available to the public in the OPPTS reading room.

(iii) *Reporting requirements.* The partitioning water/sediment testing shall be completed and a final report submitted to EPA by June 1, 1988, for the river test, and by July 15, 1988, for the lake test. Progress reports shall be submitted to EPA at 6-month intervals beginning 6 months after the effective date of the final Phase II rule.

(e) *Effective date.* (1) The effective date of this final Phase II rule for biphenyl is July 17, 1987, except for paragraph (c)(3)(iii) of this section. The effective date for paragraph (c)(3)(iii) of this section is March 1, 1990.

(2) The guidelines and other test methods cited in this rule are referenced as they exist on the effective date of the final rule.

[50 FR 37188, Sept. 12, 1985, as amended at 52 FR 20713, June 3, 1987; 54 FR 27354, June 29, 1989; 55 FR 7324, Mar. 1, 1990; 58 FR 34205, June 23, 1993]

§ 799.940 Bisphenol A.

(a) *Identification of test substance.* (1) Bisphenol A (CAS Number 80–05–7) (hereinafter"BPA") shall be tested in accordance with this section.

(2) BPA of at least 99 percent purity shall be used as the test substance.

(3) BPA shall be administered as a dust for inhalation with a target mass median aerodynamic diameter of 0.1 to 5 micrometers.

(b) *Persons required to submit study plans, conduct tests, and submit data.* All persons who manufacture or process BPA, other than as an inpurity, November 3, 1986 to the end of the reimbursement period shall submit letters of intent to conduct testing, submit study plans, conduct tests, and submit data or submit exemption applications as specified in this section, subpart A of this part, and parts 790 and 792 of this chapter for single-phase rulemaking.

(c) *Health effects testing*—(1) *Required inhalation toxicity testing.* Subchronic toxicity and recovery testing including the satellite test group, shall be conducted with BPA in accordance with the TSCA Health Effects Test Guideline for Inhalation Toxicity in §798.2450(a), (b), (c) and (e) of this chapter. The following additional testing requirements apply to bisphenol A:

(i) *Test procedures*—(A) *Animal selection*—(*1*) *Species and strain.* A mammalian species shall be used for testing. A variety of rodent species may be used although the rat is the preferred species. Commonly used laboratory strains shall be employed. If another mammalian species is used, the tester shall provide justification/reasoning for its selection.

(*2*) *Age.* Young adult animals shall be used. At the commencement of the study the weight variation of animals shall not exceed ±20 percent of the mean weight for each sex.

(*3*) *Sex.* (*i*) Equal numbers of animals of each sex shall be used at each dose level.

(*ii*) Females shall be nulliparous and nonpregnant.

(*4*) *Numbers.* (*i*) At least 20 animals (10 females and 10 males) shall be used for each test group.

(*ii*) If interim sacrifices are planned, the number of animals shall be increased by the number of animals scheduled to be sacrificed before the completion of the study.

(B) *Control groups.* A concurrent control group is required. This group shall be an untreated or sham-treated control group. Except for treatment with the test substance, animals in the control group shall be handled in a manner identical to the test group animals. Where a vehicle is used to help generate an appropriate concentration of the substance in the atmosphere, a vehicle control group shall be used. If the toxic properties of the vehicle are not known or cannot be made available, both untreated and vehicle control groups are required.

(C) *Satellite group.* A satellite group of 20 animals (10 animals per sex) shall be treated with the high concentration level for 90 days and observed for reversibility, persistence, or delayed occurrence of toxic effects for a posttreatment period of not less than 28 days.

(D) *Dose levels and dose selection.* (*1*) In subchronic toxicity tests, it is desirable to have a dose-response relationship as well as a no-observed-toxic-effect level. Therefore, at least three dose levels with a control and, where

appropriate, a vehicle control (corresponding to the concentration of vehicle at the highest exposure level) shall be used. Doses should be spaced appropriately to produce test groups with a range of toxic effects. The data should be sufficient to produce a dose-response curve.

(*2*) The highest concentration should result in toxic effects but not produce an incidence of fatalities which would prevent a meaningful evaluation.

(*3*) The lowest concentration should not produce any evidence of toxicity. Where there is a usable estimation of human exposure, the lowest concentration should exceed this.

(*4*) Ideally, the intermediate dose level(s) should produce minimal observable toxic effects. If more than one intermediate dose level is used, the concentrations should be spaced to produce a gradation of toxic effects.

(*5*) In the low and intermediate groups and in the controls the incidence of fatalities should be low, to permit a meaningful evaluation of the results.

(*6*) In the case of potentially explosive test substances, care should be taken to avoid generating explosive concentrations.

(E) *Exposure conditions.* The animals should be exposed to the test substance ideally for 6 hours per day on a 7 day per week basis, for a period of 90 days. However, based primarily on practical considerations, exposure on a 5-day per week basis for 6 hours per day is the minimum acceptable exposure period.

(F) *Observation period.* (*1*) Duration of observation shall be for at least 90 days.

(*2*) Animals in a satellite group scheduled for followup observations shall be kept for an additional minimum 28 days without treatment to detect recovery from, or persistence of, toxic effects.

(G) *Inhalation exposure.* (*1*) The animals shall be tested in inhalation equipment designed to sustain a dynamic air flow of 12 to 15 air changes per hour and ensure an adequate oxygen content of 19 percent and an evenly distributed exposure atmosphere. Where a chamber is used, its design should minimize crowding of the testing animals and maximize their exposure to the test substance. This is best accomplished by individual caging. To ensure stability of a chamber atmosphere, the total "volume" of the test animals shall not exceed 5 percent of the volume of the test chamber. Oronasal or head-only exposure may be used if it is desirable to avoid concurrent exposure by the dermal or oral routes.

(*2*) A dynamic inhalation system with a suitable analytical concentration control system shall be used. The rate of air flow shall be adjusted to ensure that conditions throughout the exposure chamber are essentially the same. Maintenance of slight negative pressure inside the chamber will prevent leakage of the test substance into the surrounding areas.

(*3*) The temperature at which the test is performed shall be maintained at 22° C (+2°). Ideally, the relative humidity shall be maintained between 40 to 60 percent.

(H) *Physical measurements.* Measurements or monitoring shall be made of the following:

(*1*) The rate of air flow should be monitored continuously but shall be recorded at least every 30 minutes.

(*2*) The actual concentrations of the test substance shall be measured in the breathing zone. During the exposure period the actual concentrations of the test substance should be held as constant as practicable and monitored continuously and shall be recorded at least at the beginning, at an intermediate time and at the end of the exposure period.

(*3*) During the development of the generating system, particle size analysis shall be performed to establish the stability of aerosol concentrations. During exposure, analysis shall be conducted as often as necessary to determine the consistency of particle size distribution.

(*4*) Temperature and humidity shall be monitored continuously and shall be recorded at least every 30 minutes.

(I) *Food and water during exposure period.* Food shall be withheld during exposure. Water may also be withheld if necessary.

(J) *Observation of animals.* (*1*) Each animal should be handled and its phys-

ical condition shall be appraised at least once each day.

(2) Additional observations should be made daily with appropriate actions taken to minimize loss of animals to the study (e.g. necropsy or refrigeration of those animals found dead and isolation or sacrifice of weak or moribund animals).

(3) Signs of toxicity shall be recorded as they are observed including the time of onset, the degree, and duration.

(4) Cage-sided observations should include but not be limited to changes in the skin and fur, eyes and mucous membranes, respiratory, circulatory, autonomic and central nervous sytems, somatomotor activity and behavior pattern.

(5) Animals shall be weighed weekly. Food consumption should also be determined weekly if abnormal body weight changes are observed.

(6) At the end of the study period all survivors in the nonsatellite treatment groups shall be sacrificed. Moribund animals shall be removed and sacrificed when noticed.

(K) *Clinical examinations.* (1) The following examinations shall be made on at least five animals of each sex in each group:

(*i*) Certain hematology determinations shall be carried out at least two times during the test period: At terminal sacrifice at the end of the 90-day test period and at completion of the post-exposure recovery period (satellite group). Hematology determinations which shall be appropriate to this study include: packed cell volume, hemoglobin, erythrocyte count, total leukocyte, red blood cell indices, platelet count, and differential leukocyte count.

(*ii*) Certain clinical biochemistry determinations on blood shall be carried out at least two times: At terminal sacrifice at the end of the 90-day test period and at completion of the post-exposure recovery period (satellite group). Clinical biochemistry test areas which shall be appropriate to this study include: blood urea nitrogen, glutamic pyruvic transaminase activity, glutamic oxaloacetic transaminase activity, alkaline phosphatase activity, glucose, total protein, albumin, and globulins. Other determinations which may be necessary for an adequate toxicological evaluation include: analyses of lipids, hormones, methemoglobin, and cholinesterase activity. Additional clinical biochemistry may be employed, where necessary, to extend the investigation of observed effects.

(2) The following examinations shall be made on at least five animals of each sex in each group:

(*i*) Ophthalmological examination, using an ophthalmoscope or equivalent suitable equipment, shall be made prior to exposure to the test substance and at the termination of the study. If changes in the eyes are detected, all animals should be examined.

(*ii*) Urinalysis is not recommended on a routine basis, but only when there is an indication based on expected or observed toxicity.

(L) *Gross pathology.* (1) All animals shall be subjected to a full gross necropsy which includes examination of the external surface of the body, all orifices and the cranial, thoracic and abdominal cavities and their contents, and the esophagus, stomach, and upper small intestine.

(2) At least the liver, kidneys, brain, and male gonads shall be weighed wet, as soon as possible after dissection to avoid drying.

(3) The following organs and tissues, or representative samples thereof, shall be preserved in a suitable medium for possible future histopathological examination: All gross lesions; lungs—which shall be removed intact, weighed, and treated with a suitable fixative to ensure that lung structure is maintained (perfusion with the fixative is considered to be an effective procedure); nasopharyngeal tissues; brain—including sections of medulla/pons cerebellar cortex and cerebral cortex; pituitary; thyroid/parathyroid; thymus; trachea; heart; sternum with bone marrow; salivary glands; liver; spleen; kidneys; adrenals; pancreas; gonads; uterus; accessory genital organs, epididymis, prostate, and, if present, seminal vesicles; aorta; skin; gall bladder (if present); esophagus; stomach; duodenum; jejunum; ileum; cecum; colon; rectum; urinary bladder; representative lymph node; mammary gland; thigh musculature; peripheral nerve; eyes; femur—including articular sur-

face; spinal cord at three levels—cervical, midthoracic, and lumbar; and exorbital lachrymal glands.

(M) *Histopathology.* The following histopathology shall be performed: (*1*) Full histopathology on the respiratory tract including nasal cavity, pharynx, larynx and paranasal sinuses of all animals in the control, high dose, and satellite groups.

(*2*) All gross lesions in all animals.

(*3*) Target organs in all animals.

(*4*) Lungs of animals in the low and intermediate dose groups shall also be subjected to histopathological examination contingent on the histopathological findings of the control, high dose, and satellite groups.

(*5*) When a satellite group is used, histopathology shall be performed on tissues and organs identified as showing effects in other treated groups.

(ii) [Reserved]

(2) *Reporting requirements.* (i) Subchronic toxicity testing, including the satellite test group, shall be completed and the final study report submitted to the Agency within 17 months from the effective date of this final rule.

(ii) Progress reports shall be submitted at 6 month intervals, the first of which is due within 6 months of the effective date of this final rule.

[51 FR 33052, Sept. 18, 1986, as amended at 52 FR 1331, Jan. 13, 1987; 58 FR 34205, June 23, 1993]

§ 799.1051 Monochlorobenzene.

(a) *Identification of test substance.* (1) Monochlorobenzene (CAS Number 108–90–7) (hereinafter "MCB") shall be tested in accordance with this section.

(2) MCB of at least 99 percent purity shall be used as the test substance.

(3) The test substance shall not contain more than 0.05 percent benzene and 0.05 percent hexachlorobenzene.

(b) *Persons required to submit study plans, conduct tests and submit data.* All persons who manufacture (import) or process monochlorobenzene other than as an impurity after the effective date of this rule (August 21, 1986) to the end of the reimbursement period shall submit letters of intent to conduct testing or exemption applications, submit study plans, conduct tests, and submit data as specified in this section, subpart A of this part, and parts 790 and 792 of this chapter for single-phase rulemaking.

(c) *Health effects testing*—(1) *Reproductive and fertility effects*—(i) *Required testing.* (A) A test for reproductive and fertility effects shall be conducted with MCB in accordance with § 798.4700 of this chapter.

(B) The route of administration for the reproductive and fertility effects testing of MCB shall be inhalation.

(C) The test species shall be the Sprague-Dawley Rat.

(ii) *Reporting requirements.* (A) The reproductive and fertility effects test shall be completed and the final results submitted to the Agency within 29 months of the effective date of this rule.

(B) Progress reports shall be submitted to the Agency every 6 months after the effective date of the final rule.

[51 FR 24666, July 8, 1986, as amended at 58 FR 34205, June 23, 1993]

§ 799.1052 Dichlorobenzenes.

(a) *Identification of test substances.* (1) 1,2,- and 1,4-dichlorobenzenes, CAS Numbers 95–50–1 and 106–46–7 respectively, shall be tested in accordance with this section.

(2) The substances identified in paragraph (a)(1) of this section shall be 99 percent pure and shall be used as the test substances in each of the tests specified.

(3) For health effects testing required under paragraph (e) of this section, both test substances shall not contain more than 0.05 percent benzene and 0.05 percent hexachlorobenzene.

(b) *Persons required to submit study plans, conduct tests, and submit data.* (1) All persons who manufacture or process substances identified in paragraph (a)(1) of this section, other than as an impurity, from May 21, 1986, to the end of the reimbursement period, shall submit letters of intent to test or exemption applications and shall conduct tests, in accordance with part 792 of this chapter, and submit data as specified in this section, subpart A of this part and part 790 of this chapter for two-phase rulemaking.

(2) Persons subject to this section are not subject to the requirements of § 790.50(a) (2), (5), (6) and (b) and § 790.87(a)(1)(ii) of this chapter.