3M Medical Department

3M Center, Building 220-06-E03
St. Paul, MN 55144-1000

Electronic Submission
March 24, 2017

NO CBI

Document Processing Center
EPA East – Room 6428 Attn: Section 8(e)
Office of Pollution Prevention and Toxics, U.S. EPA
1200 Pennsylvania Avenue NW
Washington, DC 20460-0001

Re: TSCA 8(e) Substantial Risk Notice on 2-Propenoic acid, 2-[methyl [(nonafluorobutyl)sulfonyl]amino]ethyl ester, CASRN 67584-55-8; Docket #8EHQ-16-20336

To whom it may concern:

In April and July of 2016, the EPA was informed of draft results from a Prenatal Developmental Toxicity Study in rats by oral gavage on 2-Propenoic acid, 2-[methyl [(nonafluorobutyl)sulfonyl]amino]ethyl ester, CASRN 67584-55-8.

The final report is now available and enclosed.

If you have any questions or would like any additional information, please contact 3M TSCA 8(e) Program Managers, Cher Sanchez at (651)733-7841, csanchez2@mmm.com or Jon Gerber at (651)-733-0226, jmgerber1@mmm.com

Sincerely,

Carol A. Ley (ACS)

Carol A. Ley, MD, MPH
Vice President and Corporate Medical Director, 3M Medical Department

Enclosure (1)

FINAL REPORT

Test Facility Study No. 511508

Sponsor Reference No. 15-239

Prenatal Developmental Toxicity Study of MTDID 7831 in Rats by Oral Gavage

SPONSOR:
3M Belgium BVBA
Canadastraat 11
2070 ZWIJNDRECHT
Belgium

TEST FACILITY:
Charles River Laboratories Den Bosch B.V.
Hambakenwetering 7
5231 DD 's-Hertogenbosch
The Netherlands

Charles River Laboratories Den Bosch B.V.
Nistelrooisebaan 3
5374 RE Schaijk
The Netherlands

03 October 2016

1. CONTENTS

2. STATEMENT OF GLP COMPLIANCE

Charles River Den Bosch, 's-Hertogenbosch, The Netherlands

All phases of this study performed by the test facility were conducted in compliance with the following GLP regulations:

- OECD Principles of Good Laboratory Practice concerning Mutual Acceptance of Data in the Assessment of Chemicals, 26 November 1997 (C(97) 186 Final);
- EC Council Directive 2004 (2004/10/EC, February 11, 2004, Official Journal of February 20, 2004).

The test item characterisation information supplied by the sponsor was produced under the sponsor's quality system.

The data generated and reported are considered to be valid.

Charles River Den Bosch

Signature: .....

Name: M.E.W. de Raaf - Beekhuijzen, MSc., ERT

Title: Study Director

Date: 03 October 2016

3. MANAGEMENT REVIEW

Charles River Den Bosch

Management Representative

Signature: .....

Name: H.H. Emmen, MSc.

Title: Head of Toxicology

Date: 03-OCT-2016

4. TEST FACILITY QUALITY ASSURANCE STATEMENT

Charles River Den Bosch, 's-Hertogenbosch, The Netherlands.
Study title: Prenatal developmental toxicity study of MTDID 7831 in rats by oral gavage

This report was inspected by the Charles River Den Bosch Quality Assurance Unit (QAU) according to the Standard Operating Procedure(s).
The reported method and procedures were found to describe those used and the report reflects the raw data.

During the on-site process inspections, procedures applicable to this type of study were inspected.

The dates of Quality Assurance inspections are given below.

Project 511508

Type of Inspections	Phase/Process	Start Inspection date	End Inspection date	Reporting date
Study	Study Plan	17-Feb-2016	17-Feb-2016	17-Feb-2016
	Study Plan Amendment 01	15-Mar-2016	15-Mar-2016	15-Mar-2016
	Study Plan Amendment 02	22-Mar-2016	22-Mar-2016	22-Mar-2016
	Exposure	29-Mar-2016	29-Mar-2016	29-Mar-2016
	Observations /measurements biological test system	29-Mar-2016	29-Mar-2016	29-Mar-2016
	Study Plan Amendment 03	18-Apr-2016	18-Apr-2016	18-Apr-2016
	Study Plan Amendment 04	28-Apr-2016	28-Apr-2016	28-Apr-2016
	Report	30-Jun-2016	05-Jul-2016	05-Jul-2016
Process	**Test Substance Receipt** Test Substance Handling	08-Feb-2016	29-Feb-2016	01-Mar-2016
	Fetal Pathology Observations/Measurements	10-Feb-2016	22-Feb-2016	22-Feb-2016
	Animal Facilities Test Substance Handling Exposure Observations/Measurements Specimen Handling	16-Feb-2016	26-Feb-2016	26-Feb-2016
	Test Substance Formulation Test Substance Handling Test Substance Handling	25-Feb-2016	15-Mar-2016	15-Mar-2016

Analytical and physical chemistry Test Substance Handling Exposure Observations/Measurements Specimen Handling	01-Mar-2016	11-Mar-2016	14-Mar-2016
Necropsy Observations/Measurements Specimen Handling	01-Mar-2016	11-Mar-2016	14-Mar-2016
Animal Facilities Test Substance Handling Exposure Observations/Measurements Specimen Handling	04-Apr-2016	15-Apr-2016	15-Apr-2016

The facility inspection program is conducted in accordance with Standard Operating Procedure.

The review of the final report was completed on the date of signing this QA statement.

Charles River Den Bosch

Signature: .....

Name: C.J. Mitchell, BSc.

Date: .....29 sep 2016.....

5. SUMMARY

Title
Prenatal developmental toxicity study of MTDID 7831 in rats by oral gavage.

Guidelines
The study procedures described in this report were based on the following guidelines:
1) Organization of Economic Co-operation and Development Guidelines (OECD) for testing of Chemicals Guideline 414, Prenatal Developmental Toxicity Study, January 2001.
2) Commission regulation (EC) No 440/2008 Part B: Methods for the Determination of Toxicity and other Health Effects; B.31: "Prenatal Developmental Toxicity Study". Official Journal of the European Union No. L142, May 2008.
3) The United States Environmental Protection Agency (EPA) Health Effects Test Guidelines OPPTS 870.3700, Prenatal Developmental Toxicity Study, August 1998.

Rationale for dose levels
Dose levels were selected based on the results of the dose range finding study (Test Facility Study No. 511507). One female treated with 1000 mg/kg was killed in extremis on Day 12 post-coitum. Body weight loss and reduced food consumption were noted for all females at 1000 mg/kg. Moreover, an increased incidence of post implantation loss and lower fetal weights were noted at 1000 mg/kg. No maternal or developmental toxicity was observed by treatment up to 300 mg/kg.

Study outline
Eighty-eight mated female Wistar Han rats were assigned to four dose groups. The test item was administered once daily by oral gavage from Days 6 to 20 post-coitum at doses of 100, 300 and 600 mg/kg (Groups 2, 3 and 4 respectively). The rats of the control group received the vehicle, arachis oil, alone. Females were checked daily for the presence of clinical signs. Food consumption and body weight were determined at periodic intervals. Formulations prepared on one day during treatment were analyzed for accuracy and homogeneity.

All animals surviving to Day 21 post-coitum were subjected to an examination *post-mortem* and external, thoracic and abdominal macroscopic findings were recorded. A laparohysterectomy was performed on each surviving female of the groups. The uteri, placentae and ovaries were examined, and the numbers of fetuses, early and late resorptions, total implantations and corpora lutea were recorded. Gravid uterine weights were recorded, and corrected body weights (changes) were calculated. The fetuses were weighed, sexed and examined for external, visceral and skeletal malformations and developmental variations. All live fetuses were euthanized. One half of the fetuses were decapitated and the heads were fixed in Bouin’s fixative; these fetuses were dissected and examined for visceral anomalies. The other one-half of the fetuses were processed and stained with Alizarin Red S for skeletal examinations.

RESULTS

Accuracy and homogeneity of formulations were demonstrated by analyses.

Maternal findings

Maternal toxicity was seen in the 300 and 600 mg/kg groups.

Treatment related clinical signs, including hunched posture, piloerection, pale faeces and lean appearance, were observed at 300 and 600 mg/kg. Moreover, body weights, body weight gains, for uterus corrected body weights and food consumption were statistically significantly reduced at 300 and 600 mg/kg.

No maternal toxicity was observed in the 100 mg/kg group.

Developmental findings

Developmental toxicity was observed in the 300 and 600 mg/kg groups.

Treatment at 300 and 600 mg/kg resulted in statistically significantly lower fetal body weights (both sexes). This was most likely related to the reduced food consumption and body weights observed in the dams.

There was a dose related increased incidence of skeletal variations, including 14^{th} full ribs, caudal shift of pelvic girdle and unossified metatarsals, at 300 and 600 mg/kg. In addition, the variation of 7^{th} cervical ossification sites was not observed at 300 and 600 mg/kg. Because these sites of ossification disappear postnatally by incorporation in the transverse process of cervical vertebra no. 7, they can also be regarded as ossification parameter. These findings were considered to be treatment related. The unossified metatarsals and 7^{th} cervical ossificiation sites were considered to be a sign of delayed fetal development.

No treatment related findings were noted in any of the remaining developmental parameters investigated in this study (i.e. litter size, sex ratio, external and visceral malformations or variations and skeletal malformations) by treatment up to 600 mg/kg.

No developmental toxicity was observed in the 100 mg/kg group.

CONCLUSION

Based on the results in this prenatal developmental toxicity study the maternal and developmental No Observed Adverse Effect Level (NOAEL) for MTDID 7831 were established as being 100 mg/kg.

6. INTRODUCTION

Due to the acquisition of WIL Research by Charles River, the name of the WIL Research facility in Den Bosch, has been changed to Charles River Laboratories Den Bosch B.V., Hambakenwetering 7, 5231 ‘s-Hertogenbosch, The Netherlands. Study documents may contain both names and both names are considered equivalent and may be used as the name of WIL Research transitions to Charles River.

Information concerning the dose range finding study (Test Facility Study No.511507) is given in APPENDIX 5.

For the dose range finding and main study, four Test Facility Study Numbers were used to collect online data (Test Facility Study Nos. 511507, 512490, 511508 and 512491). All data for the dose range finding and main study were reported under Test Facility Study No. 511507 and 511508, respectively.

6.1. Study Schedule

Experimental starting date	19 February 2016 (first delivery of mated females of the dose range finding study (APPENDIX 5)
Mating at Supplier	21-24 March 2016
Delivery	22 and 24 March 2016
Start treatment	27 March 2016
Necropsy	11-14 April 2016
Experimental completion date	14 April 2016 (end in-life phase)

6.2. Purpose

The objective of this study was to determine the potential of the test substance to induce developmental toxicity after maternal exposure during the critical period of organogenesis, to characterize maternal toxicity at the exposure levels tested and to determine the NOAEL (no observed-adverse-effect level) for maternal toxicity and developmental toxicity.

This study should provide part of a rational basis for toxicological risk assessment in humans. The oral route is selected as it is a possible route of human exposure during manufacture, handling or use of the test item.

6.3. Guidelines

This type of study plan was reviewed and agreed by the Laboratory Animal Welfare Officer and the Ethical Committee (DEC 14-50) as required by the Dutch Act on Animal Experimentation (February 1997).

The study procedures described in this report were in compliance with the following guidelines:

1) Organization of Economic Co-operation and Development Guidelines (OECD) for testing of Chemicals Guideline 414, Prenatal Developmental Toxicity Study, January 2001.

2) Commission regulation (EC) No 440/2008 Part B: Methods for the Determination of Toxicity and other Health Effects; B.31: "Prenatal Developmental Toxicity Study". Official Journal of the European Union No. L142, May 2008.

3) The United States Environmental Protection Agency (EPA) Health Effects Test Guidelines OPPTS 870.3700, Prenatal Developmental Toxicity Study, August 1998.

6.4. Retention of Records and Materials

Records and material pertaining to the study, which include study plan and amendments, raw data, specimens, except perishable specimens, and a copy of the final report will be retained in the archives of the test facility for a minimum of 5 years after the finalization of the report. Electronic WTDMS data will be archived for at least 5 years at Charles River Ashland, OH, USA. After this period, the sponsor will be contacted to determine how the records and materials should be handled. The test facility will retain information concerning decisions made.

Perishable specimens (e.g. requiring refrigeration or freezing) will be discarded following evaluation in the study without further notice to the study sponsor.

A sample of the test item will be retained until expiry date or applicable retest date. After this period the sample(s) will be destroyed.

6.5. Responsible Personnel

6.5.1. Test Facility

Study Director	M.E.W. de Raaf - Beekhuijzen, MSc., ERT Email: manon.beekhuijzen@crl.com
Coordinating Biotechnician	N. Duijts (Charles River Den Bosch)
Analytical Chemistry	M.J.C. Brekelmans, MSc. (Principal Scientist, Charles River Den Bosch)
Necropsy	M. Schelling (Charles River Den Bosch
Fetal Pathology	M.Daoud, MD (Charles River Den Bosch)
Quality Assurance	C.J. Mitchell, BSc. (Charles River Den Bosch) Email: christine.mitchell@crl.com
Test Facility Management Representative	H.H. Emmen, MSc. (Charles River Den Bosch) Email: harry.emmen@crl.com

6.5.2. Sponsor Representative

Study Monitor	Michael DeLorme Email: mdelorme@mmm.com

7. MATERIALS AND METHODS

7.1. Test Item

7.1.1. Test Item Information

Test Item	203613/B
Identification	MTDID 7831
Appearance	Off white to white waxy solid
Batch	Lot 40265 / lot 40267 20/80 ratio
Purity/Composition	95.6 w%
Test item storage	At room temperature
Stable under storage conditions until	01 May 2017 (expiry date)

7.1.2. Study Specific Test Item Information

Purity/composition correction factor	No correction factor required
Test item handling	No specific handling conditions required
Stability at higher temperatures	Yes, maximum temperature: approximately 55°C, maximum duration: >60 minutes
Chemical name (IUPAC), synonym or trade name	2-Propenoic Acid, 2-[Methyl[(Nonafluorobutyl)Sulfonyl]Amino]Ethyl Ester
CAS Number	67584-55-8
Molecular formula	$C_{10}F_9H_{10}SO_4N$
pH	Not indicated
Stability in vehicle:	
• Arachis Oil	Stability for at least 6 hours at room temperature is confirmed over the concentration range 1 to 200 mg/mL, Test Facility Study No. 511505

7.2. Test Item Preparation

Vehicle	Arachis Oil, Specific gravity 0.885 (Fagron, Capelle aan de IJssel, The Netherlands)
Rationale for vehicle	Based on trial formulations performed at Charles River Den Bosch and on information provided by the Sponsor.
Method of formulation	Formulations (w/w) were prepared daily within 6 hours prior to dosing and were homogenized to a visually acceptable level. Formulations were heated to a maximum temperature of 50±5°C for maximally 68 minutes to obtain visual homogeneity. Formulations were released for dosing when they obtained a temperature of 40°C or lower. No adjustment was made for specific gravity/density of the test item. Adjustment was made for specific gravity of the vehicle (0.885). No correction was made for the purity/composition of the test item.

Appearance of formulations	Solution (Group 2), suspension (Groups 3-4)
Storage conditions	At room temperature.

7.3. Chemical Analysis of Dose Preparations

Analyses were conducted on a single occasion during the treatment phase (07 April 2016), according to a validated method (Test Facility Study No.511509). Samples of formulations were analyzed for homogeneity (highest and lowest concentration) and accuracy of preparation (all concentrations).

The accuracy of preparation was considered acceptable if the mean measured concentrations were 85-115% of the target concentration. Homogeneity was demonstrated if the coefficient of variation was ≤ 10%.

7.4. Test System

Test System	Rat: Crl:WI(Han) (outbred, SPF-Quality). Untreated females were mated at the Supplier, and were at Day 0 or 1 post-coitum on arrival at the Test Facility (Day 0 post-coitum was the day of successful mating; confirmed by vaginal plug).
Rationale	This species and strain of rat has been recognized as appropriate for developmental toxicity studies. Charles River Den Bosch has historical data on the background incidence of fetal malformations and developmental variations in this species from the same strain and source. This animal model has been proven to be susceptible to the effects of developmental toxicants.
Source	Charles River Deutschland, Sulzfeld, Germany.
Number of animals	F_0-generation: 88 females. F_1-generation: 856 fetuses.
Age at delivery	Females were approximately 10-14 weeks.
Acclimatization	At least 5 days prior to treatment.
Health inspection	At least upon receipt of the animals.
Randomization	One day after receipt, by computer-generated random algorithm according to body weight, with all animals within ± 20% of the mean per subgroup. Females which were mated on the same day are classified in the same subgroup.
Identification	By indelible ink.

7.5. Allocation

Group	Dose level[1] (mg/kg)	Number of females	Animal numbers
1	0	22	1-22
2	100	22	23-44
3	300	22	45-66
4	600	22	67-88

7.6. Animal Husbandry

Room number — Room A0.59

Conditions — Environmental controls for the animal room were set to maintain 18 to 24°C, a relative humidity of 40 to 70%, at least 10 air changes/hour, and a 12-hour light/12-hour dark cycle. Any variations to these conditions were maintained in the raw data and had no effect on the outcome of the study.

Accommodation — Females were individually housed in Macrolon plastic cages (MIII type, height 18 cm).Sterilized sawdust as bedding material (Lignocel S 8-15, JRS - J.Rettenmaier & Söhne GmbH + CO. KG, Rosenberg, Germany) and paper as cage-enrichment/nesting material (Enviro-dri, Wm. Lillico & Son (Wonham Mill Ltd), Surrey, United Kingdom) were supplied.

Diet — Free access to pelleted rodent diet (SM R/M-Z from SSNIFF® Spezialdiäten GmbH, Soest, Germany).

Water — Free access to tap-water.

Diet, water, bedding and cage-enrichment/nesting material evaluation for contaminants and/or nutrients was performed according to facility standard procedures. There were no findings that could interfere with the study.

7.7. Treatment

Method — Oral gavage, using a plastic feeding tube.
Formulations were placed on a magnetic stirrer during dosing.

Frequency — Once daily for 7 days per week, approximately the same time each day with a maximum of 6 hours difference between the earliest and latest dose.

Dose volume — 5 mL/kg body weight. Actual dose volumes were calculated according to the latest body weight.

Duration of treatment — From Days 6 to 20 post-coitum, inclusive.

[1] Dose levels were selected based on results of the dose range finding study (Test Facility Study No.511507; see APPENDIX 5).

7.8. Observations

Mortality / Viability	At least twice daily. Animals showing pain, distress or discomfort, which was considered not transient in nature or was likely to become more severe, were sacrificed for humane reasons based on OECD guidance document on humane endpoints (ENV/JM/MONO/ (2000)7). The circumstance of any death was recorded in detail.
Clinical signs	At least once daily from Day 2 post-coitum onwards up to the day prior to necropsy. The time of onset, grade and duration of any observed signs were recorded. Signs were graded for severity and the maximum grade was predefined at 3 or 4. Grades were coded as slight (grade 1), moderate (grade 2), severe (grade 3) and very severe (grade 4). For certain signs, only its presence (grade 1) or absence (grade 0) was scored. In the data tables, the scored grades were reported, as well as the percentage of animals affected in summary tables.
Body weights	Days 2, 6, 9, 12, 15, 18 and 21 post-coitum.
Food consumption	Days 2-6, 6-9, 9-12, 12-15, 15-18 and 18-21 post-coitum.
Water consumption	Subjective appraisal was maintained during the study, but no quantitative investigation was introduced as no treatment related effect was suspected.

7.9. Pathology

7.9.1. Necropsy

All animals surviving to the end of the observation period, all moribund animals and all animals showing premature delivery were sacrificed using an oxygen/carbon dioxide procedure and subsequently subjected to an external, thoracic and abdominal examination, with special attention being paid to the reproductive organs.

All macroscopic abnormalities were recorded, collected and fixed in 10% buffered formalin (neutral phosphate buffered 4% formaldehyde solution, Klinipath, Duiven, The Netherlands).

Necropsy was conducted on the following days:

Condition	Day of necropsy
Females surviving to planned necropsy:	Day 21 post-coitum.
Female with early delivery (no. 69):	Within 24 hours of early delivery.
Euthanized in extremis (no. 56):	When pain, distress or discomfort was considered not transient in nature or was likely to become more severe.

Each ovary and uterine horn of all animals was dissected and examined as quickly as possible to determine:
- The number of corpora lutea.
- The weight of the (gravid) uterus (not for animals sacrificed before planned necropsy).
- The number and distribution of live and dead fetuses.
- The number and distribution of embryo-fetal deaths (early and late resorptions).
- The weight of each fetus (not for animals sacrificed before planned necropsy).
- The sex of each fetus from the ano-genital distance (during necropsy) and also from gonadal inspections (during further fetal examination).
- Externally visible macroscopic fetal abnormalities.

For animal no. 56, which was sacrificed before planned necropsy, these findings were reported in the individual data tables only.

In case implantations were not macroscopically visible, the uterus was stained using the Salewski technique (Ref. 1) in order to determine any former implantation sites (Salewski staining prepared at Charles River Den Bosch using Ammoniumsulfide-solution 20% (Merck, Darmstadt, Germany) and Milli-Ro water (Millipore Corporation, Bedford, USA)).

7.9.2. Fetal Examination

External, visceral, and skeletal findings were recorded as developmental variations (alterations in anatomic structure that are considered to have no significant biological effect on animal health or body conformity and/or represent slight deviations from normal) or malformations (those structural anomalies that alter general body conformity, disrupt or interfere with normal body function, or may be incompatible with life).

External:
Each viable fetus was examined in detail, weighed and sexed. All live fetuses were euthanized by administration of approximately 0.05 mL (=10mg) of sodium pentobarbital (Euthasol® 20%; AST Farma B.V., Oudewater) into the oral cavity using a small flexible plastic or metal feeding tube. For the late resorption a gross external examination was performed. All resorptions were discarded.

Visceral (Internal):
Approximately one-half of the fetuses in each litter (all groups) were examined for visceral anomalies by dissection in the fresh (non-fixed) state. The thoracic and abdominal cavities were opened and dissected using a technique described by Stuckhardt and Poppe (Ref. 2). This examination included the heart and major vessels. Fetal kidneys were examined and graded for renal papillae development as described by Woo and Hoar (Ref. 3). The sex of all fetuses was confirmed by internal examination.

Discolored livers of two fetuses (nos. 01 and 05) of litter 84 (Group 4), were collected and fixed in 10% buffered formalin.

The heads were removed from approximately one-half of the fetuses in each litter and placed in Bouin's solution (Klinipath, Duiven, The Netherlands) for soft-tissue examination of all groups using the Wilson sectioning technique (Ref. 4). After examination, the tissues without variation or malformations were discarded. Tissues with variations or malformations were stored in 10% buffered formalin.

Any remaining tissues (from the fetuses used for fresh visceral examination) were discarded. The carcasses were processed and stained with Alizarin Red S (as described below), but not examined in first instance.

Skeletal:
From the other one-half of the fetuses in each litter (all groups), the sex was confirmed by internal examination. All fetuses were eviscerated, fixed in 96% aqueous ethanol, macerated in potassium hydroxide (Merck, Darmstadt, Germany) and stained with Alizarin Red S (Klinipath, Duiven, The Netherlands) by a method similar to that described by Dawson (Ref. **5**). Skeletal examination was done for one-half of the fetuses (i.e. the fetuses with heads).

The specimens were archived in glycerin (BRENNTAG Nederland B.V., Dordrecht, The Netherlands) with bronopol (Alfa Aesar, Karlsruhe, Germany) as preservative.

A few bones were not available for skeletal examination because they were accidentally damaged or lost during processing. The missing bones were listed in the raw data; evaluation by the fetal pathologist and study director determined there was no influence on the outcome of the individual or overall skeletal examinations, or on the integrity of the study as a whole.

7.10. Interpretation

7.10.1. Calculations

For each litter the following calculations were performed:

$$\text{Pre-implantation loss (\%)} = \frac{\text{(number of corpora lutea - number of implantation sites)}}{\text{number of corpora lutea}} \times 100$$

$$\text{Post-implantation loss (\%)} = \frac{\text{(number of implantation sites - number of live fetuses)}}{\text{number of implantation sites}} \times 100$$

The fetal developmental findings were summarized by: 1) presenting the incidence of a given finding both as the number of fetuses and the number of litters available for examination in the group; and 2) considering the litter as the basic unit for comparison, calculating the number of affected fetuses as a mean litter proportion on a total group basis, where:

$$\text{Viable fetuses affected/litter (\%)} = \frac{\text{number of viable fetuses affected/litter}}{\text{number of viable fetuses/litter}} \times 100$$

7.10.2. Statistical Analyses

The following statistical methods were used to analyze the data:
- If the variables could be assumed to follow a normal distribution, the Dunnett-test (Ref. 6) (many-to-one t-test) based on a pooled variance estimate was applied for the comparison of the treated groups and the control group.
- The Steel-test (Ref. 7 (many-to-one rank test) was applied if the data could not be assumed to follow a normal distribution.
- The Fisher Exact-test (Ref. 8) was applied to frequency data.
- The Mann Whitney test (Ref. 9) was used to compare mean litter proportions (percent of litter) of the number of viable and dead fetuses, early and late resorptions, total resorptions, pre- and post-implantation loss, and sex distribution.
- Mean litter proportions (percent per litter) of total fetal malformations and developmental variations (external, visceral and skeletal), and each particular external, visceral and skeletal malformation or variation were subjected to the Kruskal-Wallis nonparametric ANOVA test (Ref. 10) to determine intergroup differences. If the ANOVA revealed statistically significant ($p<0.05$) intergroup variance, Dunn's test (Ref. 11) was used to compare the compound-treated groups to the control group.

All tests were two-sided and in all cases $p < 0.05$ was accepted as the lowest level of significance. Group means were calculated for continuous data and medians were calculated for discrete data (scores) in the summary tables. Test statistics were calculated on the basis of exact values for means and pooled variances. Individual values, means and standard deviations might be rounded off before printing. Therefore, two groups might display the same printed means for a given parameter, yet display different test statistics values.

No statistics were applied for data on maternal survival, pregnancy status, group mean numbers of dead fetuses, early and late resorptions, and pre- and post-implantation loss.

7.10.3. Definitions

The following definitions were applicable for implantation data:
- Fetal (late) resorptions were defined as a dead fetus with external degenerative changes and presence of distinguishable features such as head or limbs.
- Embryonic (early) resorptions were defined as evidence of implantation without presence of distinguishable features such as head or limbs.
- Dead fetus was defined as a non-viable fetus without external degenerative changes and presence of distinguishable features such as head or limbs.
- Post-implantation loss included embryonic (early) resorptions, fetal (late) resorptions and dead fetuses.

7.11. List of Deviations

7.11.1. List of Study Plan Deviations

1. The formulations were heated for a maximum duration of 68 minutes instead of 60 minutes.
   Evaluation: As the results of the formulation analysis showed that the concentrations were in agreement with target concentrations and formulations were homogeneous, this did not affect the study integrity.

2. Although the lungs of female no. 56 (Group 3) showed foci, they were not fixed.
   Evaluation: Sufficient data is available for a proper toxicological evaluation. The lung foci was a sporadic finding that was considered to be a result of a gavage error and not a specific toxicity of the test item.

3. Fetus A080-09 (Group 4), which was assigned to visceral examination, was also subjected to skeletal examination as an external malformation was observed.
   Evaluation: As additional data was obtained, this did not affect the study integrity.

In the range finding study (Test Facility Study No. 511507; see APPENDIX 5), the following deviations from the study plan were observed:

1. The formulations were heated for a maximum duration of 65 minutes instead of 60 minutes.
   Evaluation: As the results of the formulation analysis showed that the concentrations were in agreement with target concentrations and formulations were homogeneous, this did not affect the study integrity.

2. The formulations used for dosing on 10 March 2016 were heated up to 60°C, instead of the maximal temperature of 55°C.
   Evaluation: As this change in temperature was only minimal and limited to one day of treatment, the study integrity was not affected.

3. The weight of the uterus of female no. 21 (Group 4) was not determined at necropsy.
   Evaluation: Sufficient data was available for proper toxicological evaluation.

The study integrity was not adversely affected by the deviations.

7.11.2. List of Standard Operating Procedure Deviations

Any deviations from standard operating procedures were evaluated and filed in the study file. There were no deviations from standard operating procedures that affected the integrity of the study.

8. ELECTRONIC SYSTEMS FOR DATA ACQUISITION

The following electronic systems are used for data acquisition:
- REES Centron Environmental Monitoring system version SQL 2.0 (REES Scientific, Trenton, NJ, USA)
- TOXDATA version 8.0 (Charles River Den Bosch, 's-Hertogenbosch, The Netherlands): Mortality / Clinical signs / Body weights / Food consumption / Reproduction data.
- WIL Toxicology Data Management System (WTDMS™, Charles River Ashland, OH, USA): Reproduction and fetal pathology data.
- Empower 3, database version 7.21 (Waters, Milford, MA, USA): Analytical chemistry.

Two Test Facility Study Numbers were used to collect online data (all data was reported under Test Facility Study No.511508).

Test Facility Study Nos	Online data
512491	Clinical signs
511508	All other data

9. RESULTS

9.1. Formulation Analysis

Accuracy of preparation
The concentrations analysed in the formulations of Group 2, Group 3 and Group 4 were in agreement with target concentrations (i.e. mean accuracies between 85% and 115%).
No test item was detected in the Group 1 formulation.

Homogeneity
The formulations of Group 2 and Group 4 were homogeneous (i.e. coefficient of variation ≤ 10%).

For further details see APPENDIX 3.

9.2. Maternal Findings

For further detail on summary data, see APPENDIX 1 and on individual data, see APPENDIX 2.

9.2.1. Mortality

One female (no. 56) at 300 mg/kg was killed *in extremis* on Day 16 post-coitum. Clinical signs noted included labored respiration, rales and chromodacryorrhoea of the snout. At necropsy, reddish foci on the lungs were noted and the thoracic cavity contained fluid. Based on these findings, this death was considered to be caused to the gavage procedure and not related to treatment with the test item. This female was pregnant and had 11 normal implantation sites in development.

No further mortality occurred at any dose level.

9.2.2. Clinical Signs

Toxicologically relevant clinical signs were noted at 300 and 600 mg/kg. These included hunched posture (one female in each group), piloerection (two and three females, respectively), pale faeces (one and six females, respectively) and lean appearance (two and six females, respectively).

Salivation observed in all treatment groups was considered not toxicologically relevant, considering the nature and minor severity of the effect and its time of occurrence (i.e. after dosing). This sign was considered to be a physiological response related to taste of the test item rather than a sign of systemic toxicity. In addition, one control female showed salivation.

Incidental findings that were noted included scabs, chromodacryorrhoea of the snout, reduced faeces production and rales. As these findings occurred within the range of background findings to be expected for rats treated under the conditions in this study and did not show any apparent dose-related trend, this was not considered to be treatment related.

9.2.3. Body Weights

Body weights were statistically significantly lower for females at 300 and 600 mg/kg than controls on Day 21 post-coitum. At 300 and 600 mg/kg, body weight loss (mean of -2% and -3%, respectively) was observed on Day 9 post-coitum and body weight gains were statistically significantly lower on Days 9-21 post-coitum. In addition, for uterus weight corrected body weights were statistically significantly decreased at 300 and 600 mg/kg.

Body weight and body weight gain of females in the 100 mg/kg group remained in the same range as controls over the study period.

9.2.4. Food Consumption

Food consumption (absolute and relative) was statistically significantly lower at 300 and 600 mg/kg on Days 6-9 post-coitum. For the remaining of the treatment period, food consumption was similar to control values.

At 100 mg/kg, food consumption appeared unaffected by treatment with the test item.

9.2.5. Macroscopic Examination

Emaciation noted for one female at 300 mg/kg and two females at 600 mg/kg confirmed the clinical sign of lean appearance observed during the in-life phase of these animals.

Other macroscopic observations at necropsy were considered not treatment related as single females were affected and no dose response relationship was observed.

9.2.6. Maternal Pregnancy Data

At 300 mg/kg, one female (no. 49) was non-pregnant and one female (no. 56) was killed *in extremis* on Day 16 post-coitum (this female was pregnant). All other females had litters with viable fetuses.

One female (no. 69) at 600 mg/kg had an early delivery of two pups[2] on Day 21 post-coitum. There were ten remaining viable pups inside the uterus of this female. This early delivery was an isolated finding and was therefore not considered to be treatment related.

There were no toxicologically relevant effects on the number of corpora lutea, implantation sites, pre- and post-implantation loss by treatment up to 600 mg/kg.

[2] Taken from Study Daybook.

9.3. Fetal Findings

9.3.1. Litter Size

There were no treatment related effects on litter size for any group.

Mean litter sizes were 10.9, 9.2, 9.3 and 9.8 fetuses/litter for the control, 100, 300 and 600 mg/kg groups, respectively.

9.3.2. Sex Ratio

The male:female ratio was unaffected by treatment up to 600 mg/kg

Mean sex ratios (males:females) were 49:51, 47:53, 53:47 en 53:47 for the control, 100, 300 and 600 mg/kg groups, respectively.

9.3.3. Fetal Body Weight

Treatment at 300 and 600 mg/kg resulted in statistically significantly lower fetal body weights (both sexes).

Mean fetal body weights (sexes combined) were 5.2, 5.1, 4.6 and 4.3 gram for the control, 100, 300 and 600 mg/kg groups.

9.4. Fetal morphological examinations

Note: In order to enter animal numbers into WTDMS™ an adjustment in the numbering was made, for example: animal 1 was reassigned as animal A001, animal 2 as A002 etc. Also numbering of fetuses was changed; Fetus 1 of animal 1 was reassigned as A001-01 etc.

The numbers of fetuses (litters) available for morphological examination were 239 (22), 203 (22), 185 (20) and 217 (22) in animals dosed with 0, 100, 300 and 600 mg/kg MTDID 7831, respectively. External examination was done for all fetuses, visceral examination was done for approximately half of the fetuses of all groups, and skeletal examination was done for the other half of fetuses. For fetus A080-09 (600 mg/kg dose group) that was assigned to a visceral examination, the fresh visceral examination was not continued by the soft tissue cephalic examination, but by skeletal examination which enabled to further examine an externally observed malformation.

Dam A069 (600 mg/kg dose group) delivered on Day 21 post-coitum. Results of the fetal data and morphological examination of her fetuses were recorded in the summary data tables of litter proportions of malformations and variations (APPENDIX 1, tables 1.15 and 1.17) and in the additional individual data tables (APPENDIX 2, tables 2.12 and 2.14) and not included in the remaining summary and individual tables.

For further detail on summary data, see APPENDIX 1, and on individual data, see APPENDIX 2. In addition, historical control data are reported in APPENDIX 4.

9.4.1. External malformations and variations

There were no treatment related effects on external morphology following treatment up to 600 mg/kg.

Malformations were noted in two fetuses at the 600 mg/kg high dose level and in one control fetus. At the high dose level, two litter mates (A080-02 and -09) had cleft palate, both confirmed skeletally, and the control fetus (A001-01) had an omphalocele and absent eye bulges. The occurrence of two of the same malformations in one litter suggests a genetic origin, rather than another cause. Thus, despite its occurrence at the high dose level, it was not considered to be treatment related.

External variations were not seen in any group.

9.4.2. Visceral malformations and variations

There were no treatment related effects on visceral morphology following treatment up to 600 mg/kg.

Three viscerally malformed fetuses were revealed at fetal examination and all three were from the 600 mg/kg high dose group. Two fetuses (A067-08 and A083-10) had a small eye that was noted at serial sectioning of the head and in fetus A072-12 all internal organs were laterally transposed. It should be mentioned that control fetus A001-01 also had small (or absent) eyes, but this was revealed externally by absent eye bulges and confirmed skeletally by small orbits. Taking this into account, and the fact that in historical control fetuses absent and/or small eyes and situs inversus are the most common visceral malformations, the occurrence of both malformations in the high dose group was considered to have occurred by chance and was as such not related to treatment.

Visceral variations that were noted in the treated groups of this study were small supernumerary lobe(s) and appendix of the liver, discolored liver, partially undescended thymus horns, and convoluted and/or dilated ureters. These variations occurred at low incidences, in the absence of a dose-related incidence trend and/or were noted in control fetuses and therefore were not considered to be treatment related.

9.4.3. Skeletal malformations and variations

There was a dose related increase in the incidence of total skeletal variations in Groups 3 (300 mg/kg) and 4 (600 mg/kg), reaching statistical significance in Groups 4. Incidences were 77.7%, 69.6%, 87.1% and 90.4% per litter in Groups 1, 2, 3 and 4, respectively. This was due to statistically significantly higher incidences for 14th full ribs, caudal shift of pelvic girdle and unossified metatarsals in Groups 3 and 4. The incidences for 14th full ribs were 5.7%, 9.9%, 19.5%, 28.4%, for caudal shift of pelvic girdle 5.0%, 13.2%, 29.8%, 45.0% and for unossified metatarsals 0.8%, 5.1%, 11.7% and 49.6% per litter in Groups 1, 2, 3 and 4, respectively. The incidences of these variations in Groups 3 and 4 were also (far) above their historical control maximum values (13.1%, 12.8% and 6.3% per litter for 14th full ribs, caudal shift of pelvic girdle and unossified metatarsals, respectively) and were therefore considered to be treatment related.

It should be noted that the higher incidences of unossified metatarsals in Groups 3 and 4 were in line with the marked lower mean fetal body weights of these groups (4.6 and 4.3 grams respectively versus 5.2 grams in the control group) and thereby in line with delayed fetal development.

In Groups 3 (300 mg/kg) and 4 (600 mg/kg), the variation of 7th cervical ossification sites was not observed, whereas it was noted at 7.1% and 2.9% per litter in Groups 1 (0 mg/kg) and 2 (100 mg/kg), respectively, resulting in statistically significantly lower incidences in Groups 3 and 4. Because these sites of ossification disappear postnatally by incorporation in the transverse process of cervical vertebra no. 7, they can also be regarded as ossification parameter. By taking this into account together with the lower fetal body weights in Groups 3 and 4, the absence of 7th cervical ossification sites in Groups 3 and 4 is considered to be a sign of delayed fetal (skeletal) development and to be related to treatment.

Of the remaining skeletal variations, the finding of bent ribs showed a variable group distribution. Incidences were 19.1%, 4.8%, 14.5% and 2.3% in Groups 1, 2, 3 and 4, respectively, and statistical significance was reached for the lower incidences in Groups 2 and 4. The reason for this is unknown, but the group distribution did not indicate a treatment relationship. In addition, all incidences were within the historical control data range (0.8 - 22.3% per litter) and a lower incidence of this finding is not considered to be a detrimental effect. Therefore, the notable group distribution of bent ribs was considered to have occurred by chance.

The other skeletal variations that were noted occurred in the absence of a dose-related incidence trend, occurred infrequently or were observed in control fetuses only. Therefore, they were not considered to be treatment related.

Skeletal malformations were observed in 4 (4), 0 (0), 8 (6) and 2 (2) fetuses (litters) in dose Groups 1, 2, 3 and 4, respectively. The ones in Group 4 (600 mg/kg) had severely malaligned sternebrae (A074-06) or a rib anomaly (A070-05) and the ones in Group 3 (300 mg/kg) either had a rib anomaly (A054-02 and -04), malpositioned metacarpals or metatarsals (A045-01 and A059-05), bent limb bones (A054-06, A062-02 and A063-01) or a vertebral anomaly with or without associated rib anomaly (A051-10). The latter two malformations also occurred in concurrent control fetuses (bent limb bones in fetus A007-01 and a vertebral anomaly with or without associated rib anomaly in fetuses A009-05 and A012-06). All these malformations were considered to be chance findings, because their single occurrence and/or group distribution did not indicate a relation to treatment.

The remaining skeletally malformed control fetus was the one with external malformations (A001-01) which appeared to have fused mandibles and sternoschisis as well.

10. DISCUSSION AND CONCLUSION

Mated female Wistar Han rats were assigned to four dose groups, each containing twenty-two animals. The test item was administered once daily by gavage from Day 6 to 20 post-coitum at doses of 100, 300 and 600 mg/kg (Groups 2, 3 and 4 respectively). The rats of the control group (Group 1) received the vehicle, arachis oil, alone.

Accuracy and homogeneity of formulations were demonstrated by analyses.

Maternal findings
Maternal toxicity was seen in the 300 and 600 mg/kg groups.

One female at 300 mg/kg was killed *in extremis* on Day 16 post-coitum. As this female showed laboured respiration, rales, chromodacryorrhoea of the snout, foci in the lungs and the body cavity contained fluid, this death was considered to be caused to the gavage procedure and not related to treatment with the test item.

Treatment related clinical signs, including hunched posture, piloerection, pale faeces and lean appearance, were observed at 300 and 600 mg/kg. Moreover, body weights, body weight gains, for uterus corrected body weights and food consumption were statistically significantly reduced at 300 and 600 mg/kg.

No maternal toxicity was observed in the 100 mg/kg group.

Developmental findings
Developmental toxicity was observed in the 300 and 600 mg/kg groups.

Treatment at 300 and 600 mg/kg resulted in statistically significantly lower fetal body weights (both sexes). This was most likely related to the reduced food consumption and body weights observed in the dams.

There was a dose related increased incidence of skeletal variations, including 14th full ribs, caudal shift of pelvic girdle and unossified metatarsals, at 300 and 600 mg/kg. In addition, the variation of 7th cervical ossification sites was not observed at 300 and 600 mg/kg. Because these sites of ossification disappear postnatally by incorporation in the transverse process of cervical vertebra no. 7, they can also be regarded as ossification parameter. These findings were considered to be treatment related. The unossified metatarsals and 7th cervical ossificiation sites were considered to be a sign of delayed fetal development.

No treatment related findings were noted in any of the remaining developmental parameters investigated in this study (i.e. litter size, sex ratio, external and visceral malformations or variations and skeletal malformations) by treatment up to 600 mg/kg. No developmental toxicity was observed in the 100 mg/kg group.

In conclusion, based on the results in this prenatal developmental toxicity study the maternal and developmental No Observed Adverse Effect Level (NOAEL) for MTDID 7831 were established as being 100 mg/kg.

11. REFERENCES

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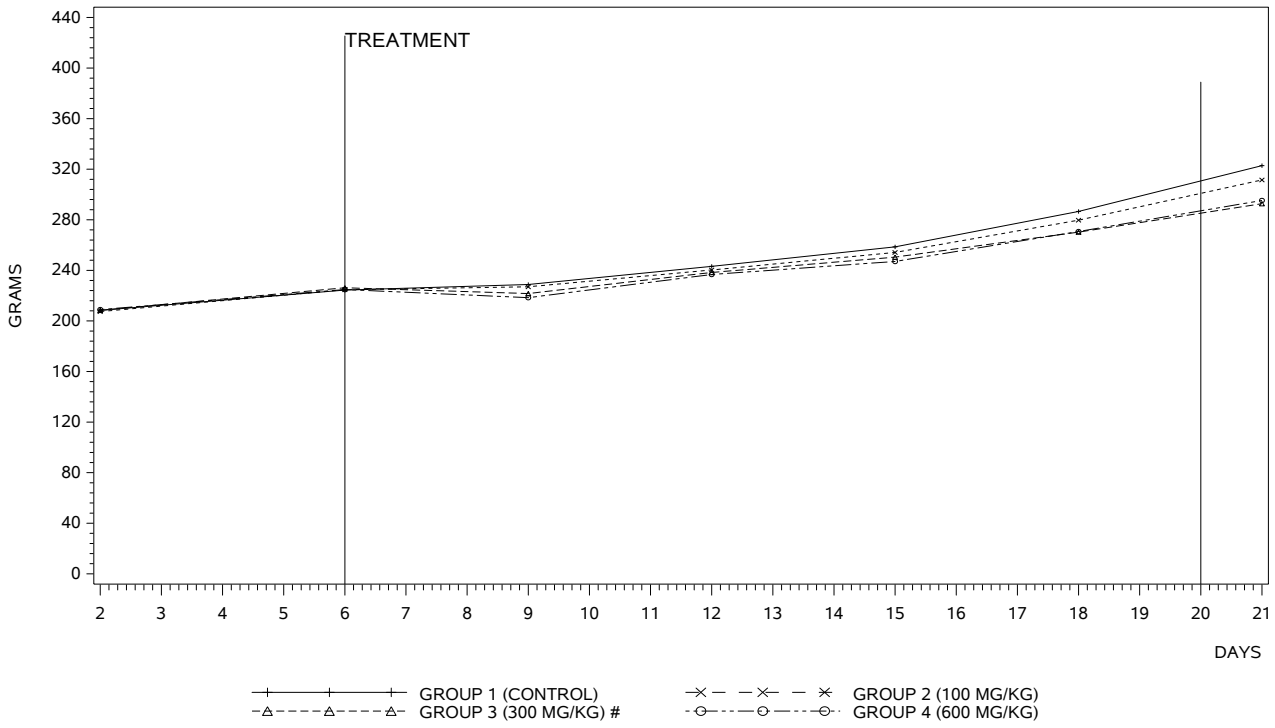
APPENDIX 1 FIGURES AND SUMMARY TABLES

1.1 BODY WEIGHTS (GRAM) FEMALES

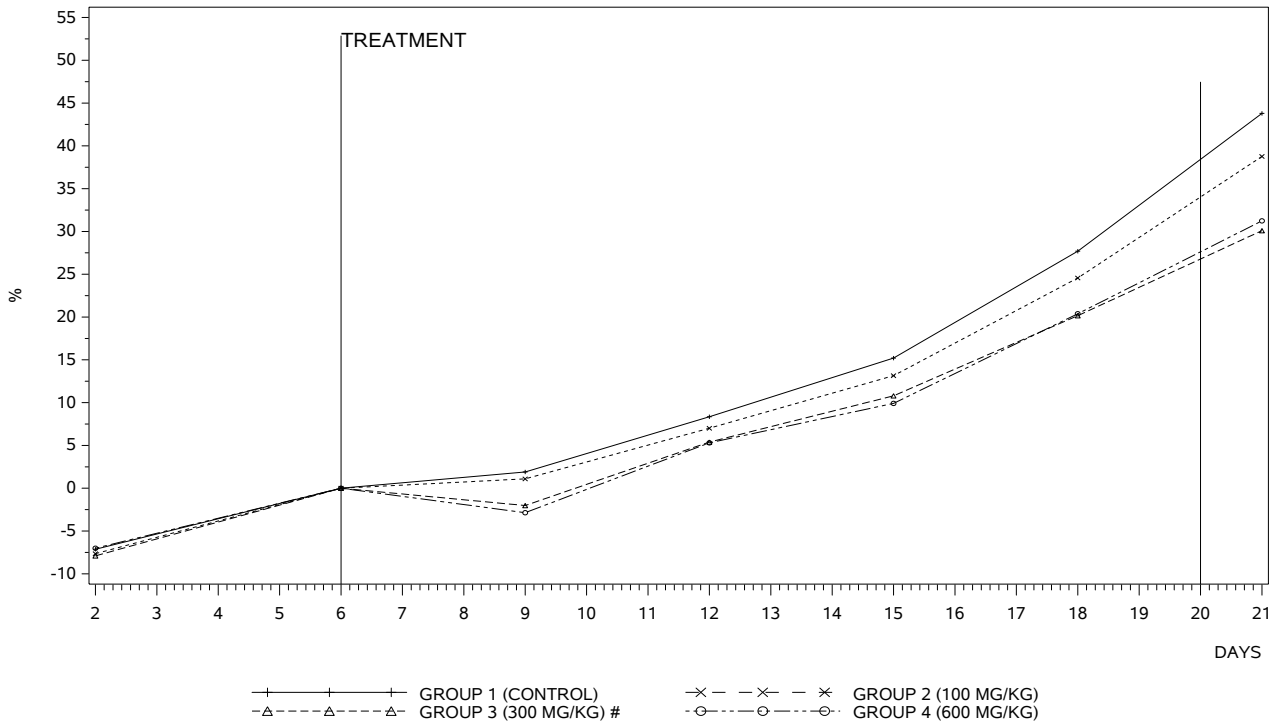
F0-GENERATION - POST COITUM



Explanations for excluded data are listed in the tables of individual values

1.2 BODY WEIGHT GAIN (%) FEMALES

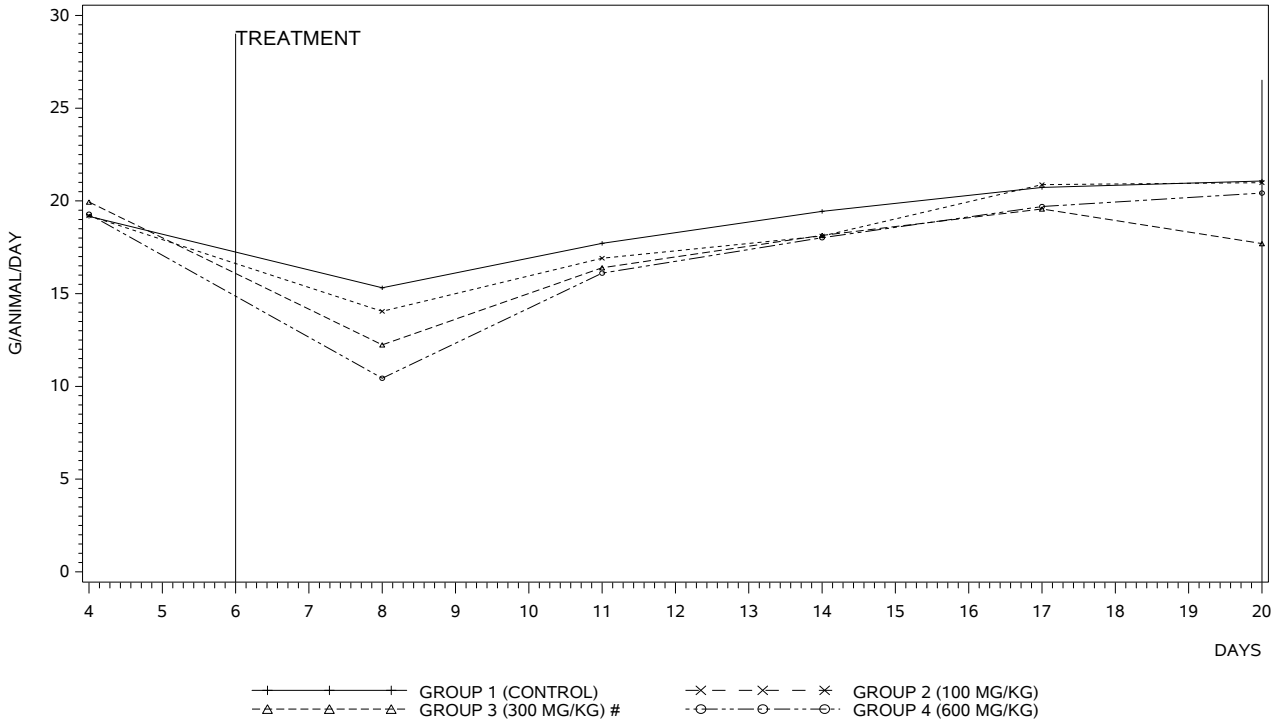
F0-GENERATION - POST COITUM



Explanations for excluded data are listed in the tables of individual values

1.3 FOOD CONSUMPTION (G/ANIMAL/DAY) FEMALES

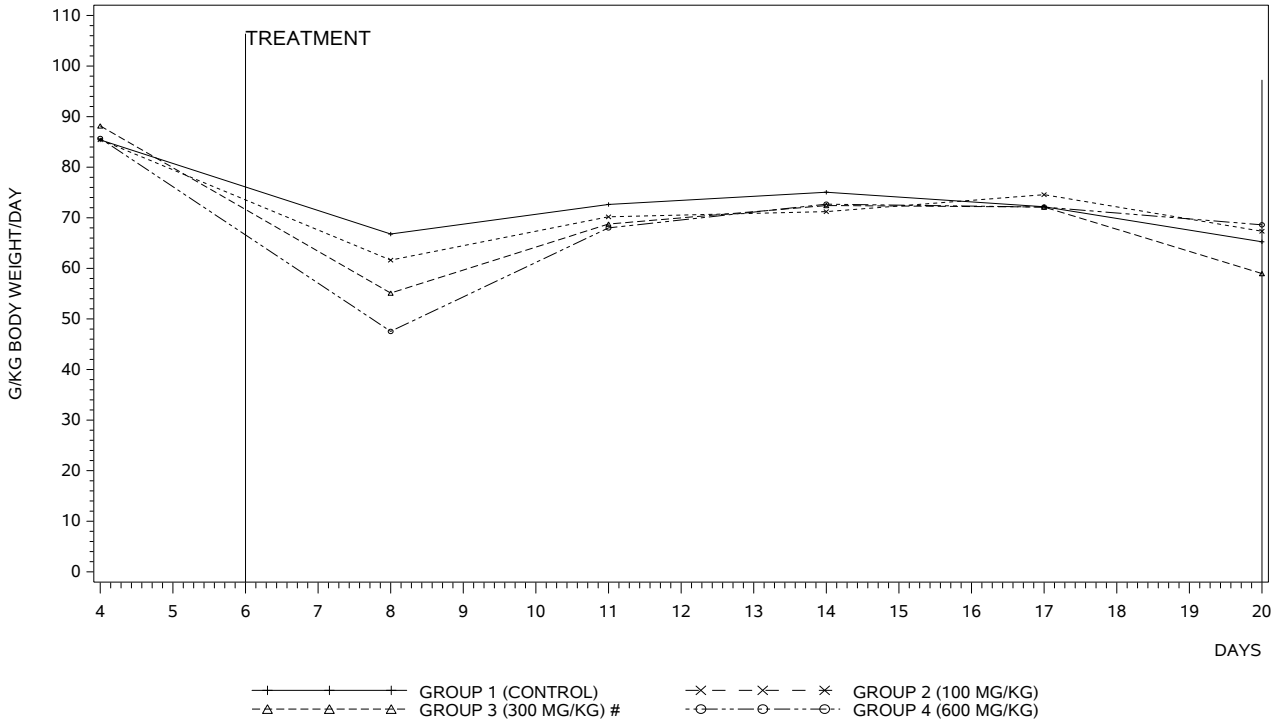
F0-GENERATION - POST COITUM



Explanations for excluded data are listed in the tables of individual values

1.4 RELATIVE FOOD CONSUMPTION (G/KG BODY WEIGHT/DAY) FEMALES

F0-GENERATION - POST COITUM



Explanations for excluded data are listed in the tables of individual values

1.5 CLINICAL SIGNS SUMMARY
FEMALES

SIGN (MAX. GRADE) / (LOCATION)		PRE TREATMENT WEEK: 1. . . DAY: 1234	TREATMENT 1. 123456712345671
GROUP 1 (CONTROL)			
Skin / fur			
Scabs (3)	G:	. . . .	 1
(Neck)	%:	. . . .	 0
Secretion / excretion			
Salivation (3)	G:	. . . .	 11
	%:	. . . .	 00
GROUP 2 (100 MG/KG)			
Breathing			
Rales (3)	G:	. . . .	. 1. 11111
	%:	. . . .	. 0. 00001
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
	%:	. . . .	. . . 255555555555
GROUP 3 (300 MG/KG)			
Posture			
Hunched posture (1)	G:	. . . .	. . . 11. . . . .
	%:	. . . .	. . . 00. . . . .
Breathing			
Laboured respiration (3)	G:	. . . .	. . . . . 3. . . .
	%:	. . . .	. . . . . 0. . . .
Rales (3)	G:	. . . .	. . . 221. 1111111.
	%:	. . . .	. . . 000. 0011111.
Skin / fur			
Piloerection (1)	G:	. . . .	. . . 111. . . . 1. . . 1
	%:	. . . .	. . . 000. . . . 0. . . 0
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
	%:	. . . .	. . . 255555556666
Chromodacryorrhoea (3)	G:	. . . .	. . . . . 1. . . .
(Snout)	%:	. . . .	. . . . . 0. . . .
Faeces production reduced (3)	G:	. . . .	. . . 1111. . . . .
	%:	. . . .	. . . 0000. . . . .
Various			
Pale (3)	G:	. . . .	 1
(Faeces)	%:	. . . .	 0
Lean (1)	G:	. . . .	 11111
	%:	. . . .	 11111
GROUP 4 (600 MG/KG)			
Posture			
Hunched posture (1)	G:	. . . .	 111
	%:	. . . .	 000
Breathing			
Rales (3)	G:	. . . .	 133
	%:	. . . .	 010
Skin / fur			
Piloerection (1)	G:	. . . .	 111
	%:	. . . .	 111
Secretion / excretion			
Salivation (3)	G:	. . . .	. . 1111111111111
	%:	. . . .	. . 2688888888888
Chromodacryorrhoea (3)	G:	. . . .	. . . . . 111. . . .
(Snout)	%:	. . . .	. . . . . 000. . . .
Faeces production reduced (3)	G:	. . . .	. . . . 1111. . . . .
	%:	. . . .	. . . . 0000. . . . .
Various			
Pale (3)	G:	. . . .	 11111
(Faeces)	%:	. . . .	 12232
Lean (1)	G:	. . . .	 1111

G: Median value of the highest individual daily grades
%: Percent of affected animals (0=less than 5%, 1=between 5% and 15%,..., A=more than 95%)
.: Observation performed, sign not present

1.5 CLINICAL SIGNS SUMMARY
FEMALES

SIGN (MAX. GRADE)		PRE TREATMENT	TREATMENT
(LOCATION)	WEEK:	1. . .	1. . . . .
	DAY:	1234	123456712345671
GROUP 4 (600 MG/KG)			
	%:	. . . .	 1233

G: Median value of the highest individual daily grades
%: Percent of affected animals (0=less than 5%, 1=between 5% and 15%,..., A=more than 95%)
.: Observation performed, sign not present

1.6 BODY WEIGHTS (GRAM) SUMMARY
FEMALES

F0-GENERATION

		GROUP 1 CONTROL	GROUP 2 100 MG/KG	GROUP 3 300 MG/KG	GROUP 4 600 MG/KG
POST COITUM					
DAY 2	MEAN	208	207	208	209
	ST.DEV.	15.1	13.7	14.8	12.8
	N	22	22	21	22
DAY 6	MEAN	224	225	226	225
	ST.DEV.	15.6	15.6	15.1	13.7
	N	22	22	21	22
DAY 9	MEAN	229	227	222	218
	ST.DEV.	18.5	16.1	17.0	14.4
	N	22	22	21	22
DAY 12	MEAN	243	240	238	237
	ST.DEV.	18.1	16.7	15.2	15.0
	N	22	22	21	22
DAY 15	MEAN	259	254	250	247
	ST.DEV.	20.0	18.3	15.6	17.9
	N	22	22	21	22
DAY 18	MEAN	287	280	270	271
	ST.DEV.	23.5	20.6	21.2	23.7
	N	22	22	20	22
DAY 21	MEAN	323	312	293 **	295 *
	ST.DEV.	27.8	25.8	33.7	34.1
	N	22	22	20	21

*/** Dunnett-test based on pooled variance significant at 5% (*) or 1% (**) level
Explanations for excluded data are listed in the tables of the individual values

1.7 BODY WEIGHT GAIN (%) SUMMARY
FEMALES

F0-GENERATION

		GROUP 1 CONTROL	GROUP 2 100 MG/KG	GROUP 3 300 MG/KG	GROUP 4 600 MG/KG
POST COITUM					
DAY 2	MEAN	-7	-8	-8	-7
	ST.DEV.	2.1	2.2	2.0	2.4
	N	22	22	21	22
DAY 6	MEAN	0	0	0	0
	ST.DEV.	0.0	0.0	0.0	0.0
	N	22	22	21	22
DAY 9	MEAN	2	1	-2 **	-3 **
	ST.DEV.	2.1	3.7	3.6	2.2
	N	22	22	21	22
DAY 12	MEAN	8	7	5 **	5 **
	ST.DEV.	2.2	3.1	2.6	2.3
	N	22	22	21	22
DAY 15	MEAN	15	13	11 **	10 **
	ST.DEV.	2.8	3.1	3.5	5.2
	N	22	22	21	22
DAY 18	MEAN	28	25	20 **	20 **
	ST.DEV.	4.3	5.5	5.9	7.3
	N	22	22	20	22
DAY 21	MEAN	44	39	30 **	31 **
	ST.DEV.	5.6	8.7	12.0	12.5
	N	22	22	20	21

*/** Dunnett-test based on pooled variance significant at 5% (*) or 1% (**) level
Explanations for excluded data are listed in the tables of the individual values

1.8 FOOD CONSUMPTION (G/ANIMAL/DAY) SUMMARY
FEMALES

F0-GENERATION

		GROUP 1 CONTROL	GROUP 2 100 MG/KG	GROUP 3 300 MG/KG	GROUP 4 600 MG/KG
POST COITUM					
DAYS 2-6	MEAN	19	19	20	19
	ST.DEV.	1.9	2.0	1.7	2.2
	N	22	22	21	22
DAYS 6-9	MEAN	15	14	12 **	10 **
	ST.DEV.	2.4	3.1	2.7	2.7
	N	22	22	21	22
DAYS 9-12	MEAN	18	17	16	16
	ST.DEV.	3.0	2.8	2.4	2.6
	N	22	22	21	22
DAYS 12-15	MEAN	19	18	18	18
	ST.DEV.	2.6	2.4	2.1	3.1
	N	22	22	21	22
DAYS 15-18	MEAN	21	21	20	20
	ST.DEV.	2.9	2.7	3.4	4.5
	N	22	22	20	22
DAYS 18-21	MEAN	21	21	18	20
	ST.DEV.	2.7	3.8	6.8	5.1
	N	22	22	20	22
MEAN OF MEANS		19	18	17	17

*/** Dunnett-test based on pooled variance significant at 5% (*) or 1% (**) level
Explanations for excluded data are listed in the tables of the individual values

1.9 RELATIVE FOOD CONSUMPTION (G/KG BODY WEIGHT/DAY) SUMMARY
FEMALES

F0-GENERATION

		GROUP 1 CONTROL	GROUP 2 100 MG/KG	GROUP 3 300 MG/KG	GROUP 4 600 MG/KG
POST COITUM					
DAYS 2-6	MEAN	85	85	88	86
	ST.DEV.	5.5	6.5	5.6	7.0
	N	22	22	21	22
DAYS 6-9	MEAN	67	62	55 **	48 **
	ST.DEV.	7.7	11.7	11.1	11.0
	N	22	22	21	22
DAYS 9-12	MEAN	73	70	69	68
	ST.DEV.	9.3	9.7	8.8	9.9
	N	22	22	21	22
DAYS 12-15	MEAN	75	71	72	73
	ST.DEV.	6.8	8.3	6.8	9.6
	N	22	22	21	22
DAYS 15-18	MEAN	72	75	72	72
	ST.DEV.	7.2	7.0	9.3	12.6
	N	22	22	20	22
DAYS 18-21	MEAN	65	67	59	69
	ST.DEV.	6.2	10.7	21.0	14.1
	N	22	22	20	21
MEAN OF MEANS		73	72	69	69

*/** Dunnett-test based on pooled variance significant at 5% (*) or 1% (**) level
Explanations for excluded data are listed in the tables of the individual values

1.10 MACROSCOPIC FINDINGS SUMMARY
FEMALES

	GROUP 1 CONTROL	GROUP 2 100 MG/KG	GROUP 3 300 MG/KG	GROUP 4 600 MG/KG
POST COITUM				
Animals examined	22	22	22	22
Animals without findings	20	22	19	18
Animals affected	2	0	3	4
General observations				
Emaciated	0	0	1	2
Early delivery	0	0	0	1
Lungs				
Focus/foci	0	0	1	0
Stomach				
Focus/foci	1	0	0	1
Kidneys				
Pelvic dilation	0	0	0	1
Enlarged	0	0	0	1
Discolouration	0	0	0	1
Uterus				
Contains fluid	0	0	1	0
Skin				
Scab formation	1	0	0	0
Body cavities				
Contains fluid	0	0	1	0

/ ## Fisher's Exact test significant at 5% (#) or 1% (##) level

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:12 19-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 1.11 SUMMARY OF MATERNAL SURVIVAL AND PREGNANCY STATUS

DOSE GROUP :	1		2		3		4	
	NO.	%	NO.	%	NO.	%	NO.	%
FEMALES ON STUDY	22		22		22		22	
FEMALES THAT ABORTED OR DELIVERED	0	0.0	0	0.0	0	0.0	1	4.5
FEMALES THAT DIED	0	0.0	0	0.0	0	0.0	0	0.0
FEMALES THAT ABORTED	0	0.0	0	0.0	0	0.0	0	0.0
NONGRAVID	0	0.0	0	0.0	0	0.0	0	0.0
GRAVID	0	0.0	0	0.0	0	0.0	0	0.0
FEMALES THAT WERE EUTHANIZED	0	0.0	0	0.0	1	4.5	0	0.0
NONGRAVID	0	0.0	0	0.0	0	0.0	0	0.0
GRAVID	0	0.0	0	0.0	1	100.0	0	0.0
FEMALES EXAMINED AT SCHEDULED NECROPSY	22	100.0	22	100.0	21	95.5	21	95.5
NONGRAVID	0	0.0	0	0.0	1	4.8	0	0.0
GRAVID	22	100.0	22	100.0	20	95.2	21	100.0
WITH RESORPTIONS ONLY	0	0.0	0	0.0	0	0.0	0	0.0
WITH VIABLE FETUSES	22	100.0	22	100.0	20	100.0	21	100.0
TOTAL FEMALES GRAVID	22	100.0	22	100.0	21	95.5	22	100.0

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG

PSPSv4.01
05/19/2016

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:15 19-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 1.12 SUMMARY OF FETAL DATA AT SCHEDULED NECROPSY

GROUP	SEX M	SEX F	VIABLE FETUSES	DEAD FETUSES	RESORPTIONS EARLY	RESORPTIONS LATE	POST IMPLANTATION LOSS	IMPLANTATION SITES	CORPORA LUTEA	PRE IMPLANTATION LOSS	FETAL WEIGHTS IN GRAMS	NO. OF GRAVID FEMALES
1 TOTAL	117	122	239	0	18	0	18	257	274	17	NA	22
MEAN	5.3	5.5	10.9	0.0	0.8	0.0	0.8	11.7	12.5	0.8	5.2	
S.D.	2.19	1.95	1.98	0.00	0.96	0.00	0.96	1.59	1.57	1.02	0.22	
2 TOTAL	97	106	203	0	13	0	13	216	247	31	NA	22
MEAN	4.4	4.8	9.2	0.0	0.6	0.0	0.6	9.8	11.2	1.4	5.1	
S.D.	1.99	2.61	2.69	0.00	1.14	0.00	1.14	2.50	1.51	1.89	0.25	
3 TOTAL	93	92	185	0	17	0	17	202	228	26	NA	20
MEAN	4.7	4.6	9.3	0.0	0.9	0.0	0.9	10.1	11.4	1.3	4.6**	
S.D.	1.66	2.64	3.11	0.00	1.04	0.00	1.04	3.02	1.19	2.25	0.51	
4 TOTAL	106	100	206	0	17	1	18	224	246	22	NA	21
MEAN	5.0	4.8	9.8	0.0	0.8	0.0	0.9	10.7	11.7	1.0	4.3**	
S.D.	1.91	1.87	2.52	0.00	1.03	0.22	1.01	2.82	1.90	2.27	0.57	

** = Significantly different from the control group at 0.01
NA = NOT APPLICABLE
MEAN NUMBER OF VIABLE FETUSES, MEAN NUMBER OF IMPLANTATION SITES, MEAN NUMBER OF CORPORA LUTEA,
FETAL WEIGHTS COMPARED USING DUNNETT'S TEST

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG

PLSUv5.12
05/19/2016

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:17 19-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 1.13 SUMMARY OF FETAL DATA AT SCHEDULED NECROPSY [% PER LITTER]

GROUP:	0 MG/KG	100 MG/KG	300 MG/KG	600 MG/KG
CORPORA LUTEA				
MEAN	12.5	11.2	11.4	11.7
S.D.	1.57	1.51	1.19	1.90
N	22	22	20	21
IMPLANTATION SITES				
MEAN	11.7	9.8	10.1	10.7
S.D.	1.59	2.50	3.02	2.82
N	22	22	20	21
VIABLE FETUSES (%)				
MEAN	92.7	94.1	91.5	92.7
S.D.	9.08	11.18	10.14	7.85
N	22	22	20	21
DEAD FETUSES (%)				
MEAN	0.0	0.0	0.0	0.0
S.D.	0.00	0.00	0.00	0.00
N	22	22	20	21
EARLY RESORPTIONS (%)				
MEAN	7.3	5.9	8.5	6.7
S.D.	9.08	11.18	10.14	7.91
N	22	22	20	21
LATE RESORPTIONS (%)				
MEAN	0.0	0.0	0.0	0.6
S.D.	0.00	0.00	0.00	2.73
N	22	22	20	21

PROPORTIONAL (%) DATA COMPARED USING THE MANN-WHITNEY TEST
CORPORA LUTEA AND IMPLANTATION SITES COMPARED USING DUNNETT'S TEST
None significantly different from control group

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:17 19-MAY-16 PAGE 2
SPONSOR:3M BELGIUM 1.13 SUMMARY OF FETAL DATA AT SCHEDULED NECROPSY [% PER LITTER]

GROUP:	0 MG/KG	100 MG/KG	300 MG/KG	600 MG/KG
TOTAL RESORPTIONS (%)				
MEAN	7.3	5.9	8.5	7.3
S.D.	9.08	11.18	10.14	7.85
N	22	22	20	21
PRE-IMPLANTATION LOSS (%)				
MEAN	6.0	13.3	12.7	8.8
S.D.	7.78	20.67	23.06	19.03
N	22	22	20	21
POST-IMPLANTATION LOSS (%)				
MEAN	7.3	5.9	8.5	7.3
S.D.	9.08	11.18	10.14	7.85
N	22	22	20	21
MALES (%)				
MEAN	48.5	47.4	53.3	53.0
S.D.	18.75	23.17	18.92	18.21
N	22	22	20	21
FEMALES (%)				
MEAN	51.5	52.6	46.7	47.0
S.D.	18.75	23.17	18.92	18.21
N	22	22	20	21
MALE FETAL WEIGHTS (g)				
MEAN	5.3	5.2	4.7**	4.4**
S.D.	0.28	0.26	0.55	0.59
N	22	21	20	21

PROPORTIONAL (%) DATA COMPARED USING THE MANN-WHITNEY TEST
FETAL WEIGHTS COMPARED USING DUNNETT'S TEST
** = Significantly different from the control group at 0.01

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:17 19-MAY-16 PAGE 3
SPONSOR:3M BELGIUM 1.13 SUMMARY OF FETAL DATA AT SCHEDULED NECROPSY [% PER LITTER]

GROUP:	0 MG/KG	100 MG/KG	300 MG/KG	600 MG/KG
FEMALE FETAL WEIGHTS (g)				
MEAN	5.1	5.0	4.5**	4.1**
S.D.	0.21	0.30	0.49	0.60
N	22	22	19	20
COMBINED FETAL WEIGHTS (g)				
MEAN	5.2	5.1	4.6**	4.3**
S.D.	0.22	0.25	0.51	0.57
N	22	22	20	21

PROPORTIONAL (%) DATA COMPARED USING THE MANN-WHITNEY TEST
FETAL WEIGHTS COMPARED USING DUNNETT'S TEST
** = Significantly different from the control group at 0.01

PLPSUv5.10
05/19/2016

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:20 19-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 1.14 SUMMARY OF FETUSES AND LITTERS WITH MALFORMATIONS [ABSOLUTE NO.]

DAY 21

	FETUSES				LITTERS			
DOSE GROUP:	1	2	3	4	1	2	3	4
NUMBER EXAMINED EXTERNALLY	239	203	185	206	22	22	20	21
TRUNK- OMPHALOCELE	1	0	0	0	1	0	0	0
EYE- BULGE ABSENT AND/OR SMALL	1	0	0	0	1	0	0	0
CLEFT PALATE	0	0	0	2	0	0	0	1
NUMBER EXAMINED VISCERALLY	122	102	91	103	22	22	20	21
SITUS INVERSUS	0	0	0	1	0	0	0	1
EYE(S)- ABSENT AND/OR SMALL	0	0	0	2	0	0	0	2
NUMBER EXAMINED SKELETALLY	117	101	94	104	22	21	20	21
SKULL BONES- FUSED	1	0	0	0	1	0	0	0
STERNOSCHISIS	1	0	0	0	1	0	0	0
RIB ANOMALY	0	0	2	1	0	0	1	1
BENT LIMB BONE(S)	1	0	3	0	1	0	3	0
VERTEBRAL ANOMALY WITH OR WITHOUT ASSOCIATED RIB ANOMALY	2	0	1	0	2	0	1	0
STERNEBRA(E) MALALIGNED (SEVERE)	0	0	0	1	0	0	0	1
METACARPAL(S) AND/OR METATARSAL(S) MALPOSITIONED	0	0	2	0	0	0	2	0
TOTAL NUMBER WITH MALFORMATIONS								
EXTERNAL :	1	0	0	2	1	0	0	1
SOFT TISSUE :	0	0	0	3	0	0	0	3
SKELETAL :	4	0	8	2	4	0	6	2
COMBINED :	4	0	8	7	4	0	6	6

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG

PMALv5.08
05/19/2016

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:24 19-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 1.15 SUMMARY OF LITTER PROPORTIONS OF MALFORMATIONS
% PER LITTER DAY 21

DOSE GROUP:		1	2	3	4
NUMBER OF LITTERS EXAMINED EXTERNALLY		22	22	20	22 @
TRUNK- OMPHALOCELE	MEAN	0.6	0.0	0.0	0.0
	S.D.	2.67	0.00	0.00	0.00
EYE- BULGE ABSENT AND/OR SMALL	MEAN	0.6	0.0	0.0	0.0
	S.D.	2.67	0.00	0.00	0.00
CLEFT PALATE	MEAN	0.0	0.0	0.0	0.8
	S.D.	0.00	0.00	0.00	3.88

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG
None significantly different from control group

@: including female no. 69 that delivered on Day 21

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:24 19-MAY-16 PAGE 2
SPONSOR:3M BELGIUM 1.15 SUMMARY OF LITTER PROPORTIONS OF MALFORMATIONS
% PER LITTER DAY 21

DOSE GROUP:		1	2	3	4
NUMBER OF LITTERS EXAMINED VISCERALLY		22	22	20	22 @
SITUS INVERSUS	MEAN	0.0	0.0	0.0	0.6
	S.D.	0.00	0.00	0.00	3.05
EYE(S)- ABSENT AND/OR SMALL	MEAN	0.0	0.0	0.0	2.0
	S.D.	0.00	0.00	0.00	6.67

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG
None significantly different from control group

@: including female no. 69 that delivered on Day 21

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:24 19-MAY-16 PAGE 3
SPONSOR:3M BELGIUM 1.15 SUMMARY OF LITTER PROPORTIONS OF MALFORMATIONS
% PER LITTER DAY 21

DOSE GROUP:		1	2	3	4
NUMBER OF LITTERS EXAMINED SKELETALLY		22	21	20	22 @
SKULL BONES- FUSED	MEAN	1.1	0.0	0.0	0.0
	S.D.	5.33	0.00	0.00	0.00
STERNOSCHISIS	MEAN	1.1	0.0	0.0	0.0
	S.D.	5.33	0.00	0.00	0.00
RIB ANOMALY	MEAN	0.0	0.0	2.0	0.9
	S.D.	0.00	0.00	8.94	4.26
BENT LIMB BONE(S)	MEAN	0.9	0.0	8.5	0.0
	S.D.	4.26	0.00	24.55	0.00
VERTEBRAL ANOMALY WITH OR WITHOUT ASSOCIATED RIB ANOMALY	MEAN	1.5	0.0	1.3	0.0
	S.D.	4.90	0.00	5.59	0.00
STERNEBRA(E) MALALIGNED (SEVERE)	MEAN	0.0	0.0	0.0	0.9
	S.D.	0.00	0.00	0.00	4.26
METACARPAL(S) AND/OR METATARSAL(S) MALPOSITIONED	MEAN	0.0	0.0	1.8	0.0
	S.D.	0.00	0.00	5.67	0.00

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG
None significantly different from control group

@: including female no. 69 that delivered on Day 21

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:24 19-MAY-16 PAGE 4
SPONSOR:3M BELGIUM 1.15 SUMMARY OF LITTER PROPORTIONS OF MALFORMATIONS
% PER LITTER DAY 21

DOSE GROUP:		1	2	3	4
NUMBER OF LITTERS EXAMINED		22	22	20	22 @
TOTAL MALFORMATIONS					
PERCENT PER LITTER WITH EXTERNAL MALFORMATIONS	MEAN	0.6	0.0	0.0	0.8
	S.D.	2.67	0.00	0.00	3.88
PERCENT PER LITTER WITH SOFT TISSUE MALFORMATIONS	MEAN	0.0	0.0	0.0	2.7
	S.D.	0.00	0.00	0.00	7.14
PERCENT PER LITTER WITH SKELETAL MALFORMATIONS	MEAN	3.6	0.0*	13.6	1.8
	S.D.	7.87	0.00	26.86	5.88
TOTAL PERCENT PER LITTER WITH MALFORMATIONS	MEAN	3.0	0.0*	13.6	5.3
	S.D.	6.60	0.00	26.86	9.08

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG
* = Significantly different from the control group at 0.05

@: including female no. 69 that delivered on Day 21

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:20 19-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 1.16 SUMMARY OF FETUSES AND LITTERS WITH VARIATIONS [ABSOLUTE NO.]

DAY 21

	FETUSES				LITTERS			
DOSE GROUP:	1	2	3	4	1	2	3	4
NUMBER EXAMINED EXTERNALLY	239	203	185	206	22	22	20	21
NUMBER WITH FINDINGS	0	0	0	0	0	0	0	0
NUMBER EXAMINED VISCERALLY	122	102	91	103	22	22	20	21
LIVER- APPENDIX	6	5	2	3	4	3	1	3
LIVER- SMALL SUPERNUMERARY LOBE(S)	7	8	4	3	4	8	3	3
THYMUS- PARTIALLY UNDESCENDED HORN(S)	0	0	1	0	0	0	1	0
LIVER- DISCOLORED	0	1	1	4	0	1	1	3
URETER(S)- CONVOLUTED	0	0	0	3	0	0	0	1
URETER(S)- DILATED	0	0	0	1	0	0	0	1
NUMBER EXAMINED SKELETALLY	117	101	94	104	22	21	20	21
14TH RUDIMENTARY RIB(S)	61	51	47	50	20	20	17	20
14TH FULL RIB(S)	7	11	18	31	4	7	10	14
PELVIC GIRDLE- CAUDAL SHIFT	6	14	26	46	4	8	12	17
REDUCED OSSIFICATION OF THE SKULL	10	1	2	5	4	1	2	4
STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	23	18	31	23	11	14	14	13
BENT RIB(S)	21	5	6	2	11	4	5	1
VERTEBRAL CENTRA- REDUCED OSSIFICATION	3	2	0	1	3	2	0	1
7TH CERVICAL OSSIFICATION SITE(S)	9	3	0	0	6	3	0	0
METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	1	6	10	51	1	4	7	16
STERNEBRA(E)- BRANCHED	1	0	0	0	1	0	0	0
SKULL- SUPERNUMERARY SITE	0	0	1	0	0	0	1	0
SKULL BONE- UNOSSIFIED LINE	0	0	0	1	0	0	0	1
STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	0	0	0	1	0	0	0	1

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG

PMALv5.08
05/19/2016

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:24 19-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 1.17 SUMMARY OF LITTER PROPORTIONS OF VARIATIONS
% PER LITTER DAY 21

DOSE GROUP:	1	2	3	4
NUMBER OF LITTERS EXAMINED EXTERNALLY	22	22	20	22 @
NUMBER OF LITTERS WITH FINDINGS	0	0	0	0

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG
None significantly different from control group

@: including female no. 69 that delivered on Day 21

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:24 19-MAY-16 PAGE 2
SPONSOR:3M BELGIUM 1.17 SUMMARY OF LITTER PROPORTIONS OF VARIATIONS
% PER LITTER DAY 21

DOSE GROUP:		1	2	3	4
NUMBER OF LITTERS EXAMINED VISCERALLY		22	22	20	22 @
LIVER- APPENDIX	MEAN	4.7	5.6	2.0	2.5
	S.D.	11.89	16.37	8.94	6.44
LIVER- SMALL SUPERNUMERARY LOBE(S)	MEAN	6.4	8.0	4.0	2.4
	S.D.	16.25	11.33	10.46	6.27
THYMUS- PARTIALLY UNDESCENDED HORN(S)	MEAN	0.0	0.0	1.3	0.0
	S.D.	0.00	0.00	5.59	0.00
LIVER- DISCOLORED	MEAN	0.0	0.8	0.7	3.8
	S.D.	0.00	3.55	3.19	10.20
URETER(S)- CONVOLUTED	MEAN	0.0	0.0	0.0	2.3
	S.D.	0.00	0.00	0.00	10.66
URETER(S)- DILATED	MEAN	0.0	0.0	0.0	0.8
	S.D.	0.00	0.00	0.00	3.55

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG
None significantly different from control group

@: including female no. 69 that delivered on Day 21

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:24 19-MAY-16 PAGE 3
SPONSOR:3M BELGIUM 1.17 SUMMARY OF LITTER PROPORTIONS OF VARIATIONS
% PER LITTER DAY 21

DOSE GROUP:		1	2	3	4
NUMBER OF LITTERS EXAMINED SKELETALLY		22	21	20	22 @
14TH RUDIMENTARY RIB(S)	MEAN	51.3	50.5	50.8	47.7
	S.D.	26.34	27.95	34.38	25.63
14TH FULL RIB(S)	MEAN	5.7	9.9	19.5*	28.4**
	S.D.	13.16	15.96	26.34	27.93
PELVIC GIRDLE- CAUDAL SHIFT	MEAN	5.0	13.2	29.8**	45.0**
	S.D.	11.48	21.06	33.09	27.66
REDUCED OSSIFICATION OF THE SKULL	MEAN	7.1	0.8	6.0	4.5
	S.D.	19.56	3.64	22.57	10.20
STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	MEAN	20.1	17.9	34.6	26.5
	S.D.	25.24	17.52	31.90	26.48
BENT RIB(S)	MEAN	19.1	4.8*	14.5	2.3**
	S.D.	24.86	10.82	31.70	10.66
VERTEBRAL CENTRA- REDUCED OSSIFICATION	MEAN	2.3	2.1	0.0	0.8
	S.D.	6.03	6.81	0.00	3.55
7TH CERVICAL OSSIFICATION SITE(S)	MEAN	7.1	2.9	0.0*	0.0**
	S.D.	13.41	7.49	0.00	0.00
METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	MEAN	0.8	5.1	11.7**	49.6**
	S.D.	3.55	11.64	17.38	41.51
STERNEBRA(E)- BRANCHED	MEAN	0.8	0.0	0.0	0.0
	S.D.	3.55	0.00	0.00	0.00

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG
* = Significantly different from the control group at 0.05
** = Significantly different from the control group at 0.01

@: including female no. 69 that delivered on Day 21

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:24 19-MAY-16 PAGE 4
SPONSOR:3M BELGIUM 1.17 SUMMARY OF LITTER PROPORTIONS OF VARIATIONS
% PER LITTER DAY 21

DOSE GROUP:		1	2	3	4
NUMBER OF LITTERS EXAMINED SKELETALLY		22	21	20	22 @
SKULL- SUPERNUMERARY SITE	MEAN	0.0	0.0	0.8	0.0
	S.D.	0.00	0.00	3.73	0.00
SKULL BONE- UNOSSIFIED LINE	MEAN	0.0	0.0	0.0	1.1
	S.D.	0.00	0.00	0.00	5.33
STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	MEAN	0.0	0.0	0.0	0.8
	S.D.	0.00	0.00	0.00	3.55

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG
None significantly different from control group

@: including female no. 69 that delivered on Day 21

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:24 19-MAY-16 PAGE 5
SPONSOR:3M BELGIUM 1.17 SUMMARY OF LITTER PROPORTIONS OF VARIATIONS
% PER LITTER DAY 21

DOSE GROUP:		1	2	3	4
NUMBER OF LITTERS EXAMINED		22	22	20	22 @
TOTAL VARIATIONS					
PERCENT PER LITTER WITH EXTERNAL VARIATIONS	MEAN	0.0	0.0	0.0	0.0
	S.D.	0.00	0.00	0.00	0.00
PERCENT PER LITTER WITH SOFT TISSUE VARIATIONS	MEAN	11.1	14.4	8.0	10.2
	S.D.	18.50	19.90	13.69	16.19
PERCENT PER LITTER WITH SKELETAL VARIATIONS	MEAN	77.7	69.6	87.1	90.4*
	S.D.	23.85	31.73	22.40	19.47
TOTAL PERCENT PER LITTER WITH VARIATIONS	MEAN	88.8	80.9	95.1	100.6
	S.D.	31.94	31.07	25.68	26.05

1- 0 MG/KG 2- 100 MG/KG 3- 300 MG/KG 4- 600 MG/KG
* = Significantly different from the control group at 0.05

PMALKv5.07
@: including female no. 69 that delivered on Day 21 05/19/2016

APPENDIX 2 INDIVIDUAL DATA TABLES

2.1 MORTALITY DATA
FEMALES

F0-GENERATION

ANIMAL	SCHEDULED NECROPSY	KILLED IN EXTREMIS	DAY OF DEATH
GROUP 1 (CONTROL)			
1	11APR16		Day 21 of Post coitum
2	11APR16		Day 21 of Post coitum
3	11APR16		Day 21 of Post coitum
4	11APR16		Day 21 of Post coitum
5	11APR16		Day 21 of Post coitum
6	11APR16		Day 21 of Post coitum
7	12APR16		Day 21 of Post coitum
8	12APR16		Day 21 of Post coitum
9	12APR16		Day 21 of Post coitum
10	12APR16		Day 21 of Post coitum
11	12APR16		Day 21 of Post coitum
12	13APR16		Day 21 of Post coitum
13	13APR16		Day 21 of Post coitum
14	13APR16		Day 21 of Post coitum
15	13APR16		Day 21 of Post coitum
16	13APR16		Day 21 of Post coitum
17	13APR16		Day 21 of Post coitum
18	14APR16		Day 21 of Post coitum
19	14APR16		Day 21 of Post coitum
20	14APR16		Day 21 of Post coitum
21	14APR16		Day 21 of Post coitum
22	14APR16		Day 21 of Post coitum
GROUP 2 (100 MG/KG)			
23	11APR16		Day 21 of Post coitum
24	11APR16		Day 21 of Post coitum
25	11APR16		Day 21 of Post coitum
26	11APR16		Day 21 of Post coitum
27	11APR16		Day 21 of Post coitum
28	12APR16		Day 21 of Post coitum
29	12APR16		Day 21 of Post coitum
30	12APR16		Day 21 of Post coitum
31	12APR16		Day 21 of Post coitum
32	12APR16		Day 21 of Post coitum
33	12APR16		Day 21 of Post coitum
34	13APR16		Day 21 of Post coitum
35	13APR16		Day 21 of Post coitum
36	13APR16		Day 21 of Post coitum
37	13APR16		Day 21 of Post coitum
38	13APR16		Day 21 of Post coitum
39	14APR16		Day 21 of Post coitum
40	14APR16		Day 21 of Post coitum
41	14APR16		Day 21 of Post coitum
42	14APR16		Day 21 of Post coitum
43	14APR16		Day 21 of Post coitum
44	14APR16		Day 21 of Post coitum
GROUP 3 (300 MG/KG)			
45	11APR16		Day 21 of Post coitum
46	11APR16		Day 21 of Post coitum
47	11APR16		Day 21 of Post coitum
48	11APR16		Day 21 of Post coitum
49	11APR16		Day 21 of Post coitum
50	12APR16		Day 21 of Post coitum
51	12APR16		Day 21 of Post coitum
52	12APR16		Day 21 of Post coitum
53	12APR16		Day 21 of Post coitum
54	12APR16		Day 21 of Post coitum
55	12APR16		Day 21 of Post coitum
56		08APR16	Day 16 of Post coitum
57	13APR16		Day 21 of Post coitum
58	13APR16		Day 21 of Post coitum

2.1 MORTALITY DATA
FEMALES

F0-GENERATION

ANIMAL	SCHEDULED NECROPSY	KILLED IN EXTREMIS	DAY OF DEATH
GROUP 3 (300 MG/KG)			
59	13APR16		Day 21 of Post coitum
60	13APR16		Day 21 of Post coitum
61	14APR16		Day 21 of Post coitum
62	14APR16		Day 21 of Post coitum
63	14APR16		Day 21 of Post coitum
64	14APR16		Day 21 of Post coitum
65	14APR16		Day 21 of Post coitum
66	14APR16		Day 21 of Post coitum
GROUP 4 (600 MG/KG)			
67	11APR16		Day 21 of Post coitum
68	11APR16		Day 21 of Post coitum
69	11APR16		Day 21 of Post coitum
70	11APR16		Day 21 of Post coitum
71	11APR16		Day 21 of Post coitum
72	11APR16		Day 21 of Post coitum
73	12APR16		Day 21 of Post coitum
74	12APR16		Day 21 of Post coitum
75	12APR16		Day 21 of Post coitum
76	12APR16		Day 21 of Post coitum
77	12APR16		Day 21 of Post coitum
78	13APR16		Day 21 of Post coitum
79	13APR16		Day 21 of Post coitum
80	13APR16		Day 21 of Post coitum
81	13APR16		Day 21 of Post coitum
82	13APR16		Day 21 of Post coitum
83	13APR16		Day 21 of Post coitum
84	14APR16		Day 21 of Post coitum
85	14APR16		Day 21 of Post coitum
86	14APR16		Day 21 of Post coitum
87	14APR16		Day 21 of Post coitum
88	14APR16		Day 21 of Post coitum

2.2 CLINICAL SIGNS
FEMALES

SIGN (MAX. GRADE) (LOCATION)	WEEK: DAY:	PRE TREATMENT 1. . . 1234	TREATMENT 1. 123456712345671
GROUP 1 (CONTROL)			
ANIMAL 1			
Skin / fur			
Scabs (3)	G:	. . . .	 1
(Neck)			
ANIMAL 2			
No clinical signs noted			
ANIMAL 3			
No clinical signs noted			
ANIMAL 4			
No clinical signs noted			
ANIMAL 5			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11
ANIMAL 6			
No clinical signs noted			
ANIMAL 7			
No clinical signs noted			
ANIMAL 8			
No clinical signs noted			
ANIMAL 9			
No clinical signs noted			
ANIMAL 10			
No clinical signs noted			
ANIMAL 11			
No clinical signs noted			
ANIMAL 12			
No clinical signs noted			
ANIMAL 13			
No clinical signs noted			
ANIMAL 14			
No clinical signs noted			
ANIMAL 15			
No clinical signs noted			
ANIMAL 16			
No clinical signs noted			
ANIMAL 17			
No clinical signs noted			
ANIMAL 18			
No clinical signs noted			
ANIMAL 19			
No clinical signs noted			
ANIMAL 20			
No clinical signs noted			
ANIMAL 21			
No clinical signs noted			
ANIMAL 22			
No clinical signs noted			
GROUP 2 (100 MG/KG)			
ANIMAL 23			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 24			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 25			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 26			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111

G: Highest daily grades
.: Observation performed, sign not present

2.2 CLINICAL SIGNS
FEMALES

SIGN (MAX. GRADE) (LOCATION)	WEEK: DAY:	PRE TREATMENT 1. . . 1234	TREATMENT 1. 123456712345671
GROUP 2 (100 MG/KG)			
ANIMAL 27			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 28			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 29			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 30			
Breathing			
Rales (3)	G:	. . . .	 11111
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 31			
Breathing			
Rales (3)	G:	. . . .	. 1. . . . .
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 32			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 33			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 34			
No clinical signs noted			
ANIMAL 35			
No clinical signs noted			
ANIMAL 36			
No clinical signs noted			
ANIMAL 37			
No clinical signs noted			
ANIMAL 38			
No clinical signs noted			
ANIMAL 39			
No clinical signs noted			
ANIMAL 40			
No clinical signs noted			
ANIMAL 41			
No clinical signs noted			
ANIMAL 42			
No clinical signs noted			
ANIMAL 43			
No clinical signs noted			
ANIMAL 44			
Breathing			
Rales (3)	G:	. . . .	 1
GROUP 3 (300 MG/KG)			
ANIMAL 45			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 46			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 47			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 48			
Secretion / excretion			

G: Highest daily grades
.: Observation performed, sign not present

2.2 CLINICAL SIGNS
FEMALES

SIGN (MAX. GRADE) (LOCATION)	WEEK: DAY:	PRE TREATMENT 1. . . 1234	TREATMENT 1. 123456712345671
GROUP 3 (300 MG/KG)			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 49			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 50			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 51			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111112111
ANIMAL 52			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 53			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 54			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
Faeces production reduced (3)	G:	. . . .	. . . 1111. . . . .
ANIMAL 55			
Breathing			
Rales (3)	G:	. . . .	. . . . . 11. . . . .
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 56			
Breathing			
Laboured respiration (3)	G:	. . . .	 3
Rales (3)	G:	. . . .	 13
Secretion / excretion			
Chromodacryorrhoea (3) (Snout)	G:	. . . .	 1
ANIMAL 57			
Breathing			
Rales (3)	G:	. . . .	. . . . . 111.
Secretion / excretion			
Salivation (3)	G:	. . . .	 1111
Various			
Pale (3) (Faeces)	G:	. . . .	 1
ANIMAL 58			
Breathing			
Rales (3)	G:	. . . .	. . . . . 11111.
ANIMAL 59			
Posture			
Hunched posture (1)	G:	. . . .	. . . 11. . . . .
Breathing			
Rales (3)	G:	. . . .	. . . 221. . . 11111.
Skin / fur			
Piloerection (1)	G:	. . . .	. . . 111. 1
ANIMAL 60			
Various			
Lean (1)	G:	. . . .	 11111
ANIMAL 61			
No clinical signs noted			
ANIMAL 62			
No clinical signs noted			
ANIMAL 63			
No clinical signs noted			
ANIMAL 64			
Skin / fur			

G: Highest daily grades
.: Observation performed, sign not present

2.2 CLINICAL SIGNS
FEMALES

SIGN (MAX. GRADE) (LOCATION)	WEEK: DAY:	PRE TREATMENT 1. . . 1234	TREATMENT 1. 123456712345671
GROUP 3 (300 MG/KG)			
Piloerection (1)	G:	. . . .	. . . . . 1. . . .
Various			
Lean (1)	G:	. . . .	 11111
ANIMAL 65			
No clinical signs noted			
ANIMAL 66			
No clinical signs noted			
GROUP 4 (600 MG/KG)			
ANIMAL 67			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 68			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 69			
Posture			
Hunched posture (1)	G:	. . . .	 111
Breathing			
Rales (3)	G:	. . . .	 133
Skin / fur			
Piloerection (1)	G:	. . . .	 111
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111133
Various			
Pale (3) (Faeces)	G:	. . . .	 11
Lean (1)	G:	. . . .	 1111
ANIMAL 70			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
Various			
Pale (3) (Faeces)	G:	. . . .	 11
Lean (1)	G:	. . . .	 11
ANIMAL 71			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 72			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
Chromodacryorrhoea (3) (Snout)	G:	. . . .	. . . . . 1. . . .
ANIMAL 73			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . 1111111111111
ANIMAL 74			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 75			
Skin / fur			
Piloerection (1)	G:	. . . .	 111
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 76			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . 1111111111111
Various			
Pale (3) (Faeces)	G:	. . . .	 11111
Lean (1)	G:	. . . .	 11

G: Highest daily grades
.: Observation performed, sign not present

2.2 CLINICAL SIGNS
FEMALES

SIGN (MAX. GRADE) (LOCATION)	WEEK: DAY:	PRE TREATMENT 1. . . 1234	TREATMENT 1. 123456712345671
GROUP 4 (600 MG/KG)			
ANIMAL 77			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
ANIMAL 78			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 79			
No clinical signs noted			
ANIMAL 80			
Secretion / excretion			
Salivation (3)	G:	. . . .	 11111111111
Faeces production reduced (3)	G:	. . . .	. . . . 1111. . . . .
Various			
Pale (3)	G:	. . . .	 1111
(Faeces)			
Lean (1)	G:	. . . .	 111
ANIMAL 81			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . . 111111111111
ANIMAL 82			
No clinical signs noted			
ANIMAL 83			
Skin / fur			
Piloerection (1)	G:	. . . .	 111
Various			
Lean (1)	G:	. . . .	 111
ANIMAL 84			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . 1111111111111
ANIMAL 85			
Various			
Pale (3)	G:	. . . .	 11111
(Faeces)			
ANIMAL 86			
No clinical signs noted			
ANIMAL 87			
Breathing			
Rales (3)	G:	. . . .	. . . . . 2.
Secretion / excretion			
Salivation (3)	G:	. . . .	. . 1111111111111
Various			
Pale (3)	G:	. . . .	. . . . . 1111.
(Faeces)			
Lean (1)	G:	. . . .	 1111
ANIMAL 88			
Secretion / excretion			
Salivation (3)	G:	. . . .	. . 1111111111111
Chromodacryorrhoea (3)	G:	. . . .	. . . . . 11. . . . .
(Snout)			

G: Highest daily grades
.: Observation performed, sign not present

2.3 BODY WEIGHTS (GRAM)
FEMALES

F0-GENERATION

	POST COITUM						
DAYS	2	6	9	12	15	18	21
ANIMAL							
GROUP 1 (CONTROL)							
1	210	223	230	239	247	269	305
2	245	264	277	291	310	345	396
3	214	225	235	250	264	288	325
4	185	195	198	209	221	249	278
5	206	223	229	245	257	282	311
6	203	215	213	229	247	278	318
7	205	222	229	244	264	286	317
8	221	232	234	247	260	271	304
9	202	216	220	233	251	280	318
10	215	233	232	250	263	297	329
11	208	222	219	233	241	262	291
12	228	242	252	265	284	322	361
13	210	219	219	235	248	272	309
14	208	221	225	237	252	283	309
15	218	234	240	245	265	302	348
16	187	203	202	221	237	262	294
17	184	200	206	221	235	263	303
18	202	228	239	257	273	299	331
19	184	210	205	224	239	266	303
20	224	240	247	257	279	310	358
21	221	245	249	266	285	321	361
22	205	225	234	252	267	299	333
GROUP 2 (100 MG/KG)							
23	209	218	219	225	240	273	313
24	220	235	223	246	261	300	344
25	213	230	233	251	268	303	342
26	230	244	259	274	287	309	342
27	179	189	193	209	212	229	250
28	215	233	238	254	267	289	314
29	194	212	215	231	243	272	305
30	220	239	233	247	262	283	293
31	219	240	211	234	256	268	318
32	205	218	220	228	239	262	296
33	197	213	216	227	241	270	303
34	217	237	244	248	253	266	277
35	199	217	219	234	251	274	296
36	203	214	222	234	248	286	328
37	216	234	242	254	273	295	329
38	200	208	215	223	234	250	272
39	212	230	232	245	262	293	337
40	172	191	197	207	221	247	280
41	206	227	237	243	258	293	333
42	208	237	243	256	269	291	318
43	207	235	240	257	272	299	337
44	222	242	243	260	275	301	326
GROUP 3 (300 MG/KG)							
45	210	223	217	230	242	264	268
46	227	240	240	251	263	283	319
47	189	208	200	223	233	262	293
48	218	229	219	237	244	272	312
49 <NP>	203	209	210	216	221	223	225
50	211	233	231	246	263	288	330
51	217	239	237	252	259	276	303
52	207	224	230	242	251	267	284
53	234	253	252	260	260	282	309
54	198	215	203	230	243	267	302
55	191	214	220	233	246	269	297
56	232	252	219	249	268	---	---

<NP> Non-pregnant

2.3 BODY WEIGHTS (GRAM)
FEMALES

F0-GENERATION

	POST COITUM						
DAYS	2	6	9	12	15	18	21
ANIMAL							
GROUP 3 (300 MG/KG)							
57	219	225	227	240	260	252	242
58	206	225	224	240	243	260	258
59	197	214	200	214	228	241	224
60	187	208	206	223	233	249	281
61	190	211	209	227	246	277	310
62	193	206	199	216	226	233	247
63	199	215	209	225	240	255	276
64	223	243	247	261	274	305	338
65	224	251	253	271	287	326	360
66	204	223	213	235	251	277	302
GROUP 4 (600 MG/KG)							
67	194	209	195	214	226	247	277
68	213	219	207	228	237	263	289
69	210	223	215	236	239	245	250 (!)
70	222	232	224	244	255	274	285
71	189	202	198	212	217	228	219
72	247	259	249	265	260	294	290
73	224	247	244	258	271	302	338
74	215	222	216	227	249	280	315
75	204	216	211	231	250	263	242
76	203	224	215	235	252	260	299
77	195	214	213	230	248	278	311
78	211	232	230	249	263	301	341
79	205	215	216	234	247	278	318
80	207	216	199	216	229	252	271
81	204	220	217	238	250	274	298
82	213	233	223	239	237	270	309
83	211	227	217	241	249	274	310
84	202	218	219	235	252	286	310
85	207	226	227	240	255	281	315
86	221	249	243	270	288	316	354
87	189	211	202	221	204	215	236
88	212	232	225	245	257	275	274

(!) Determined after delivery

2.4 BODY WEIGHT GAIN (%)
FEMALES

F0-GENERATION

	POST COITUM						
DAYS	2	6	9	12	15	18	21
ANIMAL							
GROUP 1 (CONTROL)							
1	-6	0	3	7	11	21	37
2	-7	0	5	10	17	31	50
3	-5	0	4	11	17	28	44
4	-5	0	2	7	13	28	43
5	-8	0	3	10	15	26	39
6	-6	0	-1	7	15	29	48
7	-8	0	3	10	19	29	43
8	-5	0	1	6	12	17	31
9	-6	0	2	8	16	30	47
10	-8	0	0	7	13	27	41
11	-6	0	-1	5	9	18	31
12	-6	0	4	10	17	33	49
13	-4	0	0	7	13	24	41
14	-6	0	2	7	14	28	40
15	-7	0	3	5	13	29	49
16	-8	0	0	9	17	29	45
17	-8	0	3	11	18	32	52
18	-11	0	5	13	20	31	45
19	-12	0	-2	7	14	27	44
20	-7	0	3	7	16	29	49
21	-10	0	2	9	16	31	47
22	-9	0	4	12	19	33	48
GROUP 2 (100 MG/KG)							
23	-4	0	0	3	10	25	44
24	-6	0	-5	5	11	28	46
25	-7	0	1	9	17	32	49
26	-6	0	6	12	18	27	40
27	-5	0	2	11	12	21	32
28	-8	0	2	9	15	24	35
29	-8	0	1	9	15	28	44
30	-8	0	-3	3	10	18	23
31	-9	0	-12	-3	7	12	33
32	-6	0	1	5	10	20	36
33	-8	0	1	7	13	27	42
34	-8	0	3	5	7	12	17
35	-8	0	1	8	16	26	36
36	-5	0	4	9	16	34	53
37	-8	0	3	9	17	26	41
38	-4	0	3	7	13	20	31
39	-8	0	1	7	14	27	47
40	-10	0	3	8	16	29	47
41	-9	0	4	7	14	29	47
42	-12	0	3	8	14	23	34
43	-12	0	2	9	16	27	43
44	-8	0	0	7	14	24	35
GROUP 3 (300 MG/KG)							
45	-6	0	-3	3	9	18	20
46	-5	0	0	5	10	18	33
47	-9	0	-4	7	12	26	41
48	-5	0	-4	3	7	19	36
49 <NP>	-3	0	0	3	6	7	8
50	-9	0	-1	6	13	24	42
51	-9	0	-1	5	8	15	27
52	-8	0	3	8	12	19	27
53	-8	0	0	3	3	11	22
54	-8	0	-6	7	13	24	40
55	-11	0	3	9	15	26	39
56	-8	0	-13	-1	6	---	---

<NP> Non-pregnant

2.4 BODY WEIGHT GAIN (%)
FEMALES

F0-GENERATION

	POST COITUM						
DAYS	2	6	9	12	15	18	21
ANIMAL							
GROUP 3 (300 MG/KG) 57							
-3		0	1	7	16	12	8
58	-8	0	0	7	8	16	15
59	-8	0	-7	0	7	13	5
60	-10	0	-1	7	12	20	35
61	-10	0	-1	8	17	31	47
62	-6	0	-3	5	10	13	20
63	-7	0	-3	5	12	19	28
64	-8	0	2	7	13	26	39
65	-11	0	1	8	14	30	43
66	-9	0	-4	5	13	24	35
GROUP 4 (600 MG/KG) 67							
-7		0	-7	2	8	18	33
68	-3	0	-5	4	8	20	32
69	-6	0	-4	6	7	10	12 (!)
70	-4	0	-3	5	10	18	23
71	-6	0	-2	5	7	13	8
72	-5	0	-4	2	0	14	12
73	-9	0	-1	4	10	22	37
74	-3	0	-3	2	12	26	42
75	-6	0	-2	7	16	22	12
76	-9	0	-4	5	13	16	33
77	-9	0	0	7	16	30	45
78	-9	0	-1	7	13	30	47
79	-5	0	0	9	15	29	48
80	-4	0	-8	0	6	17	25
81	-7	0	-1	8	14	25	35
82	-9	0	-4	3	2	16	33
83	-7	0	-4	6	10	21	37
84	-7	0	0	8	16	31	42
85	-8	0	0	6	13	24	39
86	-11	0	-2	8	16	27	42
87	-10	0	-4	5	-3	2	12
88	-9	0	-3	6	11	19	18

(!) Determined after delivery

2.5 CORRECTED BODY WEIGHT GAIN OF DAMS
FEMALES

F0-GENERATION - POST COITUM

FEMALE	WEIGHT ON DAY 6 P.C.	WEIGHT ON DAY OF SECTION	WEIGHT OF UTERUS	CORRECTED WEIGHT GAIN GRAM<1>	CORRECTED WEIGHT GAIN PERCENT<2>
GROUP 1 (CONTROL)					
1	223.0	305.0	59.3	22.7	10.2
2	264.0	396.0	100.8	31.2	11.8
3	225.0	325.0	78.8	21.2	9.4
4	195.0	278.0	64.3	18.7	9.6
5	223.0	311.0	61.3	26.7	12.0
6	215.0	318.0	87.5	15.5	7.2
7	222.0	317.0	63.7	31.3	14.1
8	232.0	304.0	71.8	0.2	0.1
9	216.0	318.0	72.8	29.2	13.5
10	233.0	329.0	87.5	8.5	3.6
11	222.0	291.0	50.7	18.3	8.3
12	242.0	361.0	79.1	39.9	16.5
13	219.0	309.0	78.6	11.4	5.2
14	221.0	309.0	73.7	14.3	6.5
15	234.0	348.0	86.5	27.5	11.7
16	203.0	294.0	63.3	27.7	13.7
17	200.0	303.0	77.0	26.0	13.0
18	228.0	331.0	79.1	23.9	10.5
19	210.0	303.0	70.6	22.4	10.7
20	240.0	358.0	83.8	34.2	14.2
21	245.0	361.0	97.9	18.1	7.4
22	225.0	333.0	77.7	30.3	13.5
		N	22	22	22
		MEAN	75.7	22.7	10.1
		ST.DEV.	12.4	9.2	3.9

*/** Dunnett-test based on pooled variance significant at 5% (*) or 1% (**) level
<2> : Corrected Weight Gain in percent of Weight on Day 6 P.C.
<1> : (Weight on Day of Section) - (Weight on Day 6 P.C.) - (Weight Uterus)

2.5 CORRECTED BODY WEIGHT GAIN OF DAMS
FEMALES

F0-GENERATION - POST COITUM

FEMALE	WEIGHT ON DAY 6 P.C.	WEIGHT ON DAY OF SECTION	WEIGHT OF UTERUS	CORRECTED WEIGHT GAIN GRAM<1>	CORRECTED WEIGHT GAIN PERCENT<2>
GROUP 2 (100 MG/KG)					
23	218.0	313.0	81.0	14.0	6.4
24	235.0	344.0	85.4	23.6	10.0
25	230.0	342.0	88.7	23.3	10.1
26	244.0	342.0	72.2	25.8	10.6
27	189.0	250.0	45.5	15.5	8.2
28	233.0	314.0	48.4	32.6	14.0
29	212.0	305.0	72.1	20.9	9.9
30	239.0	293.0	55.7	-1.7	-0.7
31	240.0	318.0	55.0	23.0	9.6
32	218.0	296.0	65.6	12.4	5.7
33	213.0	303.0	75.4	14.6	6.9
34	237.0	277.0	10.5	29.5	12.5
35	217.0	296.0	50.9	28.1	12.9
36	214.0	328.0	76.1	37.9	17.7
37	234.0	329.0	67.3	27.7	11.8
38	208.0	272.0	49.4	14.6	7.0
39	230.0	337.0	84.1	22.9	9.9
40	191.0	280.0	62.6	26.4	13.8
41	227.0	333.0	74.3	31.7	13.9
42	237.0	318.0	56.4	24.6	10.4
43	235.0	337.0	81.1	20.9	8.9
44	242.0	326.0	53.7	30.3	12.5
		N	22	22	22
		MEAN	64.2	22.7	10.1
		ST.DEV.	17.9	8.6	3.8

*/** Dunnett-test based on pooled variance significant at 5% (*) or 1% (**) level
<2> : Corrected Weight Gain in percent of Weight on Day 6 P.C.
<1> : (Weight on Day of Section) - (Weight on Day 6 P.C.) - (Weight Uterus)

2.5 CORRECTED BODY WEIGHT GAIN OF DAMS
FEMALES

F0-GENERATION - POST COITUM

FEMALE	WEIGHT ON DAY 6 P.C.	WEIGHT ON DAY OF SECTION	WEIGHT OF UTERUS	CORRECTED WEIGHT GAIN GRAM<1>	CORRECTED WEIGHT GAIN PERCENT<2>
GROUP 3 (300 MG/KG)					
45	223.0	268.0	64.3	-19.3	-8.7
46	240.0	319.0	65.0	14.0	5.8
47	208.0	293.0	65.2	19.8	9.5
48	229.0	312.0	63.7	19.3	8.4
49 <NP>	209.0	225.0	1.2	14.8	7.1
50	233.0	330.0	83.6	13.4	5.8
51	239.0	303.0	50.2	13.8	5.8
52	224.0	284.0	29.6	30.4	13.6
53	253.0	309.0	61.6	-5.6	-2.2
54	215.0	302.0	67.2	19.8	9.2
55	214.0	297.0	72.6	10.4	4.9
56	252.0				
57	225.0	242.0	41.0	-24.0	-10.7
58	225.0	258.0	59.4	-26.4	-11.7
59	214.0	224.0	48.0	-38.0	-17.7
60	208.0	281.0	53.2	19.8	9.5
61	211.0	310.0	79.3	19.7	9.3
62	206.0	247.0	15.6	25.4	12.3
63	215.0	276.0	29.2	31.8	14.8
64	243.0	338.0	74.7	20.3	8.3
65	251.0	360.0	91.7	17.3	6.9
66	223.0	302.0	82.9	-3.9	-1.7
		N	20	20	20
		MEAN	59.9	7.9 **	3.6 **
		ST.DEV.	19.8	20.2	9.2

*/** Dunnett-test based on pooled variance significant at 5% (*) or 1% (**) level
<NP> Non-pregnant
<2> : Corrected Weight Gain in percent of Weight on Day 6 P.C.
<1> : (Weight on Day of Section) - (Weight on Day 6 P.C.) - (Weight Uterus)

2.5 CORRECTED BODY WEIGHT GAIN OF DAMS
FEMALES

F0-GENERATION - POST COITUM

FEMALE	WEIGHT ON DAY 6 P.C.	WEIGHT ON DAY OF SECTION	WEIGHT OF UTERUS	CORRECTED WEIGHT GAIN GRAM<1>	CORRECTED WEIGHT GAIN PERCENT<2>
GROUP 4 (600 MG/KG)					
67	209.0	277.0	55.2	12.8	6.1
68	219.0	289.0	53.8	16.2	7.4
69	223.0	250.0			
70	232.0	285.0	59.2	-6.2	-2.7
71	202.0	219.0	45.2	-28.2	-14.0
72	259.0	290.0	67.3	-36.3	-14.0
73	247.0	338.0	74.4	16.6	6.7
74	222.0	315.0	66.3	26.7	12.0
75	216.0	242.0	38.1	-12.1	-5.6
76	224.0	299.0	66.0	9.0	4.0
77	214.0	311.0	79.9	17.1	8.0
78	232.0	341.0	82.8	26.2	11.3
79	215.0	318.0	74.9	28.1	13.1
80	216.0	271.0	54.1	0.9	0.4
81	220.0	298.0	48.4	29.6	13.5
82	233.0	309.0	68.6	7.4	3.2
83	227.0	310.0	67.0	16.0	7.1
84	218.0	310.0	70.2	21.8	10.0
85	226.0	315.0	65.9	23.1	10.2
86	249.0	354.0	77.1	27.9	11.2
87	211.0	236.0	44.9	-19.9	-9.4
88	232.0	274.0	17.6	24.4	10.5
		N	21	21	21
		MEAN	60.8	9.6 *	4.2 *
		ST.DEV.	15.8	19.5	8.6

*/** Dunnett-test based on pooled variance significant at 5% (*) or 1% (**) level
<2> : Corrected Weight Gain in percent of Weight on Day 6 P.C.
<1> : (Weight on Day of Section) - (Weight on Day 6 P.C.) - (Weight Uterus)

2.6 FOOD CONSUMPTION (G/ANIMAL/DAY)
FEMALES

F0-GENERATION

	POST COITUM					
DAYS	2-6	6-9	9-12	12-15	15-18	18-21
ANIMAL						
GROUP 1 (CONTROL)						
1	18	18	17	19	22	24
2	24	21	23	23	26	25
3	18	18	20	21	21	22
4	15	13	12	15	18	17
5	20	17	18	21	21	21
6	18	13	17	17	21	20
7	21	16	18	22	21	20
8	18	13	15	16	14	16
9	18	13	17	18	22	21
10	22	16	16	17	20	21
11	19	12	17	17	20	21
12	20	15	16	21	24	24
13	18	13	14	18	15	18
14	19	15	15	18	20	18
15	21	14	16	19	22	24
16	16	13	15	16	18	18
17	19	16	17	19	17	19
18	19	17	21	20	22	20
19	20	12	19	20	21	22
20	20	18	21	24	25	26
21	21	17	23	23	23	23
22	21	17	22	23	23	24
GROUP 2 (100 MG/KG)						
23	19	10	13	13	20	19
24	17	7	14	19	27	24
25	19	14	20	20	26	22
26	22	18	21	20	22	20
27	15	12	14	13	17	16
28	20	15	19	20	23	23
29	19	13	17	16	21	21
30	19	13	17	19	19	10
31	19	8	21	14	19	30
32	18	14	15	16	18	17
33	18	13	17	17	19	20
34	24	20	16	19	21	20
35	19	14	16	18	19	23
36	21	16	15	21	24	26
37	21	17	15	19	19	21
38	17	14	11	15	18	19
39	21	14	19	22	23	24
40	16	14	16	20	20	21
41	19	17	19	18	24	25
42	21	17	18	18	19	19
43	23	18	21	20	22	22
44	20	12	20	20	20	20
GROUP 3 (300 MG/KG)						
45	20	10	15	15	20	10
46	20	12	17	17	20	20
47	21	13	16	18	21	20
48	20	10	16	15	22	23
49 <NP>	18	13	12	13	17	14
50	21	11	14	18	20	21
51	21	19	23	15	19	21
52	21	14	17	19	22	21
53	22	13	16	18	21	18
54	19	8	17	17	21	25
55	21	16	18	17	19	20

<NP> Non-pregnant

2.6 FOOD CONSUMPTION (G/ANIMAL/DAY)
FEMALES

F0-GENERATION

	POST COITUM					
DAYS	2-6	6-9	9-12	12-15	15-18	18-21
ANIMAL						
GROUP 3 (300 MG/KG)						
56	21	8	14	21	197 (@)	---
57	18	12	14	21	15	3
58	19	13	15	17	13	9
59	19	13	11	18	15	1
60	20	14	14	18	13	19
61	18	13	18	19	21	20
62	16	10	15	17	18	18
63	18	10	15	19	21	20
64	21	15	18	21	25	23
65	24	15	19	23	26	26
66	19	10	19	17	19	16
GROUP 4 (600 MG/KG)						
67	20	10	20	19	22	23
68	16	6	15	16	19	17
69	19	9	17	17	10	20
70	19	11	14	17	20	18
71	18	13	13	12	14	14
72	23	12	16	12	23	18
73	23	15	17	21	24	26
74	15	8	14	19	22	25
75	19	9	16	20	19	5
76	20	7	17	16	12	23
77	20	10	17	19	22	20
78	21	15	16	21	26	27
79	16	13	16	19	22	24
80	17	5	10	15	16	14
81	19	11	16	20	23	24
82	21	8	13	18	17	22
83	19	10	14	18	21	21
84	19	11	17	21	22	20
85	20	15	19	20	22	24
86	23	13	23	24	24	25
87	19	8	15	13	11	17
88	20	10	19	19	21	22

(@) Data was excluded due to a biologically unrealistic value

2.7 RELATIVE FOOD CONSUMPTION (G/KG BODY WEIGHT/DAY)
FEMALES

F0-GENERATION

	POST COITUM					
DAYS	2-6	6-9	9-12	12-15	15-18	18-21
ANIMAL						
GROUP 1 (CONTROL)						
1	82	77	73	77	82	79
2	89	77	79	73	74	62
3	81	75	79	80	73	69
4	78	67	59	66	71	62
5	90	74	72	80	74	69
6	84	61	76	70	74	63
7	96	68	74	83	75	62
8	77	56	62	63	53	52
9	81	61	74	73	79	66
10	92	68	64	66	67	65
11	83	53	74	69	78	71
12	81	60	60	75	73	66
13	82	58	58	71	55	59
14	84	65	63	73	71	57
15	91	58	64	73	74	70
16	80	64	66	69	67	60
17	94	79	75	79	66	63
18	83	73	82	72	74	61
19	93	60	86	85	79	74
20	83	74	82	87	81	73
21	85	70	88	80	72	63
22	91	71	87	86	77	71
GROUP 2 (100 MG/KG)						
23	85	47	59	56	73	61
24	73	31	56	73	89	69
25	80	62	80	73	87	65
26	88	71	77	69	72	58
27	79	62	65	63	73	65
28	86	63	75	75	81	73
29	88	59	72	67	76	70
30	77	56	69	71	67	35
31	80	36	90	55	70	93
32	81	64	64	68	70	59
33	86	60	75	71	69	66
34	100	81	66	76	79	73
35	88	65	67	73	71	77
36	97	72	66	85	83	78
37	89	69	58	68	64	64
38	79	64	48	66	71	70
39	89	62	76	84	80	70
40	85	69	76	90	80	74
41	85	70	80	70	82	74
42	86	69	70	67	65	59
43	96	74	80	74	74	65
44	81	51	77	74	66	62
GROUP 3 (300 MG/KG)						
45	90	45	65	62	76	39
46	83	50	68	65	72	62
47	100	63	73	77	79	68
48	87	46	69	61	81	75
49 <NP>	84	60	57	59	75	62
50	89	48	58	68	71	65
51	89	82	91	58	70	68
52	93	59	72	77	81	74
53	88	52	63	71	73	57
54	90	39	74	71	77	84
55	99	73	77	70	72	66

<NP> Non-pregnant

2.7 RELATIVE FOOD CONSUMPTION (G/KG BODY WEIGHT/DAY)
FEMALES

F0-GENERATION

	POST COITUM					
DAYS	2-6	6-9	9-12	12-15	15-18	18-21
ANIMAL						
GROUP 3 (300 MG/KG)						
56	84	38	58	77	--- (@)	---
57	81	51	60	82	60	12
58	84	57	63	70	51	36
59	86	63	53	77	64	3
60	94	70	63	77	52	66
61	85	61	79	79	76	65
62	78	49	71	74	76	73
63	85	48	68	79	82	72
64	86	59	69	75	83	69
65	96	59	71	81	80	72
66	84	47	79	68	67	53
GROUP 4 (600 MG/KG)						
67	96	50	93	83	90	84
68	71	31	64	68	74	60
69	85	43	73	70	42	79 (!)
70	81	49	59	65	73	64
71	87	64	63	55	60	64
72	90	50	62	46	78	63
73	94	61	65	77	81	78
74	69	35	62	78	79	79
75	88	44	68	79	72	19
76	90	34	72	63	47	78
77	92	45	72	75	80	64
78	91	64	66	81	85	79
79	76	60	70	76	80	74
80	80	27	48	67	62	50
81	86	51	66	81	85	79
82	89	37	56	77	63	71
83	83	45	58	74	77	69
84	87	52	72	83	78	63
85	86	66	78	78	78	75
86	92	52	84	83	75	71
87	89	41	69	64	51	72
88	84	44	76	75	75	82

(@) Data was excluded due to a biologically unrealistic value
(!) Determined after delivery

2.8 MACROSCOPIC FINDINGS
FEMALES

F0-GENERATION - POST COITUM

ANIMAL	ORGAN	FINDING	DAY OF DEATH
GROUP 1 (CONTROL)			
1	Skin	Back of the neck: scab formation, isolated.	Scheduled necropsy, 11Apr2016
2		No findings noted	Scheduled necropsy, 11Apr2016
3		No findings noted	Scheduled necropsy, 11Apr2016
4		No findings noted	Scheduled necropsy, 11Apr2016
5		No findings noted	Scheduled necropsy, 11Apr2016
6		No findings noted	Scheduled necropsy, 11Apr2016
7	Stomach	Forestomach: focus/foci, isolated, black.	Scheduled necropsy, 12Apr2016
8		No findings noted	Scheduled necropsy, 12Apr2016
9		No findings noted	Scheduled necropsy, 12Apr2016
10		No findings noted	Scheduled necropsy, 12Apr2016
11		No findings noted	Scheduled necropsy, 12Apr2016
12		No findings noted	Scheduled necropsy, 13Apr2016
13		No findings noted	Scheduled necropsy, 13Apr2016
14		No findings noted	Scheduled necropsy, 13Apr2016
15		No findings noted	Scheduled necropsy, 13Apr2016
16		No findings noted	Scheduled necropsy, 13Apr2016
17		No findings noted	Scheduled necropsy, 13Apr2016
18		No findings noted	Scheduled necropsy, 14Apr2016
19		No findings noted	Scheduled necropsy, 14Apr2016
20		No findings noted	Scheduled necropsy, 14Apr2016
21		No findings noted	Scheduled necropsy, 14Apr2016
22		No findings noted	Scheduled necropsy, 14Apr2016
GROUP 2 (100 MG/KG)			
23		No findings noted	Scheduled necropsy, 11Apr2016
24		No findings noted	Scheduled necropsy, 11Apr2016
25		No findings noted	Scheduled necropsy, 11Apr2016
26		No findings noted	Scheduled necropsy, 11Apr2016
27		No findings noted	Scheduled necropsy, 11Apr2016
28		No findings noted	Scheduled necropsy, 12Apr2016
29		No findings noted	Scheduled necropsy, 12Apr2016
30		No findings noted	Scheduled necropsy, 12Apr2016
31		No findings noted	Scheduled necropsy, 12Apr2016
32		No findings noted	Scheduled necropsy, 12Apr2016
33		No findings noted	Scheduled necropsy, 12Apr2016
34		No findings noted	Scheduled necropsy, 13Apr2016
35		No findings noted	Scheduled necropsy, 13Apr2016
36		No findings noted	Scheduled necropsy, 13Apr2016
37		No findings noted	Scheduled necropsy, 13Apr2016
38		No findings noted	Scheduled necropsy, 13Apr2016
39		No findings noted	Scheduled necropsy, 14Apr2016
40		No findings noted	Scheduled necropsy, 14Apr2016
41		No findings noted	Scheduled necropsy, 14Apr2016
42		No findings noted	Scheduled necropsy, 14Apr2016
43		No findings noted	Scheduled necropsy, 14Apr2016
44		No findings noted	Scheduled necropsy, 14Apr2016
GROUP 3 (300 MG/KG)			
45		No findings noted	Scheduled necropsy, 11Apr2016
46		No findings noted	Scheduled necropsy, 11Apr2016
47		No findings noted	Scheduled necropsy, 11Apr2016
48		No findings noted	Scheduled necropsy, 11Apr2016
49	Uterus	Contains fluid.	Scheduled necropsy, 11Apr2016
50		No findings noted	Scheduled necropsy, 12Apr2016
51		No findings noted	Scheduled necropsy, 12Apr2016
52		No findings noted	Scheduled necropsy, 12Apr2016
53		No findings noted	Scheduled necropsy, 12Apr2016
54		No findings noted	Scheduled necropsy, 12Apr2016
55		No findings noted	Scheduled necropsy, 12Apr2016
56	Lungs	Focus/foci, many, reddish.	Killed in extremis, 08Apr2016
	Body cavities	Thoracic cavity: contains fluid,	

2.8 MACROSCOPIC FINDINGS
FEMALES

F0-GENERATION - POST COITUM

ANIMAL	ORGAN	FINDING	DAY OF DEATH
GROUP 3 (300 MG/KG)			
		reddish, watery-clear.	
57		No findings noted	Scheduled necropsy, 13Apr2016
58		No findings noted	Scheduled necropsy, 13Apr2016
59		No findings noted	Scheduled necropsy, 13Apr2016
60	General observations	Emaciated.	Scheduled necropsy, 13Apr2016
61		No findings noted	Scheduled necropsy, 14Apr2016
62		No findings noted	Scheduled necropsy, 14Apr2016
63		No findings noted	Scheduled necropsy, 14Apr2016
64		No findings noted	Scheduled necropsy, 14Apr2016
65		No findings noted	Scheduled necropsy, 14Apr2016
66		No findings noted	Scheduled necropsy, 14Apr2016
GROUP 4 (600 MG/KG)			
67		No findings noted	Scheduled necropsy, 11Apr2016
68		No findings noted	Scheduled necropsy, 11Apr2016
69	General observations	Emaciated. Early delivery.	Scheduled necropsy, 11Apr2016
70	Kidneys	Both sides: pelvic dilation. Both sides: enlarged. Left side: discolouration, reddish.	Scheduled necropsy, 11Apr2016
71		No findings noted	Scheduled necropsy, 11Apr2016
72		No findings noted	Scheduled necropsy, 11Apr2016
73		No findings noted	Scheduled necropsy, 12Apr2016
74		No findings noted	Scheduled necropsy, 12Apr2016
75		No findings noted	Scheduled necropsy, 12Apr2016
76		No findings noted	Scheduled necropsy, 12Apr2016
77		No findings noted	Scheduled necropsy, 12Apr2016
78		No findings noted	Scheduled necropsy, 13Apr2016
79		No findings noted	Scheduled necropsy, 13Apr2016
80	Stomach	Forestomach: focus/foci, isolated, black.	Scheduled necropsy, 13Apr2016
81		No findings noted	Scheduled necropsy, 13Apr2016
82		No findings noted	Scheduled necropsy, 13Apr2016
83		No findings noted	Scheduled necropsy, 13Apr2016
84		No findings noted	Scheduled necropsy, 14Apr2016
85		No findings noted	Scheduled necropsy, 14Apr2016
86		No findings noted	Scheduled necropsy, 14Apr2016
87	General observations	Emaciated.	Scheduled necropsy, 14Apr2016
88		No findings noted	Scheduled necropsy, 14Apr2016

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:28 19-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 2.9 INDIVIDUAL FETAL DATA AT SCHEDULED NECROPSY

DAMS FROM GROUP 1: 0 MG/KG

			VIABLE FETUSES			DEAD FETUSES			EARLY RESORPTIONS			LATE RESORPTIONS			IMPLANTATION SITES			CORPORA LUTEA		
	SEX		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT	
DAM#	M	F	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	OVARY		TOTAL
A001	3	5	3	5	8	0	0	0	2	0	2	0	0	0	5	5	10	6	6	12
A002	8	7	7	8	15	0	0	0	1	0	1	0	0	0	8	8	16	8	8	16
A003	3	8	7	4	11	0	0	0	0	0	0	0	0	0	7	4	11	7	5	12
A004	3	6	3	6	9	0	0	0	0	0	0	0	0	0	3	6	9	6	6	12
A005	7	1	4	4	8	0	0	0	1	1	2	0	0	0	5	5	10	5	5	10
A006	4	9	4	9	13	0	0	0	0	0	0	0	0	0	4	9	13	4	9	13
A007	7	2	3	6	9	0	0	0	1	1	2	0	0	0	4	7	11	5	7	12
A008	6	5	7	4	11	0	0	0	2	0	2	0	0	0	9	4	13	11	5	16
A009	5	6	7	4	11	0	0	0	0	0	0	0	0	0	7	4	11	7	4	11
A010	8	5	7	6	13	0	0	0	0	0	0	0	0	0	7	6	13	7	7	14
A011	2	5	3	4	7	0	0	0	2	1	3	0	0	0	5	5	10	5	6	11
A012	6	6	8	4	12	0	0	0	0	0	0	0	0	0	8	4	12	8	4	12
A013	6	6	7	5	12	0	0	0	0	1	1	0	0	0	7	6	13	7	6	13
A014	4	7	4	7	11	0	0	0	0	1	1	0	0	0	4	8	12	4	9	13
A015	7	5	7	5	12	0	0	0	0	0	0	0	0	0	7	5	12	7	5	12
A016	1	8	4	5	9	0	0	0	0	2	2	0	0	0	4	7	11	5	8	13
A017	7	4	6	5	11	0	0	0	0	0	0	0	0	0	6	5	11	6	5	11
A018	4	7	7	4	11	0	0	0	0	0	0	0	0	0	7	4	11	7	6	13
A019	3	7	3	7	10	0	0	0	0	0	0	0	0	0	3	7	10	3	7	10
A020	8	3	4	7	11	0	0	0	1	0	1	0	0	0	5	7	12	5	7	12
A021	8	6	9	5	14	0	0	0	0	0	0	0	0	0	9	5	14	9	5	14
A022	7	4	6	5	11	0	0	0	0	1	1	0	0	0	6	6	12	6	6	12
TOTAL	117	122	120	119	239	0	0	0	10	8	18	0	0	0	130	127	257	138	136	274
MEAN	5.3	5.5	5.5	5.4	10.9	0.0	0.0	0.0	0.5	0.4	0.8	0.0	0.0	0.0	5.9	5.8	11.7	6.3	6.2	12.5
S.D.	2.19	1.95	1.95	1.44	1.98	0.00	0.00	0.00	0.74	0.58	0.96	0.00	0.00	0.00	1.82	1.48	1.59	1.80	1.44	1.57
N =	22																			

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:28 19-MAY-16 PAGE 2
SPONSOR:3M BELGIUM 2.9 INDIVIDUAL FETAL DATA AT SCHEDULED NECROPSY

DAMS FROM GROUP 2: 100 MG/KG

			VIABLE FETUSES			DEAD FETUSES			EARLY RESORPTIONS			LATE RESORPTIONS			IMPLANTATION SITES			CORPORA LUTEA		
	SEX		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT	
DAM#	M	F	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	OVARY		TOTAL
A023	3	9	8	4	12	0	0	0	0	0	0	0	0	0	8	4	12	8	4	12
A024	5	7	5	7	12	0	0	0	0	0	0	0	0	0	5	7	12	5	8	13
A025	6	7	8	5	13	0	0	0	0	0	0	0	0	0	8	5	13	8	5	13
A026	7	3	4	6	10	0	0	0	0	0	0	0	0	0	4	6	10	4	7	11
A027	6	1	2	5	7	0	0	0	4	0	4	0	0	0	6	5	11	6	6	12
A028	5	2	7	0	7	0	0	0	0	0	0	0	0	0	7	0	7	7	6	13
A029	6	4	7	3	10	0	0	0	0	0	0	0	0	0	7	3	10	7	3	10
A030	7	2	1	8	9	0	0	0	0	1	1	0	0	0	1	9	10	2	9	11
A031	4	4	4	4	8	0	0	0	0	0	0	0	0	0	4	4	8	6	5	11
A032	4	6	3	7	10	0	0	0	1	0	1	0	0	0	4	7	11	4	7	11
A033	5	6	4	7	11	0	0	0	0	0	0	0	0	0	4	7	11	4	7	11
A034	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	6	1	7
A035	3	4	3	4	7	0	0	0	0	2	2	0	0	0	3	6	9	4	7	11
A036	2	9	3	8	11	0	0	0	0	0	0	0	0	0	3	8	11	4	9	13
A037	4	6	7	3	10	0	0	0	0	0	0	0	0	0	7	3	10	7	3	10
A038	1	6	4	3	7	0	0	0	0	3	3	0	0	0	4	6	10	4	6	10
A039	4	9	8	5	13	0	0	0	0	0	0	0	0	0	8	5	13	8	5	13
A040	3	6	6	3	9	0	0	0	0	0	0	0	0	0	6	3	9	6	3	9
A041	3	7	5	5	10	0	0	0	0	0	0	0	0	0	5	5	10	5	5	10
A042	6	2	7	1	8	0	0	0	0	0	0	0	0	0	7	1	8	7	5	12
A043	8	3	7	4	11	0	0	0	0	0	0	0	0	0	7	4	11	7	5	12
A044	5	2	4	3	7	0	0	0	0	2	2	0	0	0	4	5	9	7	5	12
TOTAL	97	106	107	96	203	0	0	0	5	8	13	0	0	0	112	104	216	126	121	247
MEAN	4.4	4.8	4.9	4.4	9.2	0.0	0.0	0.0	0.2	0.4	0.6	0.0	0.0	0.0	5.1	4.7	9.8	5.7	5.5	11.2
S.D.	1.99	2.61	2.34	2.22	2.69	0.00	0.00	0.00	0.87	0.85	1.14	0.00	0.00	0.00	2.22	2.29	2.50	1.67	1.99	1.51
N =	22																			

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:28 19-MAY-16 PAGE 3
SPONSOR:3M BELGIUM 2.9 INDIVIDUAL FETAL DATA AT SCHEDULED NECROPSY

DAMS FROM GROUP 3: 300 MG/KG

			VIABLE FETUSES			DEAD FETUSES			EARLY RESORPTIONS			LATE RESORPTIONS			IMPLANTATION SITES			CORPORA LUTEA		
	SEX		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT		LEFT	RIGHT	
DAM#	M	F	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	HORN	HORN	TOTAL	OVARY		TOTAL
A045	3	8	1	10	11	0	0	0	0	0	0	0	0	0	1	10	11	1	10	11
A046	4	6	8	2	10	0	0	0	1	1	2	0	0	0	9	3	12	9	3	12
A047	4	5	6	3	9	0	0	0	1	0	1	0	0	0	7	3	10	8	3	11
A048	7	3	4	6	10	0	0	0	1	0	1	0	0	0	5	6	11	5	7	12
A049	NONGRAVID																			
A050	4	9	4	9	13	0	0	0	0	0	0	0	0	0	4	9	13	4	9	13
A051	6	1	2	5	7	0	0	0	1	3	4	0	0	0	3	8	11	3	8	11
A052	4	0	2	2	4	0	0	0	0	1	1	0	0	0	2	3	5	5	6	11
A053	6	4	5	5	10	0	0	0	1	0	1	0	0	0	6	5	11	6	5	11
A054	6	4	6	4	10	0	0	0	0	0	0	0	0	0	6	4	10	7	4	11
A055	5	6	7	4	11	0	0	0	0	1	1	0	0	0	7	5	12	7	5	12
A056	GRAVID, EUTHANIZED DAY 16																			
A057	5	2	2	5	7	0	0	0	2	0	2	0	0	0	4	5	9	5	6	11
A058	4	6	5	5	10	0	0	0	0	1	1	0	0	0	5	6	11	5	7	12
A059	7	3	6	4	10	0	0	0	0	1	1	0	0	0	6	5	11	6	5	11
A060	4	4	4	4	8	0	0	0	1	1	2	0	0	0	5	5	10	5	5	10
A061	3	9	6	6	12	0	0	0	0	0	0	0	0	0	6	6	12	6	6	12
A062	1	1	0	2	2	0	0	0	0	0	0	0	0	0	0	2	2	6	2	8
A063	2	2	4	0	4	0	0	0	0	0	0	0	0	0	4	0	4	5	6	11
A064	5	6	5	6	11	0	0	0	0	0	0	0	0	0	5	6	11	5	7	12
A065	6	6	6	6	12	0	0	0	0	0	0	0	0	0	6	6	12	6	6	12
A066	7	7	4	10	14	0	0	0	0	0	0	0	0	0	4	10	14	4	10	14
TOTAL	93	92	87	98	185	0	0	0	8	9	17	0	0	0	95	107	202	108	120	228
MEAN	4.7	4.6	4.4	4.9	9.3	0.0	0.0	0.0	0.4	0.5	0.9	0.0	0.0	0.0	4.8	5.4	10.1	5.4	6.0	11.4
S.D.	1.66	2.64	2.08	2.61	3.11	0.00	0.00	0.00	0.60	0.76	1.04	0.00	0.00	0.00	2.12	2.56	3.02	1.73	2.18	1.19
N =	20																			

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:28 19-MAY-16 PAGE 4
SPONSOR:3M BELGIUM 2.9 INDIVIDUAL FETAL DATA AT SCHEDULED NECROPSY

DAMS FROM GROUP 4: 600 MG/KG

		SEX	VIABLE FETUSES			DEAD FETUSES			EARLY RESORPTIONS			LATE RESORPTIONS			IMPLANTATION SITES			CORPORA LUTEA		
	DAM#	M F	LEFT HORN	RIGHT HORN	TOTAL	LEFT HORN	RIGHT HORN	TOTAL	LEFT HORN	RIGHT HORN	TOTAL	LEFT HORN	RIGHT HORN	TOTAL	LEFT HORN	RIGHT HORN	TOTAL	LEFT OVARY	RIGHT OVARY	TOTAL
	A067	3 6	3	6	9	0	0	0	0	0	0	0	0	0	3	6	9	3	7	10
	A068	6 3	3	6	9	0	0	0	0	1	1	0	0	0	3	7	10	4	9	13
!	A069	DELIVERED DAY 21																		
	A070	6 4	1	9	10	0	0	0	2	2	4	0	0	0	3	11	14	3	11	14
	A071	6 1	3	4	7	0	0	0	0	0	0	1	0	1	4	4	8	4	4	8
	A072	9 4	4	9	13	0	0	0	0	1	1	0	0	0	4	10	14	4	10	14
	A073	5 6	5	6	11	0	0	0	0	0	0	0	0	0	5	6	11	5	6	11
	A074	6 5	9	2	11	0	0	0	0	1	1	0	0	0	9	3	12	9	3	12
	A075	3 4	5	2	7	0	0	0	0	0	0	0	0	0	5	2	7	8	2	10
	A076	5 6	5	6	11	0	0	0	0	2	2	0	0	0	5	8	13	5	8	13
	A077	8 5	5	8	13	0	0	0	0	0	0	0	0	0	5	8	13	5	9	14
	A078	4 8	6	6	12	0	0	0	0	1	1	0	0	0	6	7	13	6	8	14
	A079	5 6	5	6	11	0	0	0	0	0	0	0	0	0	5	6	11	5	6	11
	A080	4 7	6	5	11	0	0	0	2	0	2	0	0	0	8	5	13	10	5	15
	A081	2 5	5	2	7	0	0	0	1	0	1	0	0	0	6	2	8	6	3	9
	A082	6 5	3	8	11	0	0	0	0	0	0	0	0	0	3	8	11	3	8	11
	A083	8 3	4	7	11	0	0	0	0	0	0	0	0	0	4	7	11	4	7	11
	A084	5 6	3	8	11	0	0	0	0	0	0	0	0	0	3	8	11	3	8	11
	A085	4 6	5	5	10	0	0	0	1	1	2	0	0	0	6	6	12	6	6	12
	A086	6 5	5	6	11	0	0	0	0	1	1	0	0	0	5	7	12	5	7	12
	A087	3 5	5	3	8	0	0	0	1	0	1	0	0	0	6	3	9	6	3	9
	A088	2 0	0	2	2	0	0	0	0	0	0	0	0	0	0	2	2	7	5	12
	TOTAL	106 100	90	116	206	0	0	0	7	10	17	1	0	1	98	126	224	111	135	246
	MEAN	5.0 4.8	4.3	5.5	9.8	0.0	0.0	0.0	0.3	0.5	0.8	0.0	0.0	0.0	4.7	6.0	10.7	5.3	6.4	11.7
	S.D.	1.91 1.87	1.87	2.29	2.52	0.00	0.00	0.00	0.66	0.68	1.03	0.22	0.00	0.22	1.93	2.57	2.82	1.95	2.48	1.90
	N =	21																		

PLRDv4.08
05/19/2016

!: For further details see additional tables 2.12 and 2.14

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:31 19-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 2.10 INDIVIDUAL FETAL DATA AT SCHEDULED NECROPSY [% PER LITTER]

DAMS FROM GROUP 1: 0 MG/KG

DAM #	CORPORA LUTEA	IMPLANTATION SITES	FETUSES VIABLE	FETUSES DEAD	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	PRE-IMPLANTATION LOSS	POST-IMPLANTATION LOSS	MALES	FEMALES
	#	#	%	%	%	%	%	%	%	%	%
A001	12.0	10.0	80.0	0.0	20.0	0.0	20.0	16.7	20.0	37.5	62.5
A002	16.0	16.0	93.8	0.0	6.3	0.0	6.3	0.0	6.3	53.3	46.7
A003	12.0	11.0	100.0	0.0	0.0	0.0	0.0	8.3	0.0	27.3	72.7
A004	12.0	9.0	100.0	0.0	0.0	0.0	0.0	25.0	0.0	33.3	66.7
A005	10.0	10.0	80.0	0.0	20.0	0.0	20.0	0.0	20.0	87.5	12.5
A006	13.0	13.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8	69.2
A007	12.0	11.0	81.8	0.0	18.2	0.0	18.2	8.3	18.2	77.8	22.2
A008	16.0	13.0	84.6	0.0	15.4	0.0	15.4	18.8	15.4	54.5	45.5
A009	11.0	11.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	45.5	54.5
A010	14.0	13.0	100.0	0.0	0.0	0.0	0.0	7.1	0.0	61.5	38.5
A011	11.0	10.0	70.0	0.0	30.0	0.0	30.0	9.1	30.0	28.6	71.4
A012	12.0	12.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0
A013	13.0	13.0	92.3	0.0	7.7	0.0	7.7	0.0	7.7	50.0	50.0
A014	13.0	12.0	91.7	0.0	8.3	0.0	8.3	7.7	8.3	36.4	63.6
A015	12.0	12.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	58.3	41.7
A016	13.0	11.0	81.8	0.0	18.2	0.0	18.2	15.4	18.2	11.1	88.9
A017	11.0	11.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	63.6	36.4
A018	13.0	11.0	100.0	0.0	0.0	0.0	0.0	15.4	0.0	36.4	63.6
A019	10.0	10.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	70.0
A020	12.0	12.0	91.7	0.0	8.3	0.0	8.3	0.0	8.3	72.7	27.3
A021	14.0	14.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	57.1	42.9
A022	12.0	12.0	91.7	0.0	8.3	0.0	8.3	0.0	8.3	63.6	36.4
MEAN	12.5	11.7	92.7	0.0	7.3	0.0	7.3	6.0	7.3	48.5	51.5
S.D.	1.57	1.59	9.08	0.00	9.08	0.00	9.08	7.78	9.08	18.75	18.75
N	22	22	22	22	22	22	22	22	22	22	22

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:31 19-MAY-16 PAGE 2
SPONSOR:3M BELGIUM 2.10 INDIVIDUAL FETAL DATA AT SCHEDULED NECROPSY [% PER LITTER]

DAMS FROM GROUP 2: 100 MG/KG

DAM #	CORPORA LUTEA	IMPLANTATION SITES	FETUSES VIABLE	FETUSES DEAD	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	PRE-IMPLANTATION LOSS	POST-IMPLANTATION LOSS	MALES	FEMALES
	#	#	%	%	%	%	%	%	%	%	%
A023	12.0	12.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	75.0
A024	13.0	12.0	100.0	0.0	0.0	0.0	0.0	7.7	0.0	41.7	58.3
A025	13.0	13.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	46.2	53.8
A026	11.0	10.0	100.0	0.0	0.0	0.0	0.0	9.1	0.0	70.0	30.0
A027	12.0	11.0	63.6	0.0	36.4	0.0	36.4	8.3	36.4	85.7	14.3
A028	13.0	7.0	100.0	0.0	0.0	0.0	0.0	46.2	0.0	71.4	28.6
A029	10.0	10.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	40.0
A030	11.0	10.0	90.0	0.0	10.0	0.0	10.0	9.1	10.0	77.8	22.2
A031	11.0	8.0	100.0	0.0	0.0	0.0	0.0	27.3	0.0	50.0	50.0
A032	11.0	11.0	90.9	0.0	9.1	0.0	9.1	0.0	9.1	40.0	60.0
A033	11.0	11.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	45.5	54.5
A034	7.0	1.0	100.0	0.0	0.0	0.0	0.0	85.7	0.0	0.0	100.0
A035	11.0	9.0	77.8	0.0	22.2	0.0	22.2	18.2	22.2	42.9	57.1
A036	13.0	11.0	100.0	0.0	0.0	0.0	0.0	15.4	0.0	18.2	81.8
A037	10.0	10.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	60.0
A038	10.0	10.0	70.0	0.0	30.0	0.0	30.0	0.0	30.0	14.3	85.7
A039	13.0	13.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8	69.2
A040	9.0	9.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	66.7
A041	10.0	10.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	70.0
A042	12.0	8.0	100.0	0.0	0.0	0.0	0.0	33.3	0.0	75.0	25.0
A043	12.0	11.0	100.0	0.0	0.0	0.0	0.0	8.3	0.0	72.7	27.3
A044	12.0	9.0	77.8	0.0	22.2	0.0	22.2	25.0	22.2	71.4	28.6
MEAN	11.2	9.8	94.1	0.0	5.9	0.0	5.9	13.3	5.9	47.4	52.6
S.D.	1.51	2.50	11.18	0.00	11.18	0.00	11.18	20.67	11.18	23.17	23.17
N	22	22	22	22	22	22	22	22	22	22	22

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:31 19-MAY-16 PAGE 3
SPONSOR:3M BELGIUM 2.10 INDIVIDUAL FETAL DATA AT SCHEDULED NECROPSY [% PER LITTER]

DAMS FROM GROUP 3: 300 MG/KG

DAM #	CORPORA LUTEA	IMPLANTATION SITES	FETUSES VIABLE	FETUSES DEAD	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	PRE-IMPLANTATION LOSS	POST-IMPLANTATION LOSS	MALES	FEMALES
	#	#	%	%	%	%	%	%	%	%	%
A045	11.0	11.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	27.3	72.7
A046	12.0	12.0	83.3	0.0	16.7	0.0	16.7	0.0	16.7	40.0	60.0
A047	11.0	10.0	90.0	0.0	10.0	0.0	10.0	9.1	10.0	44.4	55.6
A048	12.0	11.0	90.9	0.0	9.1	0.0	9.1	8.3	9.1	70.0	30.0
A050	13.0	13.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8	69.2
A051	11.0	11.0	63.6	0.0	36.4	0.0	36.4	0.0	36.4	85.7	14.3
A052	11.0	5.0	80.0	0.0	20.0	0.0	20.0	54.5	20.0	100.0	0.0
A053	11.0	11.0	90.9	0.0	9.1	0.0	9.1	0.0	9.1	60.0	40.0
A054	11.0	10.0	100.0	0.0	0.0	0.0	0.0	9.1	0.0	60.0	40.0
A055	12.0	12.0	91.7	0.0	8.3	0.0	8.3	0.0	8.3	45.5	54.5
A057	11.0	9.0	77.8	0.0	22.2	0.0	22.2	18.2	22.2	71.4	28.6
A058	12.0	11.0	90.9	0.0	9.1	0.0	9.1	8.3	9.1	40.0	60.0
A059	11.0	11.0	90.9	0.0	9.1	0.0	9.1	0.0	9.1	70.0	30.0
A060	10.0	10.0	80.0	0.0	20.0	0.0	20.0	0.0	20.0	50.0	50.0
A061	12.0	12.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	75.0
A062	8.0	2.0	100.0	0.0	0.0	0.0	0.0	75.0	0.0	50.0	50.0
A063	11.0	4.0	100.0	0.0	0.0	0.0	0.0	63.6	0.0	50.0	50.0
A064	12.0	11.0	100.0	0.0	0.0	0.0	0.0	8.3	0.0	45.5	54.5
A065	12.0	12.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0
A066	14.0	14.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0
MEAN	11.4	10.1	91.5	0.0	8.5	0.0	8.5	12.7	8.5	53.3	46.7
S.D.	1.19	3.02	10.14	0.00	10.14	0.00	10.14	23.06	10.14	18.92	18.92
N	20	20	20	20	20	20	20	20	20	20	20

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:31 19-MAY-16 PAGE 4
SPONSOR:3M BELGIUM 2.10 INDIVIDUAL FETAL DATA AT SCHEDULED NECROPSY [% PER LITTER]

DAMS FROM GROUP 4: 600 MG/KG

DAM #	CORPORA LUTEA	IMPLANTATION SITES	FETUSES VIABLE	FETUSES DEAD	RESORPTIONS EARLY	RESORPTIONS LATE	RESORPTIONS TOTAL	PRE-IMPLANTATION LOSS	POST-IMPLANTATION LOSS	MALES	FEMALES
	#	#	%	%	%	%	%	%	%	%	%
A067	10.0	9.0	100.0	0.0	0.0	0.0	0.0	10.0	0.0	33.3	66.7
A068	13.0	10.0	90.0	0.0	10.0	0.0	10.0	23.1	10.0	66.7	33.3
A070	14.0	14.0	71.4	0.0	28.6	0.0	28.6	0.0	28.6	60.0	40.0
A071	8.0	8.0	87.5	0.0	0.0	12.5	12.5	0.0	12.5	85.7	14.3
A072	14.0	14.0	92.9	0.0	7.1	0.0	7.1	0.0	7.1	69.2	30.8
A073	11.0	11.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	45.5	54.5
A074	12.0	12.0	91.7	0.0	8.3	0.0	8.3	0.0	8.3	54.5	45.5
A075	10.0	7.0	100.0	0.0	0.0	0.0	0.0	30.0	0.0	42.9	57.1
A076	13.0	13.0	84.6	0.0	15.4	0.0	15.4	0.0	15.4	45.5	54.5
A077	14.0	13.0	100.0	0.0	0.0	0.0	0.0	7.1	0.0	61.5	38.5
A078	14.0	13.0	92.3	0.0	7.7	0.0	7.7	7.1	7.7	33.3	66.7
A079	11.0	11.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	45.5	54.5
A080	15.0	13.0	84.6	0.0	15.4	0.0	15.4	13.3	15.4	36.4	63.6
A081	9.0	8.0	87.5	0.0	12.5	0.0	12.5	11.1	12.5	28.6	71.4
A082	11.0	11.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	54.5	45.5
A083	11.0	11.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	72.7	27.3
A084	11.0	11.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	45.5	54.5
A085	12.0	12.0	83.3	0.0	16.7	0.0	16.7	0.0	16.7	40.0	60.0
A086	12.0	12.0	91.7	0.0	8.3	0.0	8.3	0.0	8.3	54.5	45.5
A087	9.0	9.0	88.9	0.0	11.1	0.0	11.1	0.0	11.1	37.5	62.5
A088	12.0	2.0	100.0	0.0	0.0	0.0	0.0	83.3	0.0	100.0	0.0
MEAN	11.7	10.7	92.7	0.0	6.7	0.6	7.3	8.8	7.3	53.0	47.0
S.D.	1.90	2.82	7.85	0.00	7.91	2.73	7.85	19.03	7.85	18.21	18.21
N	21	21	21	21	21	21	21	21	21	21	21

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:36 19-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 2.11 INDIVIDUAL FETAL WEIGHTS [G]

FETUS #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DAM # MEAN	GROUP 1: 0 MG/KG																						
A001 5.5	4.0	E	5.7	E	5.9/	5.7	6.1	5.5	5.7	5.5													
A002 5.1	5.3	5.2	4.6	E	5.3	4.9	4.6	5.1/	5.4	4.7	5.2	5.1	5.0	5.5	5.3	5.1							
A003 5.2	5.3	5.2	5.3	5.2	5.2	5.1	5.7/	5.4	5.2	5.1	5.0												
A004 5.4	5.3	5.8	5.0/	5.7	5.4	5.2	5.6	5.2	5.0														
A005 5.6	5.6	5.4	5.4	E	5.4/	5.9	5.6	5.6	E	5.7													
A006 5.1	5.3	5.2	4.7	5.3/	4.9	4.9	5.0	5.3	5.1	5.2	4.6	5.1	5.3										
A007 5.2	4.7	5.2	5.6	E /	5.4	5.0	5.4	E	5.4	5.3	4.6												
A008 4.9	5.0	4.7	5.1	5.1	4.4	E	E	5.3	5.4/	4.7	5.1	4.5	4.9										
A009 4.8	5.3	4.8	4.7	5.0	4.2	4.4	4.6/	4.9	4.6	4.9	4.9												
A010 5.1	5.1	4.9	5.1	5.3	5.4	5.0	5.2/	5.3	5.0	5.4	5.3	4.8	4.8										
A011 5.3	E	5.0	5.2	E	5.6/	5.3	5.4	E	5.5	5.2													
A012 5.0	5.0	5.2	5.1	4.5	4.9	4.7	4.4	5.4/	5.0	5.0	5.4	5.5											
A013 5.1	4.8	5.1	5.0	5.3	5.0	5.1	5.0/	4.6	5.1	5.2	5.4	E	5.2										
A014 5.0	4.7	5.0	5.4	5.1/	E	4.9	4.9	5.0	4.8	4.8	4.8	5.2											
A015 5.3	4.9	5.1	5.1	5.1	5.4	5.3	5.5/	5.3	5.8	5.6	5.6	5.1											
A016 5.3	5.6	5.5	5.3	5.5/	5.2	E	5.3	E	5.2	5.5	4.9												
A017 5.1	4.5	5.5	5.3	5.0	4.5	5.2/	4.9	5.0	5.3	5.5	5.4												
A018 5.3	5.1	5.2	5.3	5.4	5.7	5.2	5.3/	5.5	5.3	5.2	5.4												
A019 5.2	5.3	5.3	5.0/	5.0	5.2	5.3	5.2	5.7	5.0	4.5													
A020 5.7	5.9	5.9	E	4.3	6.3/	6.0	6.0	6.0	5.6	5.5	5.9	5.4											
A021 5.3	5.2	5.6	5.0	4.8	4.9	5.3	5.1	5.4	5.2/	5.7	5.9	5.7	5.5	5.5									
A022 5.3	5.2	5.3	5.1	5.4	5.4	5.2/	5.5	5.0	5.5	5.4	E	5.4											
MEAN 5.2																							
S.D. 0.22																							
N 22																							

E = EARLY RESORPTION L = LATE RESORPTION D = DEAD FETUS '/' DENOTES POSITION OF CERVIX

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:36 19-MAY-16 PAGE 2
SPONSOR:3M BELGIUM 2.11 INDIVIDUAL FETAL WEIGHTS [G]

FETUS #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DAM # MEAN	GROUP 2:	100 MG/KG																					
A023 5.1	4.7	5.7	4.9	5.0	5.4	4.9	5.3	5.5/	4.9	5.5	4.7	4.7											
A024 5.1	5.4	5.1	4.7	5.1	4.9/	5.2	4.8	5.6	4.7	5.2	5.1	5.0											
A025 5.2	4.9	5.0	5.2	4.9	5.4	5.8	5.1	5.0/	5.0	5.3	5.0	5.4	5.0										
A026 5.3	5.6	5.5	5.3	5.4/	5.2	5.6	5.9	4.6	4.8	5.4													
A027 4.7	4.6	4.5	E	E	E	E /	5.1	4.2	4.8	4.9	4.7												
A028 5.0	4.6	4.9	5.2	4.8	5.0	5.1	5.2/																
A029 5.1	5.1	4.6	5.3	5.3	5.3	5.4	5.3/	5.4	4.7	5.0													
A030 4.7	4.9/	4.5	4.8	4.7	4.6	E	4.6	4.8	4.4	4.7													
A031 4.9	5.0	4.8	4.8	5.0/	4.7	5.1	5.2	4.6															
A032 4.9	E	5.1	4.8	5.2/	4.8	5.0	3.6	4.9	5.5	5.2	5.1												
A033 5.0	5.1	5.1	5.0	5.4/	4.6	4.8	5.3	5.3	4.7	5.1	4.5												
A034 5.7 /	5.7																						
A035 5.1	4.9	5.2	5.2/	5.0	5.2	5.0	E	E	4.9														
A036 5.2	5.4	5.7	5.3/	4.9	5.1	5.2	5.3	5.0	5.5	5.0	4.9												
A037 4.9	4.3	4.8	5.4	5.0	4.8	4.8	5.3/	4.9	5.0	4.8													
A038 5.1	4.8	5.5	5.4	5.1/	E	E	E	5.3	5.1	4.6													
A039 4.8	4.3	4.3	4.9	4.3	4.7	5.3	5.2	4.9/	4.3	5.3	4.8	5.1	4.9										
A040 5.0	5.2	5.1	5.0	5.1	4.9	4.3/	5.1	5.2	5.4														
A041 5.6	5.4	5.7	5.5	5.7	5.5/	5.7	5.6	5.5	5.5	5.6													
A042 5.2	5.2	5.5	5.5	5.5	4.8	4.6	5.3/	5.3															
A043 5.3	5.1	5.0	5.4	5.2	5.3	5.4	5.8/	5.4	4.9	5.4	5.5												
A044 5.3	5.5	5.3	4.8	5.0/	E	5.1	5.8	5.7	E														
MEAN 5.1																							
S.D. 0.25																							
N 22																							

E = EARLY RESORPTION L = LATE RESORPTION D = DEAD FETUS '/' DENOTES POSITION OF CERVIX

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:36 19-MAY-16 PAGE 3
SPONSOR:3M BELGIUM 2.11 INDIVIDUAL FETAL WEIGHTS [G]

FETUS #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DAM # MEAN	GROUP 3: 300 MG/KG																						
A045 4.1	4.3/	4.1	4.2	3.9	4.1	4.1	4.0	4.1	4.2	3.8	4.0												
A046 4.5	4.3	4.7	E	3.9	4.1	4.7	4.8	4.4	4.5/	4.7	4.8	E											
A047 5.0	5.2	E	4.9	4.6	4.8	4.9	5.2/	5.2	5.5	4.8													
A048 4.4	4.4	3.9	E	4.4	4.7/	4.6	4.5	4.2	4.8	4.7	3.9												
A050 4.7	5.0	4.5	4.7	4.6/	4.5	4.6	5.1	4.8	4.9	4.8	4.9	4.7	4.5										
A051 4.9	5.1	E	5.3/	E	E	5.1	5.0	4.9	4.6	4.3	E												
A052 4.9	4.4	5.3/	E	5.2	4.8																		
A053 4.6	4.4	4.4	4.7	E	4.9	4.2/	4.8	4.6	4.6	4.7	4.4												
A054 4.8	4.6	4.5	4.9	4.6	4.7	5.0/	4.8	5.1	4.5	4.9													
A055 4.7	4.0	4.6	4.9	4.9	4.8	4.6	4.6/	4.5	5.3	5.1	4.8	E											
A057 4.0	3.6	E	E	4.1/	4.3	4.2	3.9	4.2	3.9														
A058 4.3	4.0	4.3	4.4	4.6	4.2/	5.1	4.4	4.2	E	4.2	3.8												
A059 3.2	3.1	3.1	3.1	3.1	3.3	2.9/	3.4	E	3.3	3.7	3.2												
A060 4.7	4.8	3.4	E	4.9	4.9/	4.7	5.2	E	4.6	5.3													
A061 4.6	4.4	4.2	4.8	4.6	4.5	4.4/	4.6	4.4	4.7	4.7	5.3	4.6											
A062 5.1 /	5.0	5.1																					
A063 5.1	5.2	5.5	5.0	4.8/																			
A064 4.9	4.4	4.7	5.2	4.6	4.9/	4.7	4.8	5.1	5.3	4.8	5.0												
A065 5.6	5.4	5.5	6.0	5.3	5.2	5.7/	5.6	5.6	5.7	6.1	5.9	5.7											
A066 4.1	3.9	4.4	4.7	4.4/	4.4	4.2	3.9	4.2	3.9	3.7	4.0	4.1	4.3	3.9									
MEAN 4.6																							
S.D. 0.51																							
N 20																							

E = EARLY RESORPTION L = LATE RESORPTION D = DEAD FETUS '/' DENOTES POSITION OF CERVIX

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:36 19-MAY-16 PAGE 4
SPONSOR:3M BELGIUM 2.11 INDIVIDUAL FETAL WEIGHTS [G]

FETUS #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DAM # MEAN	GROUP 4: 600 MG/KG																						
A067 4.4	4.9	4.4	3.9/	4.1	3.8	4.3	4.6	4.5	4.7														
A068 3.9	3.5	4.2	4.1/	3.5	E	3.7	4.1	4.0	3.8	4.1													
A070 4.1	4.3	E	E /	E	3.5	4.0	4.2	3.6	4.4	4.0	4.6	4.6	E	3.6									
A071 3.6	L	3.8	3.8	3.7/	3.7	4.0	3.6	2.8															
A072 3.5	3.9	4.0	3.7	3.5/	2.8	3.4	3.1	E	3.9	3.9	3.7	3.3	3.8	3.1									
A073 4.7	4.7	4.6	4.8	4.8	4.4/	5.1	4.3	4.8	4.8	5.0	4.7												
A074 4.1	4.3	4.6	4.5	3.9	4.6	3.3	3.2	4.2	4.0/	4.3	4.5	E											
A075 3.2	3.3	2.8	3.0	3.4	3.5/	3.1	3.6																
A076 4.2	4.1	4.2	4.1	4.4	4.2/	4.3	4.3	3.9	E	4.1	4.3	4.2	E										
A077 4.3	4.6	4.1	4.3	4.1	4.5/	4.4	4.9	4.3	4.3	4.5	4.0	4.2	4.1										
A078 5.0	4.7	5.0	4.6	5.3	5.0	4.6/	5.3	E	5.0	5.1	5.1	5.1	4.8										
A079 4.9	5.1	5.1	4.7	4.6	5.0/	4.7	5.1	4.7	4.8	5.1	5.1												
A080 3.3	3.7	2.7	3.2	E	3.8	E	3.5	2.9/	3.0	3.1	3.2	3.8	3.4										
A081 4.6	4.3	E	4.8	4.3	4.9	4.6/	4.8	4.8															
A082 4.4	4.2	4.6	4.6/	4.6	4.5	4.1	4.7	4.5	4.6	4.5	3.9												
A083 4.4	4.1	4.1	4.7	5.0/	4.8	4.5	4.2	4.6	4.7	3.0	4.5												
A084 4.4	4.7	4.6	4.7/	4.0	4.1	4.1	4.4	4.7	4.5	4.5	4.5												
A085 4.7	4.7	4.6	4.6	4.5	5.0	E /	5.2	4.5	4.9	4.5	4.7	E											
A086 5.1	5.4	5.1	5.1	5.2	5.2/	E	5.2	5.2	5.1	5.3	5.0	4.7											
A087 3.9	3.7	3.9	4.0	3.8	3.8	E /	4.1	3.8	3.8														
A088 5.2 /	5.3	5.0																					
MEAN 4.3																							
S.D. 0.57																							
N 21																							

E = EARLY RESORPTION L = LATE RESORPTION D = DEAD FETUS '/' DENOTES POSITION OF CERVIX

PFWTv4.15
05/19/2016

PROJECT NO.:WIL-511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 08:01 9-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 2.12 ADDITIONAL INDIVIDUAL FETAL WEIGHTS [G]

FETUS #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DAM # MEAN GROUP 4: 600 MG/KG																							
! A069 4.5	4.6	4.8/	3.8	4.5	4.1	4.7	4.3	4.6	4.7	4.6	4.8												

PFWTv4.15
05/09/2016

E = EARLY RESORPTION L = LATE RESORPTION D = DEAD FETUS '/' DENOTES POSITION OF CERVIX

! : There were 12 fetuses in total. Two fetuses were delivered early and for one fetus, cannibalism was noted.

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG	FETUS #			GRADE
A001	1 2 3 4 5 6 7 8 9 10			
	A E A E A/ A A A A A			
SEX:	F - M - M F M F F F			
CEPHALIC:	3,6,8,10			
EXTERNAL	1	M	TRUNK- OMPHALOCELE	
		M	EYE- BULGE ABSENT AND/OR SMALL ABSENT, BILATERAL	
SKELETAL			CONFIRMATION OF ABSENT EYE(S) ORBIT SMALL, BILATERAL	P
		V	14TH FULL RIB(S) BILATERAL	P
		V	PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
		M	SKULL BONES- FUSED MANDIBLE, BILATERAL	P
		M	STERNOSCHISIS #2	P
EXTERNAL	2		EARLY RESORPTION	
EXTERNAL	4		EARLY RESORPTION	
SKELETAL	5	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
		V	BENT RIB(S) BILATERAL, #5-#11	1
SKELETAL	7	V	BENT RIB(S) BILATERAL, #5-#10	1
SKELETAL	9	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
		V	BENT RIB(S)	1

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 2
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG	FETUS #		GRADE
A001 (CONTINUED)			
		LEFT, #4-#11; RIGHT, #7-#11	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	3,5,6,7,8,9,10		
VISCERAL	3,6,8,10		
SKELETAL			
A002	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		
	A A A E A A A A/ A A A A A A A A		
SEX:	M M F - M M F M M F F F F M M F		
CEPHALIC:	1,3,6,8,10,12,14,16		
SKELETAL	2	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
		V 7TH CERVICAL OSSIFICATION SITE(S) LEFT	P
EXTERNAL	4	EARLY RESORPTION	
SKELETAL	5	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
		V 14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	7	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
		V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
		V 7TH CERVICAL OSSIFICATION SITE(S) LEFT	P
SKELETAL	9	V 14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	11	V 14TH RUDIMENTARY RIB(S) LEFT	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 3
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG		FETUS #		GRADE
A002 (CONTINUED)				
	SKELETAL	13	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	15	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,5,6,7,8,9,10,11,12,13,14,15,16		
	VISCERAL	1,3,6,8,10,12,14,16		
	SKELETAL			
A003		1 2 3 4 5 6 7 8 9 10 11		
		A A A A A A A/ A A A A		
	SEX:	M F F F F F M F F F M		
	CEPHALIC:	2,4,6,8,10		
	SKELETAL	3	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
			V BENT RIB(S) RIGHT, #5-#7	1
			V 7TH CERVICAL OSSIFICATION SITE(S) LEFT	P
	SKELETAL	5	V REDUCED OSSIFICATION OF THE SKULL INTERPARIETAL; PARIETAL, RIGHT	P
			V 7TH CERVICAL OSSIFICATION SITE(S) BILATERAL	P
	SKELETAL	7	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	9	V 7TH CERVICAL OSSIFICATION SITE(S) LEFT	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 4
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG	FETUS #		GRADE
A003 (CONTINUED)			
SKELETAL	11	V 14TH RUDIMENTARY RIB(S) LEFT	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11		
VISCERAL	2,4,6,8,10		
SKELETAL	1		
A004	1 2 3 4 5 6 7 8 9		
	A A A/ A A A A A A		
SEX:	F M F M F F M F F		
CEPHALIC:	1,3,5,7,9		
VISCERAL	1	V LIVER- APPENDIX SMALL TISSUE, YELLOW-WHITE, ATTACHED TO RIGHT MEDIAN LOBE	P
SKELETAL	4	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
SKELETAL	8	V BENT RIB(S) BILATERAL, #5-#11	1
		V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
		V 7TH CERVICAL OSSIFICATION SITE(S) LEFT	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9		
VISCERAL	3,5,7,9		
SKELETAL	2,6		
A005	1 2 3 4 5 6 7 8 9 10		
	A A A E A/ A A A E A		
SEX:	M F M - M M M M - M		
CEPHALIC:	2,5,7,10		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 5
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG		FETUS #		GRADE
A005 (CONTINUED)				
	SKELETAL	1	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
	SKELETAL	3	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
	EXTERNAL	4	EARLY RESORPTION	
	SKELETAL	6	V 14TH RUDIMENTARY RIB(S) LEFT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
	EXTERNAL	9	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,5,6,7,8,10		
	VISCERAL	2,5,7,10		
	SKELETAL	8		
A006		1 2 3 4 5 6 7 8 9 10 11 12 13		
		A A A A/ A A A A A A A A A		
	SEX:	M F F M F F F F M F F F M		
	CEPHALIC:	1,3,5,7,9,11,13		
	SKELETAL	2	V 7TH CERVICAL OSSIFICATION SITE(S) LEFT	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	4	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	6	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	8	V 14TH RUDIMENTARY RIB(S) BILATERAL	P

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 6
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG	FETUS #			GRADE
A006 (CONTINUED)				
SKELETAL	12	V	PELVIC GIRDLE- CAUDAL SHIFT LEFT; RUDIMENTARY, RIGHT	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13			
VISCERAL	1,3,5,7,9,11,13			
SKELETAL	10			
A007	1 2 3 4 5 6 7 8 9 10 11			
	A A A E/ A A A E A A A			
SEX:	F M M - M F M - M M M			
CEPHALIC:	2,5,7,10			
SKELETAL	1	V	REDUCED OSSIFICATION OF THE SKULL INTERPARIETAL; PARIETAL, LEFT	P
		M	BENT LIMB BONE(S) SCAPULA, BILATERAL	P
		V	BENT RIB(S) BILATERAL, #4-#12	2
VISCERAL	2	V	LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
SKELETAL	3	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
		V	VERTEBRAL CENTRA- REDUCED OSSIFICATION THORACIC #12	P
EXTERNAL	4		EARLY RESORPTION	
SKELETAL	6	V	BENT RIB(S) LEFT, #7; RIGHT, #5-#12	1
EXTERNAL	8		EARLY RESORPTION	
SKELETAL	9	V	BENT RIB(S) LEFT, #9-#12; RIGHT, #5-#12	1

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 7
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG	FETUS #			GRADE
A007 (CONTINUED)				
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,5,6,7,9,10,11			
VISCERAL	5,7,10			
SKELETAL	11			
A008	1 2 3 4 5 6 7 8 9 10 11 12 13			
	A A A A A E E A A/ A A A A			
SEX:	M M M F F - - M M F M F F			
CEPHALIC:	1,3,5,9,11,13			
SKELETAL	4	V	14TH RUDIMENTARY RIB(S) LEFT	P
EXTERNAL	6		EARLY RESORPTION	
EXTERNAL	7		EARLY RESORPTION	
SKELETAL	8	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
VISCERAL	11	V	LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, ATTACHED TO RIGHT MEDIAN LOBE	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,8,9,10,11,12,13			
VISCERAL	1,3,5,9,13			
SKELETAL	2,10,12			
A009	1 2 3 4 5 6 7 8 9 10 11			
	A A A A A A A/ A A A A			
SEX:	F M F M F M M F M F F			
CEPHALIC:	2,4,6,8,10			
SKELETAL	5	M	VERTEBRAL ANOMALY WITH OR WITHOUT ASSOCIATED RIB ANOMALY THORACIC REGION: ONLY 12 VERTEBRAE AND FULL RIBS PRESENT;	P

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 8
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG		FETUS #		GRADE
A009 (CONTINUED)				
			LEFT, RIB WITHOUT HEAD AND RUDIMENTARY ARCH BETWEEN ARCH #2 AND #3; RIGHT, RIB WITHOUT HEAD AND RUDIMENTARY ARCH FUSED TO ARCH #2 BETWEEN ARCH #1 AND #2; HEMICENTRUM #2, SMALLER THAN NORMAL, LEFT	
	SKELETAL	7	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #5; SLIGHT- #2-#4	2
	SKELETAL	9	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, RIGHT, #1	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11		
	VISCERAL	2,4,6,8,10		
	SKELETAL	1,3,11		
A010		1 2 3 4 5 6 7 8 9 10 11 12 13		
		A A A A A A A/ A A A A A A		
	SEX:	M M F M M F M M F M F F M		
	CEPHALIC:	1,3,5,7,9,11,13		
	SKELETAL	2	V STERNEBRA(E)- BRANCHED #6	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	6	V 14TH RUDIMENTARY RIB(S) RIGHT	P
	SKELETAL	8	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	10	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	12	V 14TH RUDIMENTARY RIB(S) BILATERAL	P

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 9
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG	FETUS #		GRADE
A010 (CONTINUED)			
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
VISCERAL	1,3,5,7,9,11,13		
SKELETAL	4		
A011	1 2 3 4 5 6 7 8 9 10		
	E A A E A/ A A E A A		
SEX:	- F F - F M F - M F		
CEPHALIC:	3,6,9		
EXTERNAL	1	EARLY RESORPTION	
SKELETAL	2	V BENT RIB(S) LEFT, #6,#7; RIGHT, #5-#11	1
		V 14TH RUDIMENTARY RIB(S) BILATERAL	P
VISCERAL	3	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
EXTERNAL	4	EARLY RESORPTION	
SKELETAL	5	V 14TH RUDIMENTARY RIB(S) RIGHT	P
SKELETAL	7	V 14TH RUDIMENTARY RIB(S) RIGHT	P
EXTERNAL	8	EARLY RESORPTION	
SKELETAL	10	V BENT RIB(S) BILATERAL, #4-#12	2
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	2,3,5,6,7,9,10		
VISCERAL	6,9		
SKELETAL			
A012	1 2 3 4 5 6 7 8 9 10 11 12		
	A A A A A A A A/ A A A A		
SEX:	F F M F M M M M F F M F		
CEPHALIC:	1,3,5,7,9,11		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 10
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG		FETUS #		GRADE
A012 (CONTINUED)				
	SKELETAL	2	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	6	V BENT RIB(S) BILATERAL, #6-#12	1
			V 14TH FULL RIB(S) BILATERAL	P
			M VERTEBRAL ANOMALY WITH OR WITHOUT ASSOCIATED RIB ANOMALY THORACIC REGION: HEMICENTRUM #13, LEFT, ABSENT; VENTRAL ARCH #13, LEFT, ABSENT; DORSAL ARCH #13, LEFT, REDUCED; VERTEBRA #13, MALALIGNED (L<R); LUMBAR REGION: VERTEBRA #1, MALALIGNED (L>R); CENTRUM #1, DUMBBELL-SHAPED	P
	SKELETAL	8	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	10	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	12	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12		
	VISCERAL	1,3,5,7,9,11		
	SKELETAL	4		
A013		1 2 3 4 5 6 7 8 9 10 11 12 13		
		A A A A A A A/ A A A A E A		
	SEX:	F F F F M M F F M M M - M		
	CEPHALIC:	2,4,6,8,10,13		
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) BILATERAL	P

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 11
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG		FETUS #		GRADE
A013 (CONTINUED)				
	SKELETAL	7	V REDUCED OSSIFICATION OF THE SKULL INTERPARIETAL; JUGAL, PARIETAL, SQUAMOSAL, LEFT	1
	VISCERAL	10	V LIVER- APPENDIX SMALL TISSUE, GREY-WHITE, ATTACHED TO RIGHT MEDIAN LOBE	P
	SKELETAL	11	V REDUCED OSSIFICATION OF THE SKULL INTERPARIETAL; SQUAMOSAL, BILATERAL; PARIETAL, RIGHT	P
			V BENT RIB(S) RIGHT, #5,#6	1
			V 14TH RUDIMENTARY RIB(S) RIGHT	P
	EXTERNAL	12	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,13		
	VISCERAL	2,4,6,8,13		
	SKELETAL	1,3,9		
A014		1 2 3 4 5 6 7 8 9 10 11 12		
		A A A A/ E A A A A A A A		
	SEX:	F F M F - M F F F F M M		
	CEPHALIC:	1,3,6,8,10,12		
	SKELETAL	2	V 14TH RUDIMENTARY RIB(S) RIGHT	P
	VISCERAL	3	V LIVER- APPENDIX SMALL TISSUE, YELLOW-WHITE, ATTACHED TO RIGHT MEDIAN LOBE	P
	SKELETAL	4	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V BENT RIB(S) RIGHT, #5-#12	1
	EXTERNAL	5	EARLY RESORPTION	

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 12
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG		FETUS #			GRADE
A014 (CONTINUED)					
	VISCERAL	6	V	LIVER- APPENDIX	P
				SMALL TISSUE, YELLOW-RED, ATTACHED TO RIGHT MEDIAN LOBE	
	SKELETAL	7	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
	SKELETAL	9	V	14TH RUDIMENTARY RIB(S)	P
				LEFT	
			V	BENT RIB(S)	1
				LEFT, #5-#8; RIGHT, #5-#11	
	VISCERAL	12	V	LIVER- APPENDIX	P
				SMALL TISSUE, YELLOW-WHITE, ATTACHED TO RIGHT MEDIAN LOBE	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,6,7,8,9,10,11,12			
	VISCERAL	1,8,10			
	SKELETAL	11			
A015		1 2 3 4 5 6 7 8 9 10 11 12			
		A A A A A A A/ A A A A A			
	SEX:	F M F F M F M F M M M M			
	CEPHALIC:	2,4,6,8,10,12			
	SKELETAL	3	V	14TH RUDIMENTARY RIB(S)	P
				LEFT	
			V	VERTEBRAL CENTRA- REDUCED OSSIFICATION	P
				THORACIC, #11	
			V	BENT RIB(S)	1
				RIGHT, #6-#11	
	SKELETAL	5	V	14TH RUDIMENTARY RIB(S)	P
				RIGHT	
			V	BENT RIB(S)	1
				RIGHT, #5-#11	

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 13
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG	FETUS #		GRADE
A015 (CONTINUED)			
SKELETAL	7	V 14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	9	V BENT RIB(S) LEFT, #6-#11; RIGHT, #4-#11	1
SKELETAL	11	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
		V BENT RIB(S) RIGHT, #8,#9	1
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12		
VISCERAL	2,4,6,8,10,12		
SKELETAL	1		
A016	1 2 3 4 5 6 7 8 9 10 11		
	A A A A/ A E A E A A A		
SEX:	M F F F F - F - F F F		
CEPHALIC:	1,3,5,9,11		
SKELETAL	2	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
		V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#4	1
SKELETAL	4	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
EXTERNAL	6	EARLY RESORPTION	
SKELETAL	7	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
EXTERNAL	8	EARLY RESORPTION	
SKELETAL	10	V 14TH RUDIMENTARY RIB(S) RIGHT	P

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 14
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG		FETUS #		GRADE
A016 (CONTINUED)				
	SKELETAL	10	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3,#5	1
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,7,9,10,11		
	VISCERAL	1,3,5,9,11		
	SKELETAL			
A017		1 2 3 4 5 6 7 8 9 10 11		
		A A A A A A/ A A A A A		
	SEX:	F M M F M F F M M M M		
	CEPHALIC:	2,4,6,8,10		
	SKELETAL	1	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
	SKELETAL	3	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V 7TH CERVICAL OSSIFICATION SITE(S) RIGHT	P
	SKELETAL	7	V 14TH RUDIMENTARY RIB(S) RIGHT	P
	SKELETAL	9	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	11	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3,#4	1
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11		
	VISCERAL	2,4,6,8,10		
	SKELETAL	5		

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 15
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG	FETUS #											GRADE
A018		1	2	3	4	5	6	7	8	9	10	11	
		A	A	A	A	A	A	A/	A	A	A	A	
	SEX:	F	F	F	M	M	F	F	F	F	M	M	
	CEPHALIC:	1,3,5,7,9,11											
SKELETAL					4	V 14TH RUDIMENTARY RIB(S) BILATERAL							P
	NO REMARKABLE OBSERVATIONS												
EXTERNAL		1,2,3,4,5,6,7,8,9,10,11											
VISCERAL		1,3,5,7,9,11											
SKELETAL		2,6,8,10											
A019		1	2	3	4	5	6	7	8	9	10		
		A	A	A/	A	A	A	A	A	A	A		
	SEX:	M	F	M	M	F	F	F	F	F	F		
	CEPHALIC:	2,4,6,8,10											
SKELETAL					1	V 14TH RUDIMENTARY RIB(S) LEFT							P
SKELETAL					3	V 14TH RUDIMENTARY RIB(S) BILATERAL							P
SKELETAL					5	V 14TH RUDIMENTARY RIB(S) BILATERAL							P
SKELETAL					7	V 14TH RUDIMENTARY RIB(S) BILATERAL							P
	NO REMARKABLE OBSERVATIONS												
EXTERNAL		1,2,3,4,5,6,7,8,9,10											
VISCERAL		2,4,6,8,10											
SKELETAL		9											

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 16
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG	FETUS #			GRADE
A020		1	A	
		2	A	
		3	E	
		4	A	
		5	A/	
		6	A	
		7	A	
		8	A	
		9	A	
		10	A	
		11	A	
		12	A	
	SEX:		M M - M M M M M F F M F	
	CEPHALIC:		1,4,6,8,10,12	
VISCERAL		1	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
SKELETAL		2	V 7TH CERVICAL OSSIFICATION SITE(S) LEFT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
EXTERNAL		3	EARLY RESORPTION	
VISCERAL		4	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
SKELETAL		5	V 14TH RUDIMENTARY RIB(S) LEFT	P
			V BENT RIB(S) RIGHT, #6-#10	1
SKELETAL		7	V BENT RIB(S) RIGHT, #5-#8	1
SKELETAL		9	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
VISCERAL		10	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
SKELETAL		11	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
VISCERAL		12	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 17
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG	FETUS #														GRADE
A020 (CONTINUED)															
	NO REMARKABLE OBSERVATIONS														
EXTERNAL	1,2,4,5,6,7,8,9,10,11,12														
VISCERAL	6,8														
SKELETAL															
A021	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	A	A	A	A	A	A	A	A	A/	A	A	A	A	A	
SEX:	M	M	M	F	F	F	F	F	F	M	M	M	M	M	
CEPHALIC:	2,4,6,8,10,12,14														
SKELETAL	1	V REDUCED OSSIFICATION OF THE SKULL													P
	INTERPARIETAL; JUGAL, PARIETAL, BILATERAL; SQUAMOSAL, RIGHT														
	V 14TH FULL RIB(S)														P
	RIGHT; RUDIMENTARY, LEFT														
SKELETAL	3	V 14TH FULL RIB(S)													P
	LEFT; RUDIMENTARY, RIGHT														
	V PELVIC GIRDLE- CAUDAL SHIFT														P
	LEFT														
	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)														1
	#3-#5														
SKELETAL	5	V REDUCED OSSIFICATION OF THE SKULL													P
	INTERPARIETAL; PARIETAL, BILATERAL														
	V 14TH RUDIMENTARY RIB(S)														P
	BILATERAL														
	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)														1
	#4														
SKELETAL	7	V REDUCED OSSIFICATION OF THE SKULL													P
	INTERPARIETAL; PARIETAL, BILATERAL														
	V 14TH RUDIMENTARY RIB(S)														P
	LEFT														

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 18
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG	FETUS #		GRADE
A021 (CONTINUED)			
SKELETAL	7	V VERTEBRAL CENTRA- REDUCED OSSIFICATION THORACIC #11	P
SKELETAL	9	V REDUCED OSSIFICATION OF THE SKULL INTERPARIETAL; PARIETAL, BILATERAL	P
		V 14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT	P
SKELETAL	11	V REDUCED OSSIFICATION OF THE SKULL INTERPARIETAL	P
		V 14TH RUDIMENTARY RIB(S) BILATERAL	P
		V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
		V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
SKELETAL	13	V REDUCED OSSIFICATION OF THE SKULL SUPRAOCCIPITAL, INTERPARIETAL; PARIETAL, BILATERAL	P
		V 14TH RUDIMENTARY RIB(S) BILATERAL	P
		V BENT RIB(S) RIGHT, #6-#11	1
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
VISCERAL	2,4,6,8,10,12,14		
SKELETAL			

A022	1	2	3	4	5	6	7	8	9	10	11	12	
	A	A	A	A	A	A/	A	A	A	A	E	A	
SEX:	F	M	M	M	F	F	M	F	M	M	-	M	
CEPHALIC:	1,3,5,7,9,12												

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 19
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 1: 0 MG/KG		FETUS #		GRADE
A022 (CONTINUED)				
	SKELETAL	2	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
	VISCERAL	3	V LIVER- APPENDIX SMALL TISSUE, YELLOW-WHITE, ATTACHED TO RIGHT MEDIAN LOBE	P
	SKELETAL	4	V 14TH FULL RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
	SKELETAL	6	V 14TH FULL RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
	SKELETAL	8	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	10	V 14TH RUDIMENTARY RIB(S) LEFT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4	1
	EXTERNAL	11	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,12		
	VISCERAL	1,5,7,9,12		
	SKELETAL			

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 20
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG	FETUS #			GRADE
A023	1 2 3 4 5 6 7 8 9 10 11 12			
	A A A A A A A A/ A A A A			
SEX:	F M F F M F F M F F F F			
CEPHALIC:	2,4,6,8,10,12			
SKELETAL	3	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3	1
SKELETAL	7	V	14TH RUDIMENTARY RIB(S) LEFT	P
SKELETAL	9	V	14TH RUDIMENTARY RIB(S) RIGHT	P
NO REMARKABLE OBSERVATIONS				
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12			
VISCERAL	2,4,6,8,10,12			
SKELETAL	1,5,11			
A024	1 2 3 4 5 6 7 8 9 10 11 12			
	A A A A A/ A A A A A A A			
SEX:	M F F F M F F M F F M M			
CEPHALIC:	1,3,5,7,9,11			
SKELETAL	2	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
SKELETAL	4	V	PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
		V	14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT	P
		V	BENT RIB(S) RIGHT, #6-#9	1

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 21
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG		FETUS #		GRADE
A024 (CONTINUED)				
	VISCERAL	5	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
	SKELETAL	6	V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	8	V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
			V 14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT	P
			V BENT RIB(S) RIGHT, #5-#8	1
	SKELETAL	10	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
	SKELETAL	12	V PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12		
	VISCERAL	1,3,7,9,11		
	SKELETAL			

A025		1	2	3	4	5	6	7	8	9	10	11	12	13
		A	A	A	A	A	A	A	A/	A	A	A	A	A
	SEX:	M	F	F	M	M	M	F	M	F	M	F	F	F
	CEPHALIC:	2,4,6,8,10,12												

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 22
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG		FETUS #		GRADE
A025 (CONTINUED)				
	SKELETAL	1	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	9	V 14TH RUDIMENTARY RIB(S) RIGHT	P
			V BENT RIB(S) RIGHT, #5-#8	1
	VISCERAL	10	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
	SKELETAL	11	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
	VISCERAL	2,4,6,8,12		
	SKELETAL	3,7,13		
A026		1 2 3 4 5 6 7 8 9 10		
		A A A A/ A A A A A A		
	SEX:	M M M F F M M F M M		
	CEPHALIC:	1,3,5,7,9		
	SKELETAL	2	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
	VISCERAL	7	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
	SKELETAL	8	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH RUDIMENTARY RIB(S) RIGHT	P

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 23
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG		FETUS #		GRADE
A026 (CONTINUED)				
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10		
	VISCERAL	1,3,5,9		
	SKELETAL	4,6,10		
A027		1 2 3 4 5 6 7 8 9 10 11		
		A A E E E E/ A A A A A		
	SEX:	F M - - - - M M M M M		
	CEPHALIC:	2,8,10		
	VISCERAL	2	V LIVER- APPENDIX	P
			SMALL TISSUE, YELLOW-RED, ATTACHED TO RIGHT MEDIAN LOBE	
	EXTERNAL	3	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	EXTERNAL	6	EARLY RESORPTION	
	SKELETAL	7	V 14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
	VISCERAL	10	V LIVER- APPENDIX	P
			SMALL TISSUE, RED-YELLOW; ATTACHED TO RIGHT MEDIAN LOBE	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,7,8,9,10,11		
	VISCERAL	8		
	SKELETAL	1,9,11		
A028		1 2 3 4 5 6 7		
		A A A A A A A/		
	SEX:	F M M F M M M		
	CEPHALIC:	1,3,5,7		

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 24
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG		FETUS #		GRADE
A028 (CONTINUED)				
	SKELETAL	2	V BENT RIB(S) LEFT, #5-#11; RIGHT, #5-#12	1
			V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	4	V 14TH RUDIMENTARY RIB(S) RIGHT	P
	SKELETAL	6	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7		
	VISCERAL	1,3,5,7		
	SKELETAL			
A029		1 2 3 4 5 6 7 8 9 10		
		A A A A A A A/ A A A		
	SEX:	F M M M F M F M F M		
	CEPHALIC:	2,4,6,8,10		
	SKELETAL	1	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	3	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	VISCERAL	6	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10		
	VISCERAL	2,4,8,10		
	SKELETAL	7,9		

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 25
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG	FETUS #	GRADE
A030	1 2 3 4 5 6 7 8 9 10	
	A/ A A A A E A A A A	
SEX:	M M M M M - F M F M	
CEPHALIC:	1,3,5,8,10	
EXTERNAL	6 EARLY RESORPTION	
SKELETAL	7 V 14TH RUDIMENTARY RIB(S) BILATERAL	P
SKELETAL	9 V 7TH CERVICAL OSSIFICATION SITE(S) RIGHT	P
	NO REMARKABLE OBSERVATIONS	
EXTERNAL	1,2,3,4,5,7,8,9,10	
VISCERAL	1,3,5,8,10	
SKELETAL	2,4	
A031	1 2 3 4 5 6 7 8	
	A A A A/ A A A A	
SEX:	F F F M M F M M	
CEPHALIC:	2,4,6,8	
SKELETAL	1 V 14TH RUDIMENTARY RIB(S) RIGHT	P
VISCERAL	4 V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
	NO REMARKABLE OBSERVATIONS	
EXTERNAL	1,2,3,4,5,6,7,8	
VISCERAL	2,6,8	
SKELETAL	3,5,7	
A032	1 2 3 4 5 6 7 8 9 10 11	
	E A A A/ A A A A A A A	
SEX:	- F F M F F F F M M M	
CEPHALIC:	2,4,6,8,10	

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 26
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG		FETUS #			GRADE
A032 (CONTINUED)					
	EXTERNAL	1		EARLY RESORPTION	
	VISCERAL	2	V	LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
	SKELETAL	5	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
			V	14TH RUDIMENTARY RIB(S) LEFT	P
	VISCERAL	6	V	LIVER- APPENDIX SMALL TISSUE, YELLOW-WHITE, ATTACHED TO RIGHT MEDIAN LOBE	P
	SKELETAL	7	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V	14TH FULL RIB(S) BILATERAL	P
			V	PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
	VISCERAL	10	V	LIVER- APPENDIX SMALL TISSUE, YELLOW-WHITE, ATTACHED TO RIGHT MEDIAN LOBE	P
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	2,3,4,5,6,7,8,9,10,11			
	VISCERAL	4,8			
	SKELETAL	3,9,11			
A033		1 2 3 4 5 6 7 8 9 10 11			
		A A A A/ A A A A A A A			
	SEX:	M F F M F F M M F M F			
	CEPHALIC:	2,4,6,8,10			
	SKELETAL	1	V	14TH RUDIMENTARY RIB(S) RIGHT	P
	SKELETAL	3	V	14TH RUDIMENTARY RIB(S)	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 27
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG		FETUS #			GRADE
A033 (CONTINUED)					
				BILATERAL	
	SKELETAL	5	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
	SKELETAL	7	V	14TH FULL RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				LEFT	
	SKELETAL	9	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
	SKELETAL	11	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11			
	VISCERAL	2,4,6,8,10			
	SKELETAL				
A034		1			
		/ A			
	SEX:	F			
	CEPHALIC:	1			
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1			
	VISCERAL	1			
	SKELETAL				
A035		1 2 3 4 5 6 7 8 9			
		A A A/ A A A E E A			
	SEX:	F M M M F F - - F			
	CEPHALIC:	2,4,6			

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 28
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG		FETUS #		GRADE
A035 (CONTINUED)				
	SKELETAL	1	V 14TH RUDIMENTARY RIB(S) RIGHT	P
	VISCERAL	2	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) LEFT	P
	EXTERNAL	7	EARLY RESORPTION	
	EXTERNAL	8	EARLY RESORPTION	
	SKELETAL	9	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
	NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,5,6,9		
	VISCERAL	4,6		
	SKELETAL	3		
A036		1 2 3 4 5 6 7 8 9 10 11		
		A A A/ A A A A A A A A		
	SEX:	F F F F F M F F M F F		
	CEPHALIC:	1,3,5,7,9,11		
	SKELETAL	4	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	6	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	8	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
			V 14TH RUDIMENTARY RIB(S) LEFT	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 29
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG	FETUS #			GRADE
A036 (CONTINUED)				
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11			
VISCERAL	1,3,5,7,9,11			
SKELETAL	2,10			
A037	1 2 3 4 5 6 7 8 9 10			
	A A A A A A A/ A A A			
SEX:	F F M F F F F M M M			
CEPHALIC:	2,4,6,8,10			
SKELETAL	1	V PELVIC GIRDLE- CAUDAL SHIFT		P
			RIGHT	
		V 14TH FULL RIB(S)		P
			RIGHT; RUDIMENTARY, LEFT	
SKELETAL	3	V 14TH RUDIMENTARY RIB(S)		P
			BILATERAL	
SKELETAL	5	V 14TH RUDIMENTARY RIB(S)		P
			BILATERAL	
		V 7TH CERVICAL OSSIFICATION SITE(S)		P
			LEFT	
SKELETAL	7	V 14TH RUDIMENTARY RIB(S)		P
			BILATERAL	
SKELETAL	9	V 14TH RUDIMENTARY RIB(S)		P
			BILATERAL	
		V VERTEBRAL CENTRA- REDUCED OSSIFICATION		P
			THORACIC #9	
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7,8,9,10			
VISCERAL	2,4,6,8,10			
SKELETAL				

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 30
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG	FETUS #			GRADE
A038	1 2 3 4 5 6 7 8 9 10			
	A A A A/ E E E A A A			
SEX:	F F F F - - - F M F			
CEPHALIC:	1,3,8,10			
SKELETAL	2	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
		V	PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
SKELETAL	4	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
		V	PELVIC GIRDLE- CAUDAL SHIFT RIGHT	P
		V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
EXTERNAL	5		EARLY RESORPTION	
EXTERNAL	6		EARLY RESORPTION	
EXTERNAL	7		EARLY RESORPTION	
SKELETAL	9	V	14TH RUDIMENTARY RIB(S) RIGHT	P
		V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4	1
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,8,9,10			
VISCERAL	1,3,8,10			
SKELETAL				
A039	1 2 3 4 5 6 7 8 9 10 11 12 13			
	A A A A A A A A/ A A A A A			
SEX:	F M F F F M M F F F M F F			
CEPHALIC:	2,4,6,8,10,12			

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 31
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG		FETUS #		GRADE
A039 (CONTINUED)				
	SKELETAL	1	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, RIGHT, #1	P
			V 14TH FULL RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
	SKELETAL	3	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	5	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, RIGHT, #1	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
	VISCERAL	6	V LIVER- APPENDIX SMALL TISSUE, GREY-WHITE, ATTACHED TO RIGHT MEDIAN LOBE	P
	SKELETAL	7	V 14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT	P
	VISCERAL	8	V LIVER- DISCOLORED RIGHT MEDIAN LOBE, YELLOW-WHITE FOCUS	P
	SKELETAL	9	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	11	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	13	V 14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 32
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG	FETUS #		GRADE
A039 (CONTINUED)			
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
VISCERAL	2,4,10,12		
SKELETAL			
A040	1 2 3 4 5 6 7 8 9		
	A A A A A A/ A A A		
SEX:	F M F F F M M F F		
CEPHALIC:	1,3,5,7,9		
SKELETAL	2	V 14TH FULL RIB(S)	P
		RIGHT; RUDIMENTARY, LEFT	
SKELETAL	4	V 14TH RUDIMENTARY RIB(S)	P
		BILATERAL	
SKELETAL	6	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
		METATARSAL, BILATERAL, #1	
		V 14TH RUDIMENTARY RIB(S)	P
		BILATERAL	
SKELETAL	8	V 14TH FULL RIB(S)	P
		BILATERAL	
		V PELVIC GIRDLE- CAUDAL SHIFT	P
		BILATERAL	
		V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
		#3-#5	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9		
VISCERAL	1,3,5,7,9		
SKELETAL			
A041	1 2 3 4 5 6 7 8 9 10		
	A A A A A/ A A A A A		
SEX:	F F M F F F M F F M		
CEPHALIC:	2,4,6,8,10		

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 33
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG		FETUS #		GRADE
A041 (CONTINUED)				
	SKELETAL	1	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	3	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) LEFT	P
			V BENT RIB(S) RIGHT, #5,#6,#9,#10	1
	SKELETAL	7	V 14TH RUDIMENTARY RIB(S) LEFT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3,#4	1
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10		
	VISCERAL	2,4,6,8,10		
	SKELETAL	9		
A042		1 2 3 4 5 6 7 8		
		A A A A A A A/ A		
	SEX:	M M M M F F M M		
	CEPHALIC:	1,3,5,7		
	SKELETAL	2	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	4	V 14TH RUDIMENTARY RIB(S) LEFT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3,#4	1
	SKELETAL	6	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#4	1

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 34
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG		FETUS #			GRADE
A042 (CONTINUED)					
	SKELETAL	8	V	14TH FULL RIB(S) RIGHT; RUDIMENTARY, LEFT	P
			V	VERTEBRAL CENTRA- REDUCED OSSIFICATION THORACIC #11	P
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,5,6,7,8			
	VISCERAL	1,3,5,7			
	SKELETAL				
A043		1 2 3 4 5 6 7 8 9 10 11			
		A A A A A A A/ A A A A			
	SEX:	M M M F F M M M M F M			
	CEPHALIC:	2,4,6,8,10			
	SKELETAL	1	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
			V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
	SKELETAL	3	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
			V	PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
	SKELETAL	5	V	7TH CERVICAL OSSIFICATION SITE(S) LEFT	P
	SKELETAL	7	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#4	1
	SKELETAL	9	V	REDUCED OSSIFICATION OF THE SKULL INTERPARIETAL	P
			V	14TH RUDIMENTARY RIB(S) BILATERAL	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 35
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 2: 100 MG/KG	FETUS #		GRADE
A043 (CONTINUED)			
SKELETAL	11	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11		
VISCERAL	2,4,6,8,10		
SKELETAL			
A044	1 2 3 4 5 6 7 8 9		
	A A A A/ E A A A E		
SEX:	M M M F - F M M -		
CEPHALIC:	1,3,6,8		
EXTERNAL	5	EARLY RESORPTION	
VISCERAL	8	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
EXTERNAL	9	EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,6,7,8		
VISCERAL	1,3,6		
SKELETAL	2,4,7		

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 36
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG	FETUS #			GRADE
A045	1 2 3 4 5 6 7 8 9 10 11			
	A/ A A A A A A A A A A			
SEX:	M F M F F F F F M F F			
CEPHALIC:	2,4,6,8,10			
SKELETAL	1	V	14TH RUDIMENTARY RIB(S) LEFT	P
		M	METACARPAL(S) AND/OR METATARSAL(S) MALPOSITIONED METACARPAL, RIGHT, #3-#5, NOT ALIGNED WITH CORRESPONDING DIGITS	P
SKELETAL	3	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
SKELETAL	7	V	SKULL- SUPERNUMERARY SITE IN INTERPARIETAL-PARIETAL SUTURE, RIGHT, 1.0 X 0.5 MM	P
		V	14TH RUDIMENTARY RIB(S) BILATERAL	P
SKELETAL	11	V	14TH RUDIMENTARY RIB(S) RIGHT	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11			
VISCERAL	2,4,6,8,10			
SKELETAL	5,9			
A046	1 2 3 4 5 6 7 8 9 10 11 12			
	A A E A A A A A A/ A A E			
SEX:	F M - F M F M F F F M -			
CEPHALIC:	1,4,6,8,10			
SKELETAL	2	V	14TH RUDIMENTARY RIB(S)	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 37
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG	FETUS #			GRADE
A046 (CONTINUED)				
			BILATERAL	
EXTERNAL	3		EARLY RESORPTION	
SKELETAL	5	V	14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
SKELETAL	7	V	PELVIC GIRDLE- CAUDAL SHIFT	P
			LEFT	
		V	14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
SKELETAL	9	V	14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
VISCERAL	10	V	LIVER- SMALL SUPERNUMERARY LOBE(S)	P
			ONE, ATTACHED TO LEFT MEDIAN LOBE	
SKELETAL	11	V	PELVIC GIRDLE- CAUDAL SHIFT	P
			BILATERAL	
		V	14TH FULL RIB(S)	P
			BILATERAL	
EXTERNAL	12		EARLY RESORPTION	
NO REMARKABLE OBSERVATIONS				
EXTERNAL	1,2,4,5,6,7,8,9,10,11			
VISCERAL	1,4,6,8			
SKELETAL				
A047	1 2 3 4 5 6 7 8 9 10			
	A E A A A A A/ A A A			
SEX:	M - M F F F M F M F			
CEPHALIC:	3,5,7,9			
EXTERNAL	2		EARLY RESORPTION	
SKELETAL	6	V	14TH RUDIMENTARY RIB(S)	P
			BILATERAL	

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 38
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG		FETUS #		GRADE
A047 (CONTINUED)				
	VISCERAL	7	V THYMUS- PARTIALLY UNDESCENDED HORN(S) LEFT	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,3,4,5,6,7,8,9,10		
	VISCERAL	3,5,9		
	SKELETAL	1,4,8,10		
A048		1 2 3 4 5 6 7 8 9 10 11		
		A A E A A/ A A A A A A		
	SEX:	M M - M M M F F F M M		
	CEPHALIC:	1,4,6,8,10		
	VISCERAL	1	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
	SKELETAL	2	V REDUCED OSSIFICATION OF THE SKULL PREMAXILLA, BILATERAL	P
			V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH FULL RIB(S) RIGHT	P
	EXTERNAL	3	EARLY RESORPTION	
	SKELETAL	5	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
	SKELETAL	7	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
	SKELETAL	9	V PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	VISCERAL	10	V LIVER- SMALL SUPERNUMERARY LOBE(S)	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 39
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG	FETUS #		GRADE
A048 (CONTINUED)			
		ONE, IN MEDIAN CLEFT	
SKELETAL	11	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
		METATARSAL, BILATERAL, #1	
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,4,5,6,7,8,9,10,11		
VISCERAL	4,6,8		
SKELETAL			
A050	1 2 3 4 5 6 7 8 9 10 11 12 13		
	A A A A/ A A A A A A A A A		
SEX:	M F F M F F M F F M F F F		
CEPHALIC:	1,3,5,7,9,11,13		
SKELETAL	2	V 14TH FULL RIB(S)	P
		LEFT; RUDIMENTARY, RIGHT	
		V PELVIC GIRDLE- CAUDAL SHIFT	P
		LEFT	
SKELETAL	4	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
		METATARSAL, BILATERAL, #1	
		V 14TH RUDIMENTARY RIB(S)	P
		BILATERAL	
		V PELVIC GIRDLE- CAUDAL SHIFT	P
		LEFT	
VISCERAL	5	V LIVER- DISCOLORED	P
		LEFT LATERAL LOBE, PALE FOCI	
SKELETAL	6	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
		#3-#5	
		V 14TH RUDIMENTARY RIB(S)	P
		BILATERAL	
SKELETAL	8	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 40
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG		FETUS #		GRADE
A050 (CONTINUED)				
			#4,#5	
	SKELETAL		V 14TH RUDIMENTARY RIB(S)	P
			LEFT	
	SKELETAL	10	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
			METATARSAL, LEFT, #1	
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
			#4,#5	
			V 14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
	SKELETAL	12	V 14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
	VISCERAL	1,3,7,9,11,13		
	SKELETAL			
A051		1 2 3 4 5 6 7 8 9 10 11		
		A E A/ E E A A A A A E		
	SEX:	M - M - - M M M M F -		
	CEPHALIC:	3,7,9		
	SKELETAL	1	V 14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
	EXTERNAL	2	EARLY RESORPTION	
	EXTERNAL	4	EARLY RESORPTION	
	EXTERNAL	5	EARLY RESORPTION	
	SKELETAL	6	V 14TH FULL RIB(S)	P
			RIGHT; RUDIMENTARY, LEFT	
	SKELETAL	8	V 14TH FULL RIB(S)	P
			LEFT; RUDIMENTARY, RIGHT	

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 41
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG	FETUS #			GRADE
A051 (CONTINUED)				
SKELETAL	8	V	PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
SKELETAL	10	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #5; SLIGHT- #2-#4	2
		M	VERTEBRAL ANOMALY WITH OR WITHOUT ASSOCIATED RIB ANOMALY THORACIC REGION: LEFT, EXTRA RIB AND ARCH BETWEEN ARCH #9 AND #10; RIGHT, EXTRA RIB, FUSED PROXIMALLY TO RIB #12, AND RUDIMENTARY ARCH BETWEEN ARCH #12 AND #13; VERTEBRA MALALIGNED: #10-#13 (L<R); CENTRUM, BIPARTITE OSSIFICATION, #11	P
EXTERNAL	11		EARLY RESORPTION	
EXTERNAL	NO REMARKABLE OBSERVATIONS			
VISCERAL	1,3,6,7,8,9,10			
SKELETAL	3,7,9			
A052	1 2 3 4 5			
	A A/ E A A			
SEX:	M M - M M			
CEPHALIC:	1,4			
SKELETAL	2	V	BENT RIB(S) LEFT, #5-#8,#11; RIGHT, #7-#11	1
		V	14TH RUDIMENTARY RIB(S) BILATERAL	P
		V	PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
EXTERNAL	3		EARLY RESORPTION	
SKELETAL	5	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 42
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG		FETUS #		GRADE
A052 (CONTINUED)				
	SKELETAL	5	V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
			V 14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,4,5		
	VISCERAL	1,4		
	SKELETAL			
A053		1 2 3 4 5 6 7 8 9 10 11		
		A A A E A A/ A A A A A		
	SEX:	M M F - M F M F M M F		
	CEPHALIC:	2,5,7,9,11		
	SKELETAL	1	V 14TH FULL RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
	SKELETAL	3	V 14TH FULL RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
	EXTERNAL	4	EARLY RESORPTION	
	SKELETAL	6	V 14TH FULL RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
	SKELETAL	8	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
			V 14TH FULL RIB(S)	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 43
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG	FETUS #			GRADE
A053 (CONTINUED)				
			BILATERAL	
SKELETAL		V	PELVIC GIRDLE- CAUDAL SHIFT	P
			BILATERAL	
SKELETAL	10	V	14TH FULL RIB(S)	P
			BILATERAL	
		V	PELVIC GIRDLE- CAUDAL SHIFT	P
			BILATERAL	
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,5,6,7,8,9,10,11			
VISCERAL	2,5,7,9,11			
SKELETAL				
A054	1 2 3 4 5 6 7 8 9 10			
	A A A A A A/ A A A A			
SEX:	F F M M M M M M F F			
CEPHALIC:	1,3,5,7,9			
SKELETAL	2	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
			#3-#5	
		M	RIB ANOMALY	P
			LEFT, #1, HEAD ABSENT	
		V	14TH FULL RIB(S)	P
			LEFT; RUDIMENTARY, RIGHT	
		V	PELVIC GIRDLE- CAUDAL SHIFT	P
			BILATERAL	
SKELETAL	4	V	14TH FULL RIB(S)	P
			BILATERAL	
		V	PELVIC GIRDLE- CAUDAL SHIFT	P
			BILATERAL	
		M	RIB ANOMALY	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 44
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG		FETUS #			GRADE
A054 (CONTINUED)					
				LEFT, #1, HEAD SMALL	
	SKELETAL	6	V	BENT RIB(S)	1
				LEFT, #6-#8,#10,#11; RIGHT, #4-#12	
			V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			M	BENT LIMB BONE(S)	P
				SCAPULA, BILATERAL; HUMERUS, RIGHT	
	SKELETAL	10	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,5,6,7,8,9,10			
	VISCERAL	1,3,5,7,9			
	SKELETAL	8			
A055		1 2 3 4 5 6 7 8 9 10 11 12			
		A A A A A A A/ A A A A E			
	SEX:	M M F F M F F F M M F -			
	CEPHALIC:	2,4,6,8,10			
	SKELETAL	1	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				RIGHT	
	SKELETAL	5	V	14TH FULL RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
	SKELETAL	7	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 45
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG		FETUS #			GRADE
A055 (CONTINUED)					
				LEFT	
	VISCERAL	8	V	LIVER- SMALL SUPERNUMERARY LOBE(S)	P
				ONE, ATTACHED TO RIGHT MEDIAN LOBE	
	SKELETAL	9	V	14TH FULL RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
	SKELETAL	11	V	14TH RUDIMENTARY RIB(S)	P
				LEFT	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				LEFT	
	EXTERNAL	12		EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS				
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11			
	VISCERAL	2,4,6,10			
	SKELETAL	3			
A057		1 2 3 4 5 6 7 8 9			
		A E E A/ A A A A A			
	SEX:	M - - M M F M M F			
	CEPHALIC:	4,6,8			
	SKELETAL	1	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, BILATERAL, #1	
			V	14TH RUDIMENTARY RIB(S)	P
				LEFT	
	EXTERNAL	2		EARLY RESORPTION	
	EXTERNAL	3		EARLY RESORPTION	
	SKELETAL	5	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#4,#5	

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 46
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG		FETUS #		GRADE
A057 (CONTINUED)				
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT RIGHT	P
	SKELETAL	7	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	9	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
			V 14TH RUDIMENTARY RIB(S) RIGHT	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,4,5,6,7,8,9		
	VISCERAL	4,6,8		
	SKELETAL			
A058		1 2 3 4 5 6 7 8 9 10 11		
		A A A A A/ A A A E A A		
	SEX:	F M F M F M F F - M F		
	CEPHALIC:	1,3,5,7,10		
	SKELETAL	2	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	4	V 14TH RUDIMENTARY RIB(S) LEFT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
	SKELETAL	6	V 14TH RUDIMENTARY RIB(S) LEFT	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 47
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG	FETUS #		GRADE
A058 (CONTINUED)			
SKELETAL	8	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
EXTERNAL	9	EARLY RESORPTION	
SKELETAL	11	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
		V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,10,11		
VISCERAL	1,3,5,7,10		
SKELETAL			
A059	1 2 3 4 5 6 7 8 9 10 11		
	A A A A A A/ A E A A A		
SEX:	M M M F F M M - F M M		
CEPHALIC:	2,4,6,9,11		
SKELETAL	1	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
		V 14TH RUDIMENTARY RIB(S) BILATERAL	P
		V BENT RIB(S) BILATERAL, #4-#12	1
SKELETAL	3	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
		V 14TH RUDIMENTARY RIB(S) BILATERAL	P
SKELETAL	5	V 14TH RUDIMENTARY RIB(S) RIGHT	P
		V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 48
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG	FETUS #			GRADE
A059 (CONTINUED)				
			#3	
SKELETAL		M	METACARPAL(S) AND/OR METATARSAL(S) MALPOSITIONED	P
			METATARSAL, RIGHT, #2-#5, NOT ALIGNED WITH CORRESPONDING DIGITS	
VISCERAL	6	V	LIVER- APPENDIX	P
			SMALL TISSUE, GREY-WHITE, ATTACHED TO RIGHT MEDIAN LOBE	
SKELETAL	7	V	PELVIC GIRDLE- CAUDAL SHIFT	P
			BILATERAL	
		V	14TH FULL RIB(S)	P
			RIGHT; RUDIMENTARY, LEFT	
EXTERNAL	8		EARLY RESORPTION	
SKELETAL	10	V	PELVIC GIRDLE- CAUDAL SHIFT	P
			BILATERAL	
		V	14TH FULL RIB(S)	P
			RIGHT; RUDIMENTARY, LEFT	
		V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
			#2-#5	
VISCERAL	11	V	LIVER- APPENDIX	P
			SMALL TISSUE, YELLOW-WHITE, ATTACHED TO RIGHT MEDIAN LOBE	
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7,9,10,11			
VISCERAL	2,4,9			
SKELETAL				

A060	1	2	3	4	5	6	7	8	9	10
	A	A	E	A	A/	A	A	E	A	A
SEX:	F	F	-	F	M	M	M	-	F	M
CEPHALIC:	1,4,6,9									

SKELETAL	2	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 49
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG		FETUS #			GRADE
A060 (CONTINUED)					
				METATARSAL, BILATERAL, #1	
	SKELETAL		V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#3-#5	
			V	14TH RUDIMENTARY RIB(S)	P
				LEFT	
	EXTERNAL	3		EARLY RESORPTION	
	SKELETAL	5	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#4	
	SKELETAL	7	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#3-#5	
	EXTERNAL	8		EARLY RESORPTION	
	SKELETAL	10	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#4	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,4,5,6,7,9,10			
	VISCERAL	1,4,6,9			
	SKELETAL				
A061		1 2 3 4 5 6 7 8 9 10 11 12			
		A A A A A A/ A A A A A A			
	SEX:	F F F F F F M F M F M F			
	CEPHALIC:	2,4,6,8,10,12			
	SKELETAL	1	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 50
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG		FETUS #			GRADE
A061 (CONTINUED)					
				#3-#5	
	SKELETAL	3	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#3,#4	
	SKELETAL	7	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#2-#5	
	SKELETAL	9	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#4,#5	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12			
	VISCERAL	2,4,6,8,10,12			
	SKELETAL	5,11			
A062		1 2			
		/ A A			
		SEX: F M			
		CEPHALIC: 1			
	SKELETAL	2	V	REDUCED OSSIFICATION OF THE SKULL	P
				INTERPARIETAL; PARIETAL, SQUAMOSAL, BILATERAL	
			M	BENT LIMB BONE(S)	P
				SCAPULA, BILATERAL; HUMERUS, RADIUS, ULNA, RIGHT	
			V	BENT RIB(S)	2
				BILATERAL, #3-#13	
			V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#4,#5	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2			
	VISCERAL	1			
	SKELETAL				
A063		1 2 3 4			
		A A A A/			
		SEX: M M F F			
		CEPHALIC: 2,4			

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 51
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG		FETUS #			GRADE
A063 (CONTINUED)					
	SKELETAL	1	M	BENT LIMB BONE(S) SCAPULA, RIGHT	P
			V	14TH RUDIMENTARY RIB(S) BILATERAL	P
			V	BENT RIB(S) LEFT,#5-#13; RIGHT, #4-#13	1
	SKELETAL	3	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
			V	PELVIC GIRDLE- CAUDAL SHIFT RIGHT	P
			V	BENT RIB(S) RIGHT, #5-#10	1
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4			
	VISCERAL	2,4			
	SKELETAL				
A064		1 2 3 4 5 6 7 8 9 10 11			
		A A A A A/ A A A A A A			
	SEX:	F M M F F F F F M M M			
	CEPHALIC:	1,3,5,7,9,11			
	SKELETAL	2	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	4	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
			V	PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
	SKELETAL	6	V	14TH RUDIMENTARY RIB(S) BILATERAL	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 52
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG		FETUS #		GRADE
A064 (CONTINUED)				
	SKELETAL	6	V PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
	SKELETAL	8	V 14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT	P
	SKELETAL	10	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3,#4	1
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11		
	VISCERAL	1,3,5,7,9,11		
	SKELETAL			
A065		1 2 3 4 5 6 7 8 9 10 11 12		
		A A A A A A/ A A A A A A		
	SEX:	F F M F F F M F M M M M		
	CEPHALIC:	2,4,6,8,10,12		
	SKELETAL	3	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4	1
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	7	V 14TH RUDIMENTARY RIB(S) RIGHT	P
	SKELETAL	9	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	11	V 14TH RUDIMENTARY RIB(S) RIGHT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#4	1

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 53
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 3: 300 MG/KG	FETUS #		GRADE
A065 (CONTINUED)			
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12		
VISCERAL	2,4,6,8,10,12		
SKELETAL	1		
A066	1 2 3 4 5 6 7 8 9 10 11 12 13 14		
	A A A A/ A A A A A A A A A A		
SEX:	F M M F M F F M M F M F M F		
CEPHALIC:	1,3,5,7,9,11,13		
SKELETAL	6	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3,#4	1
SKELETAL	8	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
		V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3,#4	1
SKELETAL	12	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
	NO REMARKABLE OBSERVATIONS		
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13,14		
VISCERAL	1,3,5,7,9,11,13		
SKELETAL	2,4,10,14		

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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 54
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG	FETUS #				GRADE
A067	1	A	M	BILATERAL	
	2	A	F		
	3	A/	F		
	4	A	F		
	5	A	M		
	6	A	F		
	7	A	F		
	8	A	F		
	9	A	M		
CEPHALIC:	2,4,6,8				
SKELETAL	1	V	14TH RUDIMENTARY RIB(S)	BILATERAL	P
		V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	#4,#5	1
SKELETAL	3	V	14TH FULL RIB(S)	BILATERAL	P
		V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	#2-#4	1
SKELETAL	5	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	METATARSAL, BILATERAL, #1	P
		V	14TH FULL RIB(S)	LEFT; RUDIMENTARY, RIGHT	P
SKELETAL	7	V	PELVIC GIRDLE- CAUDAL SHIFT	RIGHT	P
		V	14TH FULL RIB(S)	LEFT; RUDIMENTARY, RIGHT	P
VISCERAL	8	M	EYE(S)- ABSENT AND/OR SMALL	SMALL, LEFT	P *
SKELETAL	9	V	PELVIC GIRDLE- CAUDAL SHIFT	BILATERAL	P
		V	14TH FULL RIB(S)	BILATERAL	P

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* = CEPHALIC FINDING

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 55
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #			GRADE
A067 (CONTINUED)					
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,5,6,7,8,9			
	VISCERAL	2,4,6			
	SKELETAL				
A068		1 2 3 4 5 6 7 8 9 10			
		A A A/ A E A A A A A			
	SEX:	M M M F - F M M F M			
	CEPHALIC:	1,3,6,8,10			
	SKELETAL	2	V 14TH RUDIMENTARY RIB(S) RIGHT		P
			V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, RIGHT, #1		P
	SKELETAL	4	V SKULL BONE- UNOSSIFIED LINE PARIETAL, LEFT		P
			V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1		P
			V 14TH RUDIMENTARY RIB(S) LEFT		P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL		P
	EXTERNAL	5	EARLY RESORPTION		
	SKELETAL	7	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1		P
	SKELETAL	9	V 14TH RUDIMENTARY RIB(S) LEFT		P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL		P
			V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED		P

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SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 56
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG	FETUS #			GRADE
A068 (CONTINUED)				
			METATARSAL, BILATERAL, #1	
SKELETAL		V	REDUCED OSSIFICATION OF THE SKULL	P
			PREMAXILLA, BILATERAL	
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,6,7,8,9,10			
VISCERAL	1,3,6,8,10			
SKELETAL				
A070	1 2 3 4 5 6 7 8 9 10 11 12 13 14			
	A E E/ E A A A A A A A A E A			
SEX:	M - - - F F F F M M M M - M			
CEPHALIC:	1,6,8,10,12			
EXTERNAL	2		EARLY RESORPTION	
EXTERNAL	3		EARLY RESORPTION	
EXTERNAL	4		EARLY RESORPTION	
SKELETAL	5	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
			METATARSAL, BILATERAL, #1	
		V	PELVIC GIRDLE- CAUDAL SHIFT	P
			BILATERAL	
		V	14TH FULL RIB(S)	P
			LEFT	
		V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
			#2-#5	
		M	RIB ANOMALY	P
			RIGHT, #1, HEAD SMALL	
VISCERAL	6	V	LIVER- APPENDIX	P
			SMALL TISSUE, GREY-WHITE, ATTACHED TO LEFT MEDIAN LOBE	
SKELETAL	7	V	14TH RUDIMENTARY RIB(S)	P
			LEFT	

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 57
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #		GRADE
A070 (CONTINUED)				
	SKELETAL	9	V 14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
	SKELETAL	11	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
			V 14TH FULL RIB(S) BILATERAL	P
	EXTERNAL	13	EARLY RESORPTION	
	SKELETAL	14	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
			V 14TH FULL RIB(S) BILATERAL	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,5,6,7,8,9,10,11,12,14		
	VISCERAL	1,8,10,12		
	SKELETAL			

A071	1	2	3	4	5	6	7	8
	L	A	A	A/	A	A	A	A
SEX:	-	M	M	M	M	M	M	F
CEPHALIC:	3,5,7							

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 58
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #		GRADE
A071 (CONTINUED)				
	EXTERNAL	1	LATE RESORPTION NO APPARENT MALFORMATIONS	
	SKELETAL	2	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4,#5	1
	SKELETAL	4	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	6	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	8	V REDUCED OSSIFICATION OF THE SKULL INTERPARIETAL, SUPRAOCCIPITAL; FRONTAL, PARIETAL, PREMAXILLA, BILATERAL	P
			V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH RUDIMENTARY RIB(S) RIGHT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 59
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #		GRADE
A071 (CONTINUED)				
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	2,3,4,5,6,7,8		
	VISCERAL	3,5,7		
	SKELETAL			
A072		1 2 3 4 5 6 7 8 9 10 11 12 13 14		
		A A A A/ A A A E A A A A A A		
	SEX:	F M M F M M M - F M M M F M		
	CEPHALIC:	1,3,5,7,10,12,14		
	VISCERAL	1	V LIVER- APPENDIX	P
			SMALL TISSUE, RED-YELLOW, ATTACHED TO RIGHT MEDIAN LOBE	
	SKELETAL	2	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
			METATARSAL, BILATERAL, #1	
			V 14TH RUDIMENTARY RIB(S)	P
			LEFT	
	SKELETAL	4	V PELVIC GIRDLE- CAUDAL SHIFT	P
			LEFT	
			V 14TH FULL RIB(S)	P
			LEFT; RUDIMENTARY, RIGHT	
			V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
			METATARSAL, BILATERAL, #1	
	SKELETAL	6	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
			METATARSAL, BILATERAL, #1	
			V 14TH RUDIMENTARY RIB(S)	P
			LEFT	
	EXTERNAL	8	EARLY RESORPTION	
	SKELETAL	9	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
			METATARSAL, BILATERAL, #1	
			V 14TH RUDIMENTARY RIB(S)	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 60
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #			GRADE
A072 (CONTINUED)					
				RIGHT	
	SKELETAL	11	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, BILATERAL, #1	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				RIGHT	
			V	14TH FULL RIB(S)	P
				RIGHT; RUDIMENTARY, LEFT	
	VISCERAL	12	M	SITUS INVERSUS	P
				TOTAL	
	SKELETAL	13	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, BILATERAL, #1	
			V	14TH FULL RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,5,6,7,9,10,11,12,13,14			
	VISCERAL	3,5,7,10,14			
	SKELETAL				
A073		1 2 3 4 5 6 7 8 9 10 11			
		A A A A A/ A A A A A A			
	SEX:	M M F F F M F F M M F			
	CEPHALIC:	2,4,6,8,10			
	SKELETAL	1	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, RIGHT, #1	
	SKELETAL	5	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 61
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #		GRADE
A073 (CONTINUED)				
			BILATERAL	
	SKELETAL	7	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
			#2-#5	
			V 14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
	SKELETAL	11	V 14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
			V PELVIC GIRDLE- CAUDAL SHIFT	P
			BILATERAL	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11		
	VISCERAL	2,4,6,8,10		
	SKELETAL	3,9		
A074		1 2 3 4 5 6 7 8 9 10 11 12		
		A A A A A A A A A/ A A E		
	SEX:	F M M M M F F M F F M -		
	CEPHALIC:	1,3,5,7,9,11		
	SKELETAL	2	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
			#2-#5	
			V 14TH RUDIMENTARY RIB(S)	P
			RIGHT	
	SKELETAL	6	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
			METATARSAL, BILATERAL, #1	
			M STERNEBRA(E) MALALIGNED (SEVERE)	P
			#2,#3; MODERATE- #4,#5	
			V 14TH RUDIMENTARY RIB(S)	P
			LEFT	
	SKELETAL	8	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 62
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #		GRADE
A074 (CONTINUED)				
			#4,#5	
	SKELETAL		V 14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT	P
	SKELETAL	10	V 14TH FULL RIB(S) RIGHT; RUDIMENTARY, LEFT	P
	EXTERNAL	12	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11		
	VISCERAL	1,3,5,7,9,11		
	SKELETAL	4		
A075		1 2 3 4 5 6 7		
		A A A A A/ A A		
	SEX:	M M F F F F M		
	CEPHALIC:	2,4,6		
	SKELETAL	1	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH FULL RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
	SKELETAL	3	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
	SKELETAL	5	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V BENT RIB(S) #3,#4	1
			V 14TH RUDIMENTARY RIB(S) RIGHT	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 63
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG	FETUS #			GRADE
A075 (CONTINUED)				
SKELETAL	7	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1		P
		V BENT RIB(S) #2-#5		1
		V 14TH RUDIMENTARY RIB(S) RIGHT		P
		V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL		P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7			
VISCERAL	2,4,6			
SKELETAL				
A076	1 2 3 4 5 6 7 8 9 10 11 12 13			
	A A A A A/ A A A E A A A E			
SEX:	F M F F F M M F - F M M -			
CEPHALIC:	1,3,5,7,10,12			
VISCERAL	1	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT		P
SKELETAL	2	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1		P
		V 14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT		P
		V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL		P
SKELETAL	4	V 14TH FULL RIB(S) BILATERAL		P
		V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL		P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 64
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #		GRADE
A076 (CONTINUED)				
	SKELETAL	6	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH FULL RIB(S) RIGHT; RUDIMENTARY, LEFT	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
	SKELETAL	8	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	EXTERNAL	9	EARLY RESORPTION	
	SKELETAL	11	V 14TH FULL RIB(S) BILATERAL	P
	EXTERNAL	13	EARLY RESORPTION	
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,10,11,12		
	VISCERAL	3,5,7,10,12		
	SKELETAL			
A077		1 2 3 4 5 6 7 8 9 10 11 12 13		
		A A A A A/ A A A A A A A A		
	SEX:	M F M M F F M M M M F M F		
	CEPHALIC:	2,4,6,8,10,12		
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
	VISCERAL	6	V LIVER- DISCOLORED LEFT LATERAL LOBE, PALE FOCI	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 65
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #		GRADE
A077 (CONTINUED)				
	SKELETAL	9	V 14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT	P
	SKELETAL	11	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, RIGHT, #1	P
			V 14TH RUDIMENTARY RIB(S) RIGHT	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11,12,13		
	VISCERAL	2,4,8,10,12		
	SKELETAL	1,3,7,13		
A078		1 2 3 4 5 6 7 8 9 10 11 12 13		
		A A A A A A/ A E A A A A A		
	SEX:	F F F M M F F - F M F M F		
	CEPHALIC:	1,3,5,7,10,12		
	SKELETAL	2	V 14TH RUDIMENTARY RIB(S) RIGHT	P
	SKELETAL	4	V 14TH RUDIMENTARY RIB(S) LEFT	P
	SKELETAL	6	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
	EXTERNAL	8	EARLY RESORPTION	
	SKELETAL	9	V 14TH FULL RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
	SKELETAL	11	V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1

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SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 66
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #			GRADE
A078 (CONTINUED)					
				#3-#5	
	SKELETAL		V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				LEFT	
	SKELETAL	13	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,5,6,7,9,10,11,12,13			
	VISCERAL	1,3,5,7,10,12			
	SKELETAL				
A079		1 2 3 4 5 6 7 8 9 10 11			
		A A A A A/ A A A A A A			
	SEX:	M M F M F F F F F M M			
	CEPHALIC:	2,4,6,8,10			
	SKELETAL	1	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#4,#5	
			V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
	VISCERAL	2	V	LIVER- APPENDIX	P
				SMALL TISSUE, RED-YELLOW, ATTACHED TO RIGHT MEDIAN LOBE	
	SKELETAL	3	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				LEFT	
	SKELETAL	5	V	14TH RUDIMENTARY RIB(S)	P

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OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
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PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 67
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #			GRADE
A079 (CONTINUED)					
				BILATERAL	
	SKELETAL		V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
	SKELETAL	7	V	REDUCED OSSIFICATION OF THE SKULL	P
				INTERPARIETAL	
			V	14TH FULL RIB(S)	P
				LEFT; RUDIMENTARY, RIGHT	
	SKELETAL	9	V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
	SKELETAL	11	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#4,#5	
			V	14TH FULL RIB(S)	P
				RIGHT; RUDIMENTARY, LEFT	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11			
	VISCERAL	4,6,8,10			
	SKELETAL				
A080		1 2 3 4 5 6 7 8 9 10 11 12 13			
		A A A E A E A A/ A A A A A			
	SEX:	F F M - F - M F F F F M M			
	CEPHALIC:	1,3,7,11,13			
	EXTERNAL	2	M	CLEFT PALATE	
				ENTIRE LENGTH	
	SKELETAL		V	REDUCED OSSIFICATION OF THE SKULL	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 68
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #			GRADE
A080 (CONTINUED)					
				SUPRAOCCIPITAL	
	SKELETAL		V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, BILATERAL, #1	
				CONFIRMATION OF CLEFT PALATE	P
				PALATINE PLATE, BILATERAL, REDUCED IN OSSIFICATION, NOT JOINED, ENTIRE LENGTH	
			V	14TH FULL RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
	EXTERNAL	4		EARLY RESORPTION	
	SKELETAL	5	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, BILATERAL, #1	
			V	14TH FULL RIB(S)	P
				LEFT; RUDIMENTARY, RIGHT	
	EXTERNAL	6		EARLY RESORPTION	
	SKELETAL	8	V	REDUCED OSSIFICATION OF THE SKULL	P
				SUPRAOCCIPITAL	
			V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, BILATERAL, #1	
			V	STERNEBRA(E) #5 AND/OR #6 UNOSSIFIED	P
				#6	
			V	14TH FULL RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
	EXTERNAL	9	M	CLEFT PALATE	
				ENTIRE LENGTH	
	SKELETAL		V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, BILATERAL, #1	

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 69
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #		GRADE
A080 (CONTINUED)				
	SKELETAL	9	V VERTEBRAL CENTRA- REDUCED OSSIFICATION THORACIC #3	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			CONFIRMATION OF CLEFT PALATE PALATINE PLATE, BILATERAL, REDUCED IN OSSIFICATION, NOT JOINED, ENTIRE LENGTH	P
	SKELETAL	10	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH FULL RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT RIGHT	P
	SKELETAL	12	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,3,5,7,8,10,11,12,13		
	VISCERAL	1,3,7,9,11,13		
	SKELETAL			

A081	1	2	3	4	5	6	7	8
	A	E	A	A	A	A/	A	A
SEX:	F	-	F	F	M	F	F	M
CEPHALIC:	3,5,7							

	SKELETAL	1	V 14TH RUDIMENTARY RIB(S)	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 70
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #			GRADE
A081 (CONTINUED)					
				BILATERAL	
	SKELETAL		V	PELVIC GIRDLE- CAUDAL SHIFT	P
				LEFT	
	EXTERNAL	2		EARLY RESORPTION	
	SKELETAL	4	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#2-#5	
			V	14TH RUDIMENTARY RIB(S)	P
				BILATERAL	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				LEFT	
	SKELETAL	6	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#2-#5	
	VISCERAL	7	V	LIVER- DISCOLORED	P
				LEFT LATERAL LOBE, PALE FOCI	
	SKELETAL	8	V	14TH FULL RIB(S)	P
				LEFT; RUDIMENTARY, RIGHT	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,3,4,5,6,7,8			
	VISCERAL	3,5			
	SKELETAL				
A082		1 2 3 4 5 6 7 8 9 10 11			
		A A A/ A A A A A A A A			
	SEX:	F M F M M M M M F F F			
	CEPHALIC:	1,3,5,7,9,11			
	SKELETAL	2	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, BILATERAL, #1	

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 71
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #		GRADE
A082 (CONTINUED)				
	SKELETAL	2	V 14TH RUDIMENTARY RIB(S) LEFT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #2-#5	1
	SKELETAL	4	V 14TH FULL RIB(S) LEFT; RUDIMENTARY, RIGHT	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
	SKELETAL	6	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
	VISCERAL	7	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
	SKELETAL	8	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, RIGHT, #1	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3,#4	1
	SKELETAL	10	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, RIGHT, #1	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11		
	VISCERAL	1,3,5,9,11		
	SKELETAL			

A083	1	2	3	4	5	6	7	8	9	10	11
	A	A	A	A/	A	A	A	A	A	A	A
SEX:	F	F	M	M	M	M	M	M	M	F	M
CEPHALIC:	2,4,6,8,10										

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 72
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #		GRADE
A083 (CONTINUED)				
	SKELETAL	1	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, RIGHT, #1	P
	SKELETAL	3	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
			V PELVIC GIRDLE- CAUDAL SHIFT RIGHT	P
	SKELETAL	5	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	7	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH RUDIMENTARY RIB(S) LEFT	P
			V STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3-#5	1
	SKELETAL	9	V 14TH RUDIMENTARY RIB(S) BILATERAL	P
			V PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
	VISCERAL	10	M EYE(S)- ABSENT AND/OR SMALL SMALL, LEFT	P *
	SKELETAL	11	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, LEFT, #1	P
			V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11		
	VISCERAL	2,4,6,8		
	SKELETAL			

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE
* = CEPHALIC FINDING

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 73
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG	FETUS #											GRADE
A084		1	2	3	4	5	6	7	8	9	10	11	
		A	A	A/	A	A	A	A	A	A	A	A	
	SEX:	F	M	F	M	F	F	M	M	F	M	F	
	CEPHALIC:	1,3,5,7,9,11											
VISCERAL	1	V LIVER- DISCOLORED LEFT LATERAL LOBE, PALE FOCI											P
SKELETAL	2	V 14TH RUDIMENTARY RIB(S) BILATERAL											P
		V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, RIGHT, #1											P
VISCERAL	3	V URETER(S)- CONVOLUTED LEFT											P
SKELETAL	4	V 14TH FULL RIB(S) BILATERAL											P
		V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, RIGHT, #1											P
VISCERAL	5	V LIVER- DISCOLORED LEFT LATERAL LOBE, PALE FOCUS											P
		V URETER(S)- CONVOLUTED LEFT											P
SKELETAL	6	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1											P
		V 14TH RUDIMENTARY RIB(S) BILATERAL											P
SKELETAL	8	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1											P
		V 14TH RUDIMENTARY RIB(S) BILATERAL											P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 74
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #		GRADE
A084 (CONTINUED)				
	VISCERAL	9	V URETER(S)- CONVOLUTED BILATERAL	P
			V URETER(S)- DILATED BILATERAL	P
	SKELETAL	10	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH RUDIMENTARY RIB(S) RIGHT	P
		NO REMARKABLE OBSERVATIONS		
	EXTERNAL	1,2,3,4,5,6,7,8,9,10,11		
	VISCERAL	7,11		
	SKELETAL			
A085		1 2 3 4 5 6 7 8 9 10 11 12		
		A A A A A E/ A A A A A E		
	SEX:	F F F F M - M F M F M -		
	CEPHALIC:	2,4,7,9,11		
	VISCERAL	2	V LIVER- SMALL SUPERNUMERARY LOBE(S) ONE, IN MEDIAN CLEFT	P
	SKELETAL	3	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1	P
			V 14TH RUDIMENTARY RIB(S) BILATERAL	P
	SKELETAL	5	V 14TH FULL RIB(S) RIGHT; RUDIMENTARY, LEFT	P
			V PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
	EXTERNAL	6	EARLY RESORPTION	
	SKELETAL	8	V 14TH FULL RIB(S)	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 75
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG	FETUS #			GRADE
A085 (CONTINUED)				
			LEFT; RUDIMENTARY, RIGHT	
SKELETAL		V	PELVIC GIRDLE- CAUDAL SHIFT LEFT	P
EXTERNAL	12		EARLY RESORPTION	
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,7,8,9,10,11			
VISCERAL	4,7,9,11			
SKELETAL	1,10			
A086	1 2 3 4 5 6 7 8 9 10 11 12			
	A A A A A/ E A A A A A A			
SEX:	M F M M M - F M M F F F			
CEPHALIC:	1,3,5,8,10,12			
EXTERNAL	6		EARLY RESORPTION	
SKELETAL	9	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #3,#4	1
SKELETAL	11	V	14TH RUDIMENTARY RIB(S) BILATERAL	P
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,7,8,9,10,11,12			
VISCERAL	1,3,5,8,10,12			
SKELETAL	2,4,7			
A087	1 2 3 4 5 6 7 8 9			
	A A A A A E/ A A A			
SEX:	M F F F F - M M F			
CEPHALIC:	2,4,7,9			
SKELETAL	1	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 76
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #			GRADE
A087 (CONTINUED)					
				METATARSAL, BILATERAL, #1	
	SKELETAL		V	PELVIC GIRDLE- CAUDAL SHIFT	P
				LEFT	
			V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#2-#5	
	SKELETAL	3	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, BILATERAL, #1	
			V	14TH RUDIMENTARY RIB(S)	P
				LEFT	
	SKELETAL	5	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, BILATERAL, #1	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				BILATERAL	
			V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
				#3,#4	
	EXTERNAL	6		EARLY RESORPTION	
	SKELETAL	8	V	METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED	P
				METATARSAL, BILATERAL, #1	
			V	14TH RUDIMENTARY RIB(S)	P
				RIGHT	
			V	PELVIC GIRDLE- CAUDAL SHIFT	P
				LEFT	
	NO REMARKABLE OBSERVATIONS				
	EXTERNAL	1,2,3,4,5,7,8,9			
	VISCERAL	2,4,7,9			
	SKELETAL				

A088	1	2
/	A	A
SEX:	M	M
CEPHALIC:	1	

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PROJECT:511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 09:39 19-MAY-16 PAGE 77
SPONSOR:3M BELGIUM 2.13 INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG		FETUS #			GRADE
A088 (CONTINUED)					
	SKELETAL	2	V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE) #4	1
		NO REMARKABLE OBSERVATIONS			
	EXTERNAL	1,2			
	VISCERAL	1			
	SKELETAL				

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

PFETv4.15
05/19/2016

PROJECT NO.:WIL-511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 02:51 4-MAY-16 PAGE 1
SPONSOR:3M BELGIUM 2.14 ADDITIONAL INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG	FETUS #											GRADE
! A069	1	2	3	4	5	6	7	8	9	10	11	
	A	A/	A	A	A	A	A	A	A	A	A	
SEX:	F	M	M	M	F	M	M	M	F	F	M	
CEPHALIC:	2,4,6,8,10											
SKELETAL	1	V 14TH RUDIMENTARY RIB(S) BILATERAL										P
SKELETAL	3	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1										P
		V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL										P
		V 14TH FULL RIB(S) BILATERAL										P
SKELETAL	5	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, BILATERAL, #1										P
		V PELVIC GIRDLE- CAUDAL SHIFT BILATERAL										P
		V 14TH RUDIMENTARY RIB(S) BILATERAL										P
SKELETAL	7	V METACARPAL(S) AND/OR METATARSAL(S) UNOSSIFIED METATARSAL, RIGHT, #1										P
		V PELVIC GIRDLE- CAUDAL SHIFT										P

A = VIABLE FETUS, E = EARLY RESORPTION, L = LATE RESORPTION, D = DEAD FETUS, "/" DENOTES CERVIX POSITION
OBSERVATION CODE: M = MALFORMATION, V = VARIATION GRADE CODE: 1 = SLIGHT, 2 = MODERATE, 3 = MARKED, P = PRESENT
SEX CODE: M = MALE, F = FEMALE, - = NOT APPLICABLE

! : There were 12 fetuses in total. Two fetuses were delivered early and for one fetus, cannibalism was noted.

PROJECT NO.:WIL-511508 PRENATAL DEVELOPMENTAL TOXICITY STUDY OF MTDID 7831 IN RATS 02:51 4-MAY-16 PAGE 2
SPONSOR:3M BELGIUM 2.14 ADDITIONAL INDIVIDUAL FETAL EXTERNAL, VISCERAL AND SKELETAL FINDINGS

DAMS FROM GROUP 4: 600 MG/KG	FETUS #			GRADE
! A069 (CONTINUED)				
			BILATERAL	
SKELETAL		V	14TH FULL RIB(S)	P
			BILATERAL	
		V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
			#2-#4	
SKELETAL	9	V	14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
		V	PELVIC GIRDLE- CAUDAL SHIFT	P
			LEFT	
SKELETAL	11	V	PELVIC GIRDLE- CAUDAL SHIFT	P
			BILATERAL	
		V	14TH RUDIMENTARY RIB(S)	P
			BILATERAL	
		V	STERNEBRA(E) MALALIGNED(SLIGHT OR MODERATE)	1
			#4,#5	
	NO REMARKABLE OBSERVATIONS			
EXTERNAL	1,2,3,4,5,6,7,8,9,10,11			
VISCERAL	2,4,6,8,10			
SKELETAL				

! : There were 12 fetuses in total. Two fetuses were delivered early and for one fetus, cannibalism was noted.

2.15 ADDITIONAL REPRODUCTION DATA

FEMALES THAT DID NOT SURVIVE UNTIL SCHEDULED NECROPSY

FEMALE	NECROPSY (DAY AND REASON)	CORPORA LUTEA	INSIDE UTERUS	OUTSIDE UTERUS
Group 3 (300 mg/kg)				
56	Day 16 p.c. (KIE)	4 left	3 normal implantations (NEF)	
		8 right	8 normal implantations (right, NEF)	
Group 4 (600 mg/kg)				
! 69	Day 21 p.c (early delivery)	2 left	1 live fetus (NEF)	1 live fetus (NEF)
		10 right	9 live fetuses (NEF)	

! : There were 12 fetuses in total. Two fetuses were delivered early and for one fetus, cannibalism was noted.

KIE = killed *in extremis*
p.c. = post-coitum
NEF = no external findings

2.16 KEY TO MISSING VALUES AND REMARKS

End of Treatment

Animal:	Uterus weight (gram):	Description:
69	56.557	Determined after delivery of two pups.

APPENDIX 3 PHASE REPORT FORMULATION ANALYSIS

TABLE OF CONTENTS

TABLES

1. REPORT APPROVAL

Charles River Den Bosch

Signature: .....

Name: M.J.C. Brekelmans, MSc.

Title: Principal Scientist
Analytical Chemistry

Date: September 12, 2016

2. SUMMARY

The purpose of this part of the study was to determine the accuracy of preparation and homogeneity of the test item in formulations.

Accuracy of preparation
The concentrations analysed in the formulations of Group 2, Group 3 and Group 4 were in agreement with target concentrations (i.e. mean accuracies between 85% and 115%).
No test item was detected in the Group 1 formulation.

Homogeneity
The formulations of Group 2 and Group 4 were homogeneous (i.e. coefficient of variation ≤ 10%).

3. INTRODUCTION

3.1. Study schedule analytical phase

Experimental starting date	:	07 April 2016
Experimental completion date	:	07 April 2016

3.2. Purpose of the study

The purpose of the analytical phase was to determine the accuracy of preparation and homogeneity of the test item in formulations.

4. MATERIALS AND METHODS

4.1. Reagents

Water	Tap water purified by a Milli-Q water purification system (Millipore, Bedford, MA, USA)
Acetonitrile	Biosolve, Valkenswaard, The Netherlands
Tetrahydrofuran (THF)	VWR International, Leuven, Belgium

All reagents were of analytical grade, unless specified otherwise.

4.2. Vehicle

Vehicle	Arachis Oil, Specific gravity 0.885 (Fagron, Capelle aan de IJssel, The Netherlands)

4.3. Study samples

Accuracy and homogeneity were determined for formulations prepared for use during treatment.

Duplicate samples (approximately 500 mg), which were taken from the formulations using a pipette, were accurately weighed into volumetric flasks of 25 mL. For determination of accuracy, samples were taken at middle position (50% height) or at top, middle and bottom position (90%, 50% and 10% height). The samples taken at 90%, 50% and 10% height were also used for the determination of the homogeneity of the formulations.

The volumetric flasks were filled up to the mark with THF. The solutions were further diluted to obtain concentrations within the calibration range.

4.4. Analytical method

4.4.1. Analytical conditions

Analysis was based on the analytical method validated for the test item in project 511509.

Analytical conditions:

Instrument	Acquity UPLC system (Waters, Milford, MA, USA)
Detector	Acquity UPLC PDA detector (Waters)
Column	Acquity UPLC BEH C18, 50 mm × 2.1 mm i.d., dp = 1.7 µm (Waters)
Column temperature	40°C ± 1°C
Injection volume	1 µL
Mobile phase	65/35 (v/v) acetonitrile/water
Flow	0.6 mL/min
UV detection	210 nm

4.4.2. Preparation of solutions

Stock and spiking solutions
Stock and spiking solutions of the test item were prepared in THF at concentrations of 2000 mg/L.

Calibration solutions
Calibration solutions in the concentration range of 0.8 – 120 mg/L were prepared from two stock solutions. The end solution of the calibration solutions was THF.

Quality control (QC) samples
Approximately 500 or 400 mg blank vehicle was spiked with the test item at a target concentration of 1 or 200 mg/g. The QC samples were treated similarly as the study samples (see paragraph 4.3 ‘Study samples’).

4.4.3. Sample injections

Calibration solutions were injected in duplicate. Study samples and QC samples were analysed by single injection.

4.5. Electronic systems for data acquisition

System control, data acquisition and data processing were performed using the following program:
- Empower 3 database version 7.21 (Waters, Milford, MA, USA).

Temperature, relative humidity and/or atmospheric pressure during sample storage and/or performance of the studies was monitored continuously using the following program:
- REES Centron Environmental Monitoring system version SQL 2.0 (REES Scientific, Trenton, NJ, USA).

4.6. Formulas

Response (R) — Peak area test item [units]

Calibration curve

$$R = a\,C_N + b$$

where:
C_N= nominal concentration [mg/L]
a = slope [units × L/mg]
b = intercept [units]

Analysed concentration (C_A)

$$C_A = \frac{(R - b)}{a} \times \frac{V \times d}{w} \quad [mg/g]$$

where:
w = weight sample [mg]
V = volume volumetric flask [mL]
d = dilution factor

Accuracy

$$\frac{C_A}{C_N} \times 100 \quad [\%]$$

QC samples

where:
C_N= nominal concentration [mg/g]

Accuracy

$$\frac{C_A}{C_T} \times 100 \quad [\%]$$

Study samples

where:
C_T= target concentration [mg/g]

4.7. Specifications

Preparation of formulations was considered acceptable if the mean accuracy was in the range 85-115% of the target concentration and was considered homogeneous if the coefficient of variation was ≤ 10%.

5. RESULTS

5.1. Calibration curves

A calibration curve was constructed using five concentrations. For each concentration, two responses were used. Linear regression analysis was performed using the least squares method with a 1/concentration^2 weighting factor. The coefficient of correlation (r) was > 0.99.

5.2. Samples

5.2.1. QC samples

The results of the QC samples are given in Table 1.

The mean accuracies of the QC samples were within the criterion range of 85-115%. It demonstrated that the analytical method was adequate for the determination of the test item in the study samples.

5.2.2. Study samples

The results of the study samples are given in Table 2.

Accuracy of preparation
In the Group 1 formulations, no test item was detected.

The concentrations analysed in the formulations of Group 2, Group 3 and Group 4 were in agreement with target concentrations (i.e. mean accuracies between 85% and 115%).

Homogeneity
The formulations of Group 2 and Group 4 were homogeneous (i.e. coefficient of variation ≤ 10%).

TABLES

Table 1 QC samples

Date of analysis	Concentration [mg/g]			Accuracy [%]	
	Target	Nominal	Analysed	Individual	Mean
07-apr-2016	1	0.994 0.931	1.14 0.988	115 106	110
07-apr-2016	200	204 198	201 196	99 99	99

Table 2 Accuracy and homogeneity test

Date of analysis	07-Apr-2016

Group	Sample position	Concentration [mg/g]		Accuracy [%]		Homogeneity (coefficient of variation) [%]
		Target	Analysed	Individual	Mean	
1	50% height	0.00 0.00	n.d. n.d.	n.a. n.a.	n.a.	n.a.
2	90% height	22.5 22.5	21.5 21.7	96 96	97	0.92
	50% height	22.5 22.5	21.8 21.8	97 97		
	10% height	22.5 22.5	22.1 22.0	98 97		
3	50% height	67.3 67.3	66.4 66.7	99 99	99	n.a.
4	90% height	134 134	133 133	100 99	100	0.75
	50% height	134 134	134 135	100 101		
	10% height	134 134	134 133	100 100		

n.d. Not detected.

n.a. Not applicable.

APPENDIX 4 HISTORICAL DATA FETAL MORPHOLOGY

Historical Control Data Rat: Crl:WI(Han) (outbred, SPF-Quality)
Gestation Day 21
Study Date Range: 2014 - 2015

Mean of Study Means

Endpoint	Total	Mean	SD	Median	Min	Max	P5	P95
No of Studies	**13**							
Total No. of Animals in the Control Group	304							
No. of Animals that Died	0							
No. of Animals that were Euthanized	0							
No. of Animals that Aborted or Delivered	3							
Percent Pregnant		98.8	2.73	100.0	90.9	100.0	97.1	100.0
No. of Animals Examined at Laparohysterectomy	301							
No. Nongravid	4							
No. Gravid	297							
No. with Only Resorptions	2							
No. of Dams with Live Fetuses	295							
Mean No. Viable Fetuses/Dam		10.7	0.71	10.6	9.1	11.6	10.3	11.2
Total No. Viable Fetuses	3194							
Viable Fetuses (%/Litter)		95.2	2.63	95.9	88.9	98.4	93.6	96.8
Mean No. Postimplantation Loss/Dam		0.5	0.15	0.4	0.2	0.7	0.4	0.6
Total No. Postimplantation Losses	134							
Postimplantation Loss (%/Litter)		4.8	2.63	4.1	1.6	11.1	3.2	6.4
Dead Fetuses (%/Litter)		0.0	0.11	0.0	0.0	0.4	0.0	0.1
Early Resorptions (%/Litter)		4.7	2.62	4.1	1.6	11.1	3.2	6.3
Late Resorptions (%/Litter)		0.0	0.11	0.0	0.0	0.4	0.0	0.1
Mean No. Implantations/Dam		11.2	0.69	11.1	9.6	12.0	10.8	11.6
Mean No. Corpora Lutea/Dam		11.9	0.71	11.7	10.9	13.2	11.5	12.3
Mean No. Preimplantation Loss/Dam		0.7	0.32	0.6	0.2	1.3	0.5	0.9
Total No. Preimplantation Losses	207							
Preimplantation Loss (%/Litter)		6.2	3.43	5.8	2.0	14.5	4.2	8.3
Total No. Male Fetuses	1617							
Total No. Female Fetuses	1577							
% Males/Litter		50.8	2.12	50.7	46.6	53.7	49.5	52.0
% Female/Litter		49.2	2.12	49.3	46.3	53.4	48.0	50.5
Mean Fetal Body Weight (g)		5.2	0.08	5.2	5.1	5.3	5.1	5.2
Mean Male Body Weight (g)		5.4	0.10	5.4	5.2	5.5	5.3	5.4
Mean Female Body Weight (g)		5.1	0.07	5.1	5.0	5.2	5.0	5.1
Mean Male Placenta Weight (g) [1]		0.46	0.01	0.47	0.44	0.47	0.4	0.5
Mean Female Placenta Weight (g) [1]		0.44	0.01	0.44	0.42	0.45	0.4	0.5

[1] Based on 4 datasets

Historical Control Data Rat: Crl:WI(Han) (outbred, SPF-Quality)
Gestation Day 21
Study Date Range: 2014 - 2015

No. of Studies	**13**	
Total No. Fetuses/Litters Examined Externally	3194	295
Total No. Fetuses/Litters Examined Viscerally	2061	295
Total No. Fetuses/Litters Examined Skeletally	2059	295

	Mean of Study Means (% Per Litter Basis)							**Summary Incidence (Total No. Affected)**	
MALFORMATIONS	**Mean**	**SD**	**Median**	**Min**	**Max**	**P5**	**P95**	**Fetuses**	**Litters**
Total External Malformations								1	1
Total Visceral Malformations								7	7
Total Skeletal Malformations								15	15
Total Malformations								22	22
EXTERNAL									
Exencephaly	0.0	0.14	0.0	0.0	0.5	0.0	0.1	1	1
Eye(s)- Open	0.0	0.14	0.0	0.0	0.5	0.0	0.1	1	1
VISCERAL									
Diaphragmatic Hernia	0.0	0.08	0.0	0.0	0.3	0.0	0.1	1	1
Eye(s)- Absent and/or Small	0.1	0.26	0.0	0.0	0.9	0.0	0.2	3	3
Hydrocephaly- External	0.0	0.12	0.0	0.0	0.5	0.0	0.1	1	1
Situs Inversus	0.2	0.34	0.0	0.0	1.0	0.0	0.4	3	3
SKELETAL									
Jaw- Upper Jaw Small	0.1	0.22	0.0	0.0	0.8	0.0	0.2	1	1
Jaw- Lower Jaw Absent or Small	0.1	0.22	0.0	0.0	0.8	0.0	0.2	1	1
Limb Bone(s)- Bent	0.3	0.44	0.0	0.0	1.1	0.0	0.5	4	4
Rib Anomaly	0.1	0.31	0.0	0.0	1.1	0.0	0.3	1	1
Skull Anomaly	0.1	0.34	0.0	0.0	1.2	0.0	0.3	2	2
Sternebra(e)- Fused	0.1	0.29	0.0	0.0	1.0	0.0	0.3	2	2
Sternebra(e) Malaligned (Severe)	0.0	0.08	0.0	0.0	0.3	0.0	0.1	1	1
Sternoschisis	0.1	0.22	0.0	0.0	0.8	0.0	0.2	1	1
Vertebral Anomaly With or Without Associated Rib Anomaly	0.2	0.53	0.0	0.0	1.9	0.0	0.5	3	3
Vertebral Centra Anomaly	0.1	0.22	0.0	0.0	0.8	0.0	0.2	1	1

Historical Control Data Rat: Crl:WI(Han) (outbred. SPF-Quality)
Gestation Day 21

	Mean of Study Means (% Per Litter Basis)							Summary Incidence (Total No. Affected)	
VARIATIONS	**Mean**	**SD**	**Median**	**Min**	**Max**	**P5**	**P95**	**Fetuses**	**Litters**
EXTERNAL									
None Observed									
VISCERAL									
Kidney(s)- Renal Papilla(e) Absent and/or Small	0.1	0.25	0.0	0.0	0.9	0.0	0.2	2	2
Liver- Appendix	1.2	0.56	1.3	0.3	2.3	0.9	1.6	23	21
Liver- Discolored	0.1	0.30	0.0	0.0	1.0	0.0	0.3	3	3
Liver- Small Supernumerary Lobe(s)	4.0	1.96	4.0	1.3	7.7	2.8	5.2	69	58
Spleen- Supernumerary	0.0	0.14	0.0	0.0	0.5	0.0	0.1	1	1
Thymus- Partially Undescended Horn(s)	1.3	1.55	0.8	0.0	4.3	0.3	2.2	34	23
Thyroid- Discolored	0.1	0.36	0.0	0.0	1.3	0.0	0.3	1	1
Ureter(s)- Convoluted	1.0	2.39	0.0	0.0	8.7	0.0	2.5	43	28
Ureter(s)- Dilated	0.9	2.33	0.0	0.0	8.5	0.0	2.3	44	19
SKELETAL									
7th Cervical Rudimentary Rib(s)	1.7	1.34	1.2	0.0	4.4	0.9	2.5	30	26
7th Cervical Full Rib(s)	0.1	0.36	0.0	0.0	1.1	0.0	0.4	2	2
14th Full Rib(s)	5.7	4.65	5.2	0.0	13.1	2.9	8.5	88	64
14th Rudimentary Rib(s)	44.1	19.84	54.4	19.0	72.0	32.1	56.1	798	250
Metacarpal(s) and/or Metatarsal(s) Unossified	2.2	1.97	1.0	0.0	6.3	1.0	3.4	41	24
Pelvic Girdle- Caudal Shift	6.6	3.77	7.1	1.7	12.8	4.3	8.9	127	71
Rib(s)- Bent	10.6	7.78	10.2	0.8	22.3	5.9	15.3	162	85
Rib(s)- Short	0.0	0.06	0.0	0.0	0.2	0.0	0.0	1	1
Skull- Reduced Ossification	2.7	2.55	1.8	0.0	7.0	1.2	4.3	81	46
Skull- Supernumerary Site	0.0	0.14	0.0	0.0	0.5	0.0	0.1	1	1
Sternebra(e) #1, #2, #3 and/or #4 Unossified	0.2	0.31	0.0	0.0	0.8	0.0	0.3	3	3
Sternebra(e) #5 and/or #6 Unossified	0.9	1.33	0.0	0.0	4.1	0.1	1.7	37	23
Sternebrae- Malaligned (Slight or Moderate)	11.1	5.72	8.9	4.4	21.3	7.6	14.5	188	131
Sternum- Supernumerary Ossification Site	0.1	0.31	0.0	0.0	1.1	0.0	0.3	1	1
Vertebral Centra- Reduced Ossification	0.6	0.88	0.4	0.0	3.0	0.1	1.2	12	12

APPENDIX 5 DOSE RANGE FINDING STUDY

SUMMARY OF DOSE RANGE FINDING STUDY (Test Facility Study No. 511507)

In order to set the dose levels for the main teratology study, a dose range finding study was performed. Four groups of 6 females were exposed to 0, 100, 300 and 1000 mg/kg for Days 6 to 20 post-coitum inclusive by oral gavage. These dose levels were based on a 14-days pilot study (Test Facility Study No. 511506) in which no toxicity was observed with treatment up to 1000 mg/kg.

If not mentioned otherwise, test system, procedures and techniques were identical to those used during the main study.

Schedule
Test item dosage preparation, all animal activities and necropsy were performed at the Schaijk location, all other supporting activities were performed at the 's-Hertogenbosch location.

Delivery of animals	19 February 2016
Start pairing	19 February 2016
Start treatment	25 February 2016
Necropsy	11 March 2016

Responsible Personnel

Coordinating Biotechnician	M.M.A. Rijkers (Charles River Den Bosch)

Test System

Room number	Room MR 1222
Number of animals	F_0-generation: 24 females F_1-generation: 186 fetuses
Randomisation	Two days after receipt of the animals

Allocation

Group	Dose level (mg/kg)	Number of females	Animal numbers
1	0	6	1-6
2	100	6	7-12
3	300	6	13-18
4	1000	6	19-24

Chemical analysis of dose preparations
Was not performed as part of the dose range finding study.

Necropsy
All animals surviving to the end of the observation period, all moribund animals and all animals showing abortion or premature delivery were sacrificed using a carbogen/carbon dioxide procedure.

Fetal examinations
Each viable fetus of animals surviving to planned necropsy was externally examined in detail, weighed and sexed. All live fetuses were euthanized by decapitation. For the late resorption a gross external examination was performed.

No visceral (internal) or skeletal examination was performed.

Data Collection

Test Facility Study Nos	Online data
512490	Clinical signs
511507	All other data

RESULTS

Maternal findings
One female (no. 21) at 1000 mg/kg was killed in extremis on Day 12 post-coitum.

Observations preceding early sacrifice of animal no. 21 included labored respiration and gasping on Day 12 post-coitum.
Salivation was noted for all animals, including the control group. Incidental findings that were noted included rales and alopecia. As these findings occurred within the range of background findings observed in rats of this age and strain under the conditions in this study, they were considered not to be toxicologically significant.

At 1000 mg/kg, females showed decreased body weight gain during the complete treatment period, with a peak effect on Day 9 and reduced (for uterus weight) corrected body weight gain at necropsy. At this dose, food consumption was statistically significantly reduced on Days 6-9 post-coitum.
At 300 mg/kg, 2/6 females showed decreased body weight gain on Day 9 post-coitum. Body weight recovered during the remaining treatment period.

Female no. 21, which was killed in extremis, showed an enlarged heart, gelatinous thymus and Gi-tractus distended with gas.
Discoloration of the placenta was noted for one control female. At 1000 mg/kg, one female showed alopecia and one female showed foci on the liver lobes. As these findings were incidental, they were not considered to be toxicologically relevant.

One control female (no. 02) and one female of the high dose group (no. 24) were non-pregnant. All other females were found to be pregnant with viable fetuses.

Post implantation loss was increased at 1000 mg/kg, which was due to one female (no. 22) with early resorptions only.

Fetal findings

Litter sizes were within normal limits for all groups. The lower mean litter size in the 1000 mg/kg group was caused by one non-pregnant female and one female with early resorptions only.

The male:female ratio was unaffected by treatment up to 1000 mg/kg.

Fetal body weights were statistically significantly decreased for male and female fetuses at the 1000 mg/kg dose group.

External examination of the fetuses revealed no malformations or variations.

CONCLUSION

Based on the results of the dose range finding study, selected dose levels for the main study were 0, 100, 300 and 600 mg/kg.

United States Environmental Protection Agency
Washington, DC 20460

Section 8(e) Notice

This is an original submission:	This is an amendment:
☑	☐

CERTIFICATION

I hereby certify to the best of my knowledge and belief that all information entered on this form is complete and accurate. I further certify that, pursuant to 15 U.S.C. § 2613(c), for all claims for protection for any confidential information made with this submission, all information submitted to substantiate such claims is true and correct, and that it is true and correct that the person submitting the claim has:

(i) taken reasonable measures to protect the confidentiality of the information;

(ii) determined that the information is not required to be disclosed or otherwise made available to the public under any other Federal law;

(iii) a reasonable basis to conclude that disclosure of the information is likely to cause substantial harm to the competitive position of the person; and

(iv) a reasonable basis to believe that the information is not readily discoverable through reverse engineering.

Any knowing and willful misrepresentation is subject to criminal penalty pursuant to 18 U.S.C. § 1001.

Signature:	Official Title:
ES/Jonathan M. Gerber	Advanced Regulatory Specialist
Contact Person: Jonathan M. Gerber	Email Address: jmgerber1@mmm.com
Date Signed: 03/24/2017	

PART 1	**Contact Information**	
Submission Information	Case Number:	Date Submitted: 03/24/2017
	Submission Alias: File 251	
Submitter Information	CBI: Yes: ☐ No: ☑	
	Company Name: 3M	Address: 3M CENTER

	Contact Person: Jonathan M. Gerber	ST. PAUL, MN, 55144
	Phone Number: 6517330226	Email Address: jmgerber1@mmm.com
Technical Contact	CBI: Yes: ☐ No: ☑	
	Company Name: 3M	Address: 3M CENTER ST. PAUL, MN, 55144 United States
	Contact Person: Mr Jonathan M. Gerber	
	Phone Number: 6517330226	Email Address: jmgerber1@mmm.com
PART 2	**Chemical Reports**	
Chemical Identification	Chemical Report Folder Alias: 67584-55-8	
	Chemical Identifying #: CASRN: 67584-55-8	CBI: Yes: ☐ No: ☑
	Chemical Name: 2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester	
Attached Document(s)	Report Study Title: Prenatal Developmental Toxicity Study of MTDID 7831 in Rats by Oral Gavage	
	Original Document: File 251_ Final Report.pdf	Submission Type: Final Report Submission
	Summary Original Document: File 251_CL.pdf	
	Effects: Health Effects	Endpoints: Developmental Toxicity/tertogenecity

Paperwork Reduction Act

The information collection requirements contained in the information collection request (ICR) have been submitted for OMB approval under 15 U.S.C. 2607(e). The ICR prepared by EPA, identified under EPA ICR No. 0794.13 and OMB control number 2070-0046, is available in the docket for the ICR. ICR No. 0794.13 addresses the incremental changes to the currently approved ICR documents that cover the existing reporting and record keeping programs that are approved under OMB control number 2070-0046. An agency may not conduct or sponsor, and a person is not required to, respond to a collection of information unless it displays a currently valid OMB control number.

Authority

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