



E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
WILMINGTON, DELAWARE 19898

ENGINEERING DEPARTMENT
LOUVIERS BUILDING

CC: H.L. Adam-Emp Rel-Nemours Bldg
W.R. Chalker-ESD
O.T. Skretvedt-Tex Fib-Spruance
S.A. Tasher-Legal-Du Pont Bldg
J. Klassen-Du Pont Canada, Inc.-
Kingston
S.S. O'Shea-Du Pont Canada, Inc.-
Mississauga
R.R. Prescott-Conoco, Inc.
~~IS 32~~

May 17, 1983

PRESENT: L. T. FREELAND - CHAIRMAN - POLYMER PRODUCTS - BEAUMONT
J. H. BERTELS - TEXTILE FIBERS - COOPER RIVER
K. A. CHEN - C&P - CHAMBERS WORKS - BLDG 1094
H. M. BAKER (ALTERNATE FOR R. C. COOLEY) - EMP REL - NEMOURS BLDG
R. J. DAM - ER&D - EPL
J. F. DOUGHTY - POLYMER PRODUCTS - WASHINGTON WORKS
W. C. HAAF - F&FP - BRANDYWINE BLDG
E. J. KAHAL - PETROCHEMICALS - SAVANNAH RIVER - BLDG 735A
J. A. MORELLO - ESD
L. F. PERCIVAL - CR&D - HASKELL
R. W. WORMLEY - CR&D - E324/A1
R. A. CROZIER, JR. - STANDARDS SECTION *one*

ABSENT: R. L. BARNHART - PETROCHEMICALS - VICTORIA
G. J. SZURLEY - PHOTO PRODUCTS - PARLIN

PLAINTIFF'S
EXHIBIT
DUP-879

STANDARDS SECTION - AIR QUALITY & OCCUPATIONAL HEALTH SUBCOMMITTEE
MINUTES FOR THE MEETING HELD THURSDAY, MAY 12, 1983
AT 8:30 A.M. IN ROOM 13067, DU PONT BUILDING

APPROVAL OF MINUTES

The minutes of the March 3, 1983, meeting were approved.

ISSUED IN APRIL
J2P

ISSUED IN MAY
J4P J3L

1. S2H - Respiratory Protective Equipment (12/78) - L. F. Percival
Review comments to L. F. Percival by July 15. Pink sheets will be distributed to subcommittee for final approval at October meeting.
2. S15G - X-Ray Installations (2/79) - R. J. Dam
Review comments to R. J. Dam by June 15. Standard released for issue after author's review of pink sheets.
3. J2N - Odor Control (4/79) - E. J. Kahal
Reviewed proposed revisions. Pink sheets to be circulated for subcommittee approval. Standard released for issue after incorporation of pink sheet comments and author review.
4. J4L - Instrument Methods for Analysis for Sulfur Dioxide and Ambient Air (5/79) - J. A. Morello
Marked copies were distributed for review. Corrections accepted. Released for issue.

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5. J9M - Calibration Gas Standards for Source Monitoring Equipment (7/79) -
L. T. Freeland
Marked up standard was reviewed. Comments accepted. Released for issue.
6. S4T - Measurement and Control of Asbestos Dust Exposure (10/79) -
R. C. Cooley
General discussion. Send additional comments to R. C. Cooley by July 15. Pink sheets will be prepared and approved by Legal, Medical, and Construction in September. Final subcommittee approval in October.
7. S21G - Radio Frequency and Microwave Radiation Safety (9/81) -
R. J. Dam
General subcommittee disapproval of revised Paragraph 4.2.1, Monitoring Requirement. Comments to be sent to R. J. Dam by June 15. Standard released for issue after incorporation of comments and author review.
8. S7H - Chemical Protective Clothing (12/81) - L. T. Freeland
No progress.
9. S5T - Proposed Standard on Lead - L. F. Percival/W. C. Haaf
Pink sheets distributed to subcommittee for comments. Review comments by July 1. Revised pink sheets to be reviewed by Legal before serial letter is issued.
10. S12T - Strategy for Work-Space Sampling for Exposure to Chemicals (10/79) - K. A. Chen
Standard will be revised to delete references to Logan 2 because it has not been financed and reflect instead how the information is derived. Versions of Logan at plant sites now will stay in effect. K. A. Chen will discuss revisions with R. Martin and mark up a copy for distribution. Further comments should be sent to K. A. Chen. No progress. Scheduled for review at the October meeting.

NEW STANDARD

11. PCB - J. F. Doughty
Standard is attached to minutes. Comments to J. F. Doughty by July 15. Pink sheet review at October meeting.

ADJOURNMENT

The meeting adjourned at 3:15 p.m.

NEXT MEETING

The next meeting of the Air Quality and Occupational Health Subcommittee is scheduled for Thursday, October 6, 1983, at 8:30 a.m. in Room 13067, Du Pont Building.

Note: The June 2, 1983, meeting is canceled.

RACJr:dlm
Atch

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POLYCHLORINATED BIPHENYLS (PCB'S)

1. SCOPE

1.1 This standard provides general information for the proper handling of Polychlorinated Biphenyls (PCB's) and PCB-contaminated equipment.

1.2 The EPA has primary responsibility for regulating PCB use and disposal. An OSHA Permissible Exposure Limit (PEL) does exist.

1.3 References are provided which specify specific EPA requirements for the proper labeling, handling, storage, transport and disposal of PCB's and PCB-contaminated equipment. To be assured of compliance in situations not clearly covered by this standard, consult these references along with your Departmental Environmental Coordinator and/or Du Pont Legal Department.

2. GENERAL

2.1 PCB's are diphenyl rings in which one or more hydrogen atoms are replaced by a chlorine atom(s). They are prepared by the chlorination of biphenyl and hence are complex mixtures of isomers. There are 209 possible compounds. Most widely used are 42% chlorine chlorodiphenyl and 52% chlorine chlorodiphenyl. These compounds are light, straw-colored liquids. Some PCB's have a wax-like appearance.

2.2 PCB's and PCB-contaminated liquids most often found at Company sites include certain transformer oils, hydraulic fluids and heat exchange fluids. These fluids are normally in enclosed systems. Equipment containing these fluids includes transformers, capacitors, heat exchangers, ballasts, electrical switch gear and special transformers serving rectifiers. Exposure to PCB's can occur during maintenance activities of this equipment. Equipment failure resulting in leakage could also lead to exposure.

2.3 The following EPA definitions apply (Ref. 6):

- a. A PCB Transformer is a transformer containing 500 ppm or more PCB.
- b. A large PCB Capacitor is a high or low voltage capacitor containing three or more pounds of PCB dielectric fluid.
- c. PCB-Contaminated Electrical Equipment is any electrical equipment containing oil "contaminated" with PCB at concentrations of 50 to 499 ppm as defined by EPA rules. NOTE: All oil-filled electrical equipment is presumed to be contaminated unless analyzed.
- d. PCB-free electrical equipment contains oil with less than 50 ppm PCB.
- e. Fluids used in hydraulic systems and heat exchangers are PCB-contaminated where such fluid contains more than 50 ppm PCB.

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2. GENERAL (cont.)

2.4 There is no established Company policy regarding the need or desirability for analyzing these oils and fluids for PCB content. However, unless such transformers are analyzed they are legally presumed to be PCB-contaminated at levels above 50 ppm. Analysis is recommended only when you are assured that the contractor's analytical techniques are accurate (Ref. 7).

3. EXPOSURE LIMITS AND AIR SAMPLING

3.1 The recommended OSHA Permissible Exposure Limit (PEL) for chlorodiphenyl (42% chlorine) is 1.0 mg/m³, and for chlorodiphenyl (54% chlorine) it is 0.5 mg/m³ 8-hour TWA (Ref. 3).

3.2 The ACGIH Threshold Limit Value (TLV®) for chlorodiphenyl (42% chlorine) is 1.0 mg/m³ (8-hour TWA), and for chlorodiphenyl (54% chlorine) it is 0.5 mg/m³ (8-hour TWA). The Short-Term Exposure Limits (TLV® STEL) for a 15-minute period are 2.0 mg/m³ and 1.0 mg/m³ (Ref. 2).

3.3 Air sampling for PCB's is not normally conducted due to the nature of the material, its limited use and exposure potential. Most PCB's have a vapor pressure at ambient temperatures of less than 0.001 mm Hg. If air sampling is needed, NIOSH Method, P&CAM 253, recommends collection of PCB's in air using a sorbent tube containing florasil and analysis by gas chromatography or the perchlorination method (Ref. 1). If a determination cannot be made as to which PCB is present, confirmation should be obtained by gas chromatography/mass spectrometry analysis.

4. HANDLING

4.1 PCB exposure requires protection from skin contact and inhalation. The above exposure limits are considered low enough to prevent systemic effects, but it is not known whether these levels will prevent chloracne. Personal protective clothing must be used during any operation in which workers might contact PCB or substances containing PCB's.

4.2 Protective Clothing. Disposable protective clothing impervious to PCB's must be worn. This includes Saranex® laminated Tyvek® coveralls (Ref. 4), proper gloves and shoe covers. Acceptable polymers of construction for gloves and shoe covers for pure PCB's or PCB's in mineral oil are butyl rubber, neoprene, nitrile rubber, polyvinyl alcohol and Viton®. Those for PCB tri-chlorobenzene mixtures are nitrile, polyvinyl alcohol and Viton®, and if use time is less than one hour, butyl rubber and neoprene (Ref. 8).

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4. HANDLING (cont.)

4.3 Respiratory Protection. The following types are required as dictated by the use situation (Ref. 8):

4.3.1 A self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand mode.

4.3.2 Type "C" supplied-air respirator with full face piece, helmet or hood. If a worker is in a confined space working in a supplied-air respirator, an escape cylinder must be provided.

4.3.3 A chemical cartridge respirator with combination filter/organic vapor cartridges can be used to provide respiratory protection when handling PCB-contaminated articles. PCB-contaminated transformer oil, PCB spills and maintenance of PCB systems if all the following conditions are met:

- a. PCB liquid is at ambient temperatures.
- b. PCB's are present only as a contaminant.
- c. PCB's are not in a confined area.

Cartridges should be changed after every PCB cleanup/maintenance activity or shift, whichever occurs first.

4.4 Personal Hygiene. After any potential PCB exposure, the worker is required to take a complete shower.

5. LABELING REQUIREMENTS

5.1 Most PCB items (including PCB containers, PCB article containers, PCB articles, PCB equipment and PCB transport vehicles) that contain 50 ppm or greater PCB's must be marked with the EPA-approved label. See 40 CFR 761.40 (formerly 40 CFR 761.44).

5.2 PCB transformers (containing 500 ppm or greater PCB's) must be properly labeled. PCB-contaminated electrical equipment (containing between 50 and 500 ppm PCB's) are not required to be labeled.

5.3 An unmarked mineral oil transformer is automatically assumed to be a PCB-contaminated transformer (and therefore needs no label). However, if a transformer has no nameplate information but there is a reasonable suspicion that PCB's may be present above 500 ppm, then the transformer should be labeled as a PCB transformer until the PCB content can be verified.

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5. LABELING REQUIREMENTS (cont.)

5.4 All large, high-voltage PCB capacitors (containing 1.36 kg [3 lbs.] or greater of dielectric fluid and which operate at or above 2000 volts a.c. or d.c.) must be labeled, including those in service. Large, low-voltage PCB capacitors (containing 1.36 kg [3 lbs.] or greater of dielectric fluid) and which operate below 2000 volts a.c. or d.c. must be labeled only when they are removed from use.

5.5 Small capacitors do not have to be labeled. Equipment containing PCB capacitors does not have to be labeled unless the capacitor is a large, high-voltage capacitor or if the equipment was manufactured after January 1, 1979, and contains a small PCB capacitor. This latter equipment should be marked at the time of manufacture, "This equipment contains PCB capacitors."

5.6 If a PCB capacitor is installed in a "protected" area (for example, on a power pole or behind a fence), the pole, structure or fence must be labeled in a place easily seen by interested persons, such as servicemen.

5.7 The storage area used to store PCB's and PCB items for disposal must be labeled with the EPA-approved label.

6. RECORD KEEPING REQUIREMENTS

6.1 Owners and operators of facilities which either use PCB's or PCB items (any PCB article, PCB article container, PCB container or PCB equipment) or store PCB's or PCB items must keep records of the disposition of those PCB's or PCB items. This applies to facilities using or storing at least 99.4 lbs. (45 kg) of PCB's in PCB container(s), one or more PCB transformers or 50 or more PCB high or low voltage large capacitors.

6.2 Record keeping was to have begun on July 2, 1978. These records should form the basis of a separate annual document prepared for each facility by July 1 of each year. The first annual report (for the period January 1, 1978 to December 31, 1978) should have been completed by July 2, 1979.

6.3 The annual document must include the following information:

6.3.1 The dates when PCB's and PCB items are removed from service, are placed into storage for disposal and are placed into transport for disposal.

6.3.2 The total weight in kilograms of any PCB's and PCB items in PCB containers including the identification of container contents (such as liquids and capacitors).

6.3.3 The location of the initial storage or disposal facility and the name of the owner or operator of the facility.

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6. RECORD KEEPING REQUIREMENTS (cont.)

6.3.4 The total quantities of PCB's and PCB items remaining in service at the end of the calendar year using the following breakdown:

- a. Total weight in kilograms of any PCB's or PCB items in PCB containers including the identification of container contents.
- b. Total weight of PCB transformers and total weight in kilograms of any PCB's contained in the transformers.
- c. Total number of PCB large, high or low voltage capacitors.

6.4 "Interim Measures Program." From May 11, 1981 to September 24, 1981, EPA required quarterly inspection and record keeping of PCB transformers located in areas posing no risk or exposure to food and feed products or processes. In addition, EPA required weekly inspection and record keeping of any transformer containing PCB's in concentrations of 50 ppm or greater located in areas posing an exposure risk to food and feed products and processes. All records of inspection made during this period must be retained until September 24, 1984. See 46 Federal Register 16090 (March 10, 1981).

6.5 August 25, 1982 Regulations. EPA promulgated new PCB electrical equipment regulations on August 25, 1982. 47 Federal Register 37342. These regulations supplement the PCB rules previously in effect. The new regulations require that PCB transformers and PCB-filled electromagnets (500 ppm or greater PCB) in use or stored for reuse and located in areas posing an exposure risk to food or feed be inspected weekly. All PCB transformers in use or stored for reuse which do not pose an exposure risk to food or feed must be inspected every three months. PCB transformers that have been analyzed and found to contain less than 60,000 ppm PCB (after three months in service use) or which have impervious, undrained secondary containment capacity of at least 100 percent of the total dielectric fluid volume of all transformers so contained are only subject to annual inspection. Records of the above inspection and maintenance history shall be maintained for at least three years after disposing of the transformer and must be available to EPA upon request.

7. STORAGE

7.1 PCB's, PCB items and PCB materials can be stored and transported in five labeled container types which comply with Department of Transportation (DOT) specifications (49 CFR 173.510). The DOT containers listed below should be available through normal drum suppliers. However, if not available, the Steel Shipping Container Institute in New Jersey (201-688-8750) can supply names and addresses of drum suppliers in your area.

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7. STORAGE (cont.)

Container Marking	Description
DOT-5/5-10/33-55-110	Removable head steel barrels or drums.
DOT-5B/5-10-15-33-55-110	Removable head steel barrels or drums.
DOT-6D/5-15-30-55	Cylindrical steel overpack, straight sided for inside plastic containers.
DOT-17C/5-10-30-55	Removable head steel drum (single trip).
DOT-17E/5-10-30-55	Non-removable head steel drum (single trip).

7.2 PCB articles and low concentration PCB liquids (50 to 500 ppm) can be temporarily stored on site in a noncomplying storage area for up to 30 days (Ref. 5). All PCB articles and PCB containers stored for disposal must be dated on the article or container when they are placed in storage.

8. SPILLS

8.1 The site should develop a Chemical Spill and Countermeasure Plan for handling PCB leaks or spills utilizing these guidelines.

8.2 A portable Spill Cleanup Kit should be maintained at any site where PCB's are used or present. The kit should consist of:

- 1 - 55-gallon, DOT-approved container.
- 2 - sets of Saranex® laminated Tyvek® coveralls with hood and shoe covers (see Section 4).
- 4 - pairs of rubber gloves (see Section 4).
- 1 - short-handled broom.
- 1 - shovel.
- 1 - roll tape.
- 1 - large bag of absorbent materials.
- 5 - pounds of absorbent rags.
- 1 - box of 30-gallon plastic bags.
- 100 - feet of yellow rope.
- 2 - metal "PCB" signs for posting area.
- 6 - small "PCB" labels for bags.

DUP 1121457

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8. SPILLS (cont.)

8.3 This equipment should be put inside the 55-gallon drum and labeled as a "PCB Spill Cleanup Kit." Self-contained breathing apparatuses should be kept near the spill kit.

8.4 Suggested Spill Control Guidelines include the following:

8.4.1 Upon identification of a suspected PCB leak or spill, notify site Spill Coordinator and remove all unprotected personnel for area.

8.4.2 Personal protective equipment must be worn, as outlined in Section 4, by all personnel engaged in containment and cleanup of a leak or spill. Personnel must be properly trained in the use of personal protective equipment and in spill control procedures.

8.4.3 Rope off area and post metal signs.

8.4.4 Contain leak or spill by diking or damming the material.

8.4.5 Absorb PCB material with clay, diatomaceous earth (Celite), dry sand or similar material. Use rags if spill is minor.

8.4.6 Shovel or scoop material into plastic bags. Label bags and seal with tape. Place bags in drum.

8.4.7 If PCB material is not viscous enough for absorption, dilute PCB material with a solvent such as stoddard, kerosene or diesel fuel. Absorb PCB material and solvents as stated in 8.4.5. Caution should be taken when using solvents since these are flammable and toxic.

8.4.8 Decontamination of equipment or work surface should follow cleanup. A "solvent" in which PCB has a solubility of 5% or more by weight should be used. Such solvents include stoddard, kerosene and diesel fuel. Good industrial hygiene must be followed when utilizing these solvents.

8.4.9 Once the area is decontaminated and all PCB material is secured in plastic bags, in the drum, remove protective equipment. Place contaminated clothing in the labeled drum and seal the drum.

8.4.10 Shower completely.

DUP 1121458

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9. DECONTAMINATION

9.1 Transformers

- a. Drain transformers of all free-flowing liquid.
- b. Fill with "solvent" (see 8.4.8) and allow to stand for 18 hours.
- c. Drain "solvent" and dispose of contaminated "solvent" and PCB's in accordance with EPA regulations.
- d. Dispose of transformer in an approved chemical waste landfill.

9.2 Containers

- a. Flush the internal surfaces of the container three times with a "solvent" containing less than 50 ppm PCB's.
- b. Each rinse should use a volume of the normal diluent equal to approximately 10% of the PCB container capacity.
- c. Dispose of PCB and "solvents" in accordance with EPA regulations.
- d. Upon decontamination, the container can be used as a general container or disposed of as municipal waste.

9.3 Hydraulic Systems

- a. Systems containing more than 1000 ppm PCB's must be drained and then flushed with a "solvent."
- b. The hydraulic fluid and "solvent" must be disposed of in accordance with EPA regulations depending on the liquid PCB concentration.
- c. After decontamination, the equipment can be salvaged or disposed of in an approved, municipal landfill.

10. INCIDENTAL PCB GENERATION

10.1 EPA's current regulations ban the manufacture of PCB's at concentration levels above 49 ppm. These regulations apply to incidental generation of PCB's as undesired impurities or byproducts in commercial or research activities. The law requires chemical manufacturers to control their operations to ensure PCB concentrations do not exceed 49 ppm but it does not require systematic analysis of materials that could contain PCB's or notification of EPA.

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10. INCIDENTAL PCB GENERATION (cont.)

10.2 Manufacturers of materials which exceed the cut off limit may petition the EPA for an exemption. To qualify for an exemption, the activity must have been ongoing prior to January 1, 1979; must present no unreasonable risk; and good faith efforts to develop "substitutes" must have been made.

10.3 EPA's 50 ppm concentration cut off has been overturned in court; however, it remains in effect while new regulations are developed.

10.4 In crafting its new PCB regulations, EPA has developed a concept of TSCA exclusion for those chemical processes which inadvertently generate PCB's but which pose de minimis risk to human health or to the environment. The first exclusion rule was promulgated on October 27, 1982. This rule establishes a voluntary TSCA exclusion for certain qualifying "closed manufacturing processes" and "controlled waste manufacturing processes." To qualify, the manufacturer must notify EPA and must certify that the process releases PCB's in concentrations less than 10 micrograms/meter³ (~ 10 ppb) to air; 100 micrograms/liter (~ .1 ppm) to water; and 2 micrograms/gram (~ 2 ppm) to product. All process waste containing PCB's in concentrations greater than 2 micrograms/gram (~ 2 ppm) in process waste must be disposed as PCB waste in EPA-approved facilities.

10.5 Additional EPA regulations on TSCA exclusion are expected.

11. DISPOSAL

For disposal information, the Site Coordinator should consult the following Federal Register Notices (Ref. 6):

- May 31, 1979 - Polychlorinated Biphenyls (PCB's) Manufacturing, Processing and Distribution in Commerce, and Use Prohibition. (Final Rule) 44 FR 31514.
- March 28, 1980 - Final Amendment to the Disposal Requirements for PCB Capacitors in Chemical Waste Landfills. (Final Rule) 45 FR 20473.
- August 25, 1982 - Polychlorinated Biphenyls (PCB's) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions; Use in Electrical Equipment. (Final Rule) 47 FR 37342.

DUP 1121460

DU 055995

REFERENCES

1. NIOSH Manual of Analytical Methods, Second Edition, Vol. 3.
2. TLV's®, Threshold Limit Values for Chemical Substances in Workroom Air Adopted by ACGIH for 1982.
3. Draft Technical Standard and Supporting Documentation for Chlorodiphenyl, NIOSH/OSHA Standards Completion Program, 1980.
4. Stampfer, J. F., et al., Permeation of Arochlor 1254 and Solutions of this Substance Through Selected Protective Clothing Materials Presented at American Industrial Hygiene Conference, Cincinnati, Ohio, June 11, 1982.
5. BNA - Occupational Safety and Health Reporter, Volume 10, No. 37, February 19, 1981.
6. Federal Register, May 31, 1979, Volume 44, No. 106, p. 31514. Federal Register, March 10, 1981, Volume 46, No. 46, p. 16090. Federal Register, August 25, 1982, Volume 47, No. 165, p. 37342. 40 Code of Federal Regulations (CFR) 761.
7. "Du Pont PCB Transformer Interim Measures Inspection Program," W. J. White, Engineering Service Division, July 8, 1981.
8. "Polychlorinated Biphenyls (PCB's) - Industrial Hygiene Controls and Practices," S. W. Dixon, Haskell Laboratory, November 2, 1982.

JFD:mah
5/10/83

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