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

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

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

Other effects
no effects observed

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 incidence of females with irregular estrus cycle, mating period with the number of estrus and day of conceiving, copulation index, and fertility index between the control group and any treatment groups.
3) Delivery Data and Delivery
There were no significant differences in the gestation length, number of corpora lutea, number of impl antation sites, implantation index, and delivery index between the control group and any treatment g roups.
GROSS PATHOLOGY
See 7.5.1 Repeated dose toxicity: oral
HISTOPATHOLOGY
See 7.5.1 Repeated dose toxicity: oral

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: No effects 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/PDF2579-20-6d.pdf

Applicant's summary and conclusion

Conclusions
In the combined repeated oral dose toxicity study with the reproduction/developmental toxicity screening test (OECD TG 422) described above, there were no effects on reproductive and developmental parameters at 300 mg/kg bw/day. The NOAEL for the rat reproductive/developmental toxicity of 1,3-cyclohexanedimethanamine was regarded as 300 mg/kg bw/day, the highest dose tested.

DOMAIN

Substance

SUBSTANCE: 1,3-cyclohexanedimethanamine

UUID: IUC5-851687c2-464b-449c-86f2-ad7eb2a7b895
Dossier UUID:
Author:
Date: 2022-12-13T16:45:43.250+09:00
Remarks:

Substance name
1,3-cyclohexanedimethanamine

Legal entity
National Institute of Health Sciences / Kawasaki / Japan

Identification of substance

Reference substance
1,3-cyclohexanedimethanamine / 2579-20-6 / 219-941-5

EC number	EC name
219-941-5	EC Inventory
CAS number	**CAS name**
2579-20-6	1,3-cyclohexanedimethanamine
IUPAC name	

Role in the supply chain

Manufacturer
false

Importer
false

Only representative
false

Downstream user
false

References

Reference Substances

REFERENCE_SUBSTANCE: 1,3-cyclohexanedimethanamine

UUID: IUC5-c6161afa-424f-4a3a-9f14-f5aab542828b
Dossier UUID:
Author:
Date: 2022-12-13T16:31:35.992+09:00
Remarks:

Reference substance name
1,3-cyclohexanedimethanamine

Inventory

Inventory number

Inventory name
1,3-Cyclohexanedimethanamine

Inventory
EC Inventory

Inventory number
219-941-5

CAS number
2579-20-6

Molecular formula
C8H18N2

Description

CAS number
2579-20-6

CAS name
1,3-cyclohexanedimethanamine

Synonyms

Synonyms

Identity
1,3-Bis(aminomethyl)cyclohexane

Molecular and structural information

Molecular formula
C8H18N2

Test Materials

TEST_MATERIAL_INFORMATION: 2579-20-6 / 219-941-5

UUID: e8451f0b-499f-3741-bd73-3b0d233b4969
Dossier UUID:
Author:
Date: 2017-01-10T11:56:31.000+09:00
Remarks:

Name
2579-20-6 / 219-941-5

Composition

Composition

Type
Constituent

Reference substance
1,3-cyclohexanedimethanamine / 2579-20-6 / 219-941-5

EC number	EC name
219-941-5	EC Inventory
CAS number	**CAS name**
2579-20-6	1,3-cyclohexanedimethanamine
IUPAC name	

Other characteristics

Details on test material
- Name of test material (as cited in study report): 1,3-Bis (aminomethyl) cyclohexane or 1,3-Cyclohe xanedimethanmine
- CAS No.: 2579-20-6
- Molecular formula: C8H18N2
- Lot No.: CDH5467
- Purity: 100.1%
- Supplier: Wako Pure Chemical Industries, Ltd..
- Physical state: Colorless liquid
- Storage condition of test material: Stored in a refrigerator

TEST_MATERIAL_INFORMATION: 2579-20-6 / 219-941-5

UUID: 3cf05eca-a8ef-3c79-b1d4-a65400828533
Dossier UUID:
Author:
Date: 2017-01-06T16:17:10.000+09:00
Remarks:

Name
2579-20-6 / 219-941-5

Composition

Composition

Type
Constituent

Reference substance
1,3-cyclohexanedimethanamine / 2579-20-6 / 219-941-5

EC number	EC name
219-941-5	EC Inventory
CAS number	**CAS name**
2579-20-6	1,3-cyclohexanedimethanamine
IUPAC name	

Other characteristics

Details on test material
- Name of test material (as cited in study report): 1,3-Bis (aminomethyl) cyclohexane or 1,3-Cyclohe xanedimethanmine
- CAS No.: 2579-20-6
- Lot No.: 50303
- Purity: 99.98%
- Supplier: MITSUBISHI GAS CHEMICAL COMPANY, INC.
- Boiling point : 244°C
- Melting point/Freezing point: <-70°C
- Flash point: 113°C
- Specific gravity: 0.940-0.950 (120°C)
- Vapor pressure: 1866 Pa, 14 mmHg (120°C)
- Solubility: Soluble in water, alcohol, n-hexane et al.
- Odor: Amine odor
- Physical state: Colorless liquid
- Storage condition of test material: stored in a refrigerator

TEST_MATERIAL_INFORMATION: 2579-20-6 / 219-941-5

UUID: ee9eafa9-55bf-32ff-a298-e32c81563440
Dossier UUID:
Author:
Date: 2017-01-05T11:10:20.000+09:00
Remarks:

Name
2579-20-6 / 219-941-5

Composition

Composition

Type
Constituent

Reference substance
1,3-cyclohexanedimethanamine / 2579-20-6 / 219-941-5

EC number	EC name
219-941-5	EC Inventory
CAS number	**CAS name**
2579-20-6	1,3-cyclohexanedimethanamine
IUPAC name	

Other characteristics

Details on test material
- Name of test material (as cited in study report): 1,3-Bis (aminomethyl) cyclohexane or 1,3-Cyclohe xanedimethanmine
- CAS No.: 2579-20-6
- Lot No.: 50303
- Purity: 99.98%
- Supplier: MITSUBISHI GAS CHEMICAL COMPANY, INC.
- Boiling point : 244°C
- Melting point/Freezing point: <-70°C
- Flash point: 113°C
- Specific gravity: 0.940-0.950 (20°C)
- Solubility: Soluble in water, alcohol, n-hexane et al.
- Odor: Amine odor
- Physical state: Colorless liquid
- Storage condition of test material: in a refrigerator with nitrogen gas replacement

TEST_MATERIAL_INFORMATION: 2579-20-6 / 219-941-5

UUID: 1edf6b5f-321a-3630-aa97-6515a1fa6206
Dossier UUID:
Author:
Date: 2017-01-06T11:59:01.000+09:00
Remarks:

Name
2579-20-6 / 219-941-5

Composition

Composition

Type
Constituent

Reference substance
1,3-cyclohexanedimethanamine / 2579-20-6 / 219-941-5

EC number	EC name
219-941-5	EC Inventory
CAS number	**CAS name**
2579-20-6	1,3-cyclohexanedimethanamine
IUPAC name	

Other characteristics

Details on test material
- Name of test material (as cited in study report): 1,3-Bis (aminomethyl) cyclohexane or 1,3-Cyclohe xanedimethanmine
- CAS No.: 2579-20-6
- Lot No.: 50303
- Purity: 99.98%
- Supplier: MITSUBISHI GAS CHEMICAL COMPANY, INC.
- Boiling point : 244°C
- Melting point/Freezing point: <-70°C
- Flash point: 113°C
- Specific gravity: 0.940-0.950 (20°C)
- Solubility: Soluble in water, alcohol, and n-hexane.
- Odor: Amine odor
- Physical state: Colorless liquid
- Storage condition of test material: Stored in a refrigerator (2.8 – 8.4°C).

TEST_MATERIAL_INFORMATION: 2579-20-6 / 219-941-5

UUID: a9d37dae-c813-3e10-a23b-96eb4f47595a
Dossier UUID:
Author:
Date: 2017-01-10T12:21:07.000+09:00
Remarks:

Name
2579-20-6 / 219-941-5

Composition

Composition

Type
Constituent

Reference substance
1,3-cyclohexanedimethanamine / 2579-20-6 / 219-941-5

EC number	EC name
219-941-5	EC Inventory
CAS number	**CAS name**
2579-20-6	1,3-cyclohexanedimethanamine
IUPAC name	

Other characteristics

Details on test material
- Name of test material (as cited in study report): 1,3-Bis (aminomethyl) cyclohexane or 1,3-Cyclohe xanedimethanmine
See 7.5.1 Repeated dose toxicity: oral Endpoint study record: Repeated dose toxicity: oral.001 for fur ther information

Literatures

LITERATURE: A combined repeated-dose/reproductive-developmental toxicity study of 1,3-Bis (aminomethyl) cyclohexane by oral administration in rats.

UUID: 9c85df8c-a37d-33d0-90d8-cce94ed30246
Dossier UUID:
Author:
Date: 2017-01-06T11:59:01.000+09:00
Remarks:

General information

Reference Type
study report

Title
A combined repeated-dose/reproductive-developmental toxicity study of 1,3-Bis (aminomethyl) cyclohexane by oral administration in rats.

Author
MHW (Ministry of Health and Welfare), Japan

Bibliographic source
Japan Existing Chemical Data Base (JECDB)

Testing facility
Mitsubishi Safety Institute Ltd.

Study number
B041798

LITERATURE: In Vitro Chromosomal Aberration Test of 1,3-Bis (aminomethyl) cyclohexane on Cultured Chinese Hamster Cells

UUID: c80664bd-5492-3747-ad3c-992a01f8196d
Dossier UUID:
Author:
Date: 2017-01-06T16:17:10.000+09:00
Remarks:

General information

Reference Type
study report

Title
In Vitro Chromosomal Aberration Test of 1,3-Bis (aminomethyl) cyclohexane on Cultured Chinese Hamster Cells

Author
MHW (Ministry of Health and Welfare), Japan

Year
2006

Bibliographic source
Japan Existing Chemical Data Base (JECDB)

Testing facility
Mitsubishi Safety Institute Ltd.

Report date
2006-09-15

Study number
B041800

LITERATURE: Micronucleus test of 1,3-Bis (aminomethyl) cyclohexane on mouse

UUID: 35b125e8-c778-35b0-8540-5fef7fa7633c
Dossier UUID:
Author:
Date: 2017-01-10T11:56:31.000+09:00
Remarks:

General information

Reference Type
study report

Title
Micronucleus test of 1,3-Bis (aminomethyl) cyclohexane on mouse

Author
MHLW

Year
2010

Bibliographic source
Japan Existing Chemical Data Base (JECDB)

Testing facility
Food and Drug Safety Center

Report date
2010-03-30

Study number
G-09-02-023

LITERATURE: Reverse Mutation Test of 1,3-Bis (aminomethyl) cyclohexane on Bacteria.

UUID: cd1215ac-345f-345f-a6ba-51ce0ed44575
Dossier UUID:
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Date: 2017-01-06T15:59:51.000+09:00
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General information

Reference Type
study report

Title
Reverse Mutation Test of 1,3-Bis (aminomethyl) cyclohexane on Bacteria.

Author
MHW (Ministry of Health and Welfare), Japan

Year
2006

Bibliographic source
Japan Existing Chemical Data Base (JECDB)

Testing facility
Mitsubishi Safety Institute Ltd.

Report date
2006-09-14

Report number
B041799

LITERATURE: Single Dose Oral Toxicity Test of 1,3-Bis (aminomethyl) cyclohexane in Rats

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Reference Type
study report

Title
Single Dose Oral Toxicity Test of 1,3-Bis (aminomethyl) cyclohexane in Rats

Author
MHW (Ministry of Health and Welfare), Japan

Year
2007

Bibliographic source
Japan Existing Chemical Data Base (JECDB)

Testing facility
Mitsubishi Safety Institute Ltd.

Study number
B041797

Legal Entities

LEGAL_ENTITY: National Institute of Health Sciences

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Dossier UUID:
Author:
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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.

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Other IT system identifiers

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