

May 29, 1977

Chemical Division
PPG Industries

Ref: Paragraph (K) Medical Surveillance 1910.39Q Vinyl Chloride OSHA
See attachment #1

The above reference details the minimum requirements that will be implemented in all PPG operations for employees working in VCM operations and exposed to VCM in air concentrations at or above the "Action Level".

- I. Pre-Placement Examination - All employees prior to being assigned to a job which will potentially expose them to VCM will be provided an initial medical examination in accordance with the above reference. If an employee's health would be materially impaired by exposure to VCM, he will not be assigned to a job which will potentially expose him to VCM. The Plant Physician will certify as to the suitability of an employee to work in a job potentially exposing him to VCM and to wear protective equipment and respirators, utilizing the form shown in attachment #2. A copy of this form will be provided to the employee, a copy will be placed in the employee's plant medical record and other copies provided to appropriate management personnel.
- II. Periodic Examination - All employees working on a job which potentially exposes them to VCM will be provided medical examinations in accordance with the above reference at either 6 (six) or 12 (twelve) month intervals. If in the Physician's judgement the employee's health would be materially impaired by exposure to VCM, he will be removed from such potential exposure. The Plant Physician will certify as to the employee's suitability as described above.
- III. Emergency (Massive release of VCM) - Any employee involved in same will be seen by the Plant Physician as soon as possible.
- IV. Abnormal Liver Function Tests - If any of the 5 tests on the employees serum specimen required in the above reference are significantly abnormal, the employee will be evaluated in the Plant Medical Department and advised of the necessity to repeat the abnormal test or tests within 2 (two) or 3 (three) weeks prior to which time he should avoid such activities as might be expected to cause a test to be abnormal. Plant management should be advised as to the necessity to repeat the abnormal tests at the time employee is advised.

If the repeat tests or tests are significantly abnormal, the Plant Physician may certify as to the unsuitability of the employee to continue working in a job potentially exposing him to VCM. The Plant Physician may arrange for a more comprehensive examination of the employee with appropriate medical specialists if he believes this is clinically indicated. Such examinations may include but not be limited necessarily to the following special procedures when indicated; liver scanning, liver angiogram, liver biopsy.
- V. Return of an Employee to Potential VCM Exposure - If in the Plant Physician's opinion, an employee who has been removed from potential VCM exposure for health reasons has sufficiently recovered so that VCM exposure would not materially impair the employee's health, the Plant Physician may so certify as described above.

VI. Contractor Employees - Such employees' medical surveillance will be as described above and under the direction of the Plant Physician.

VII. Former PPG Employees Followup - All employees who have had 5 (five) or more years employment at PPG in a job where they were potentially exposed to VCM will be followed up as follows:

- ASK
JMD
Not doing
at this
time 4/25/86
1. At the time that they leave PPG they will be advised as to the advisability of followup examinations every 3 (three) years to include the 5 tests on a serum specimen required for VCM employees under the OSHA Standard and that PPG will pay for such tests if they provide us with a permanent address.
 2. PPG will send them a notice every 3 (three) years advising them as to the arrangements for the tests and then advise them as to the results.
 3. PPG will request death certificates when a employee or former employee dies.
 4. Appropriate epidemiological analysis will be performed on the followup data received.

Note: Although not required by the above referenced OSHA Standard, because presently available medical evidence suggest involvement of other organ systems of the body is possible, the following additional tests may be considered on an annual basis:

SMA 12
CBC
Urine
Fvc & Fev1
Chest xray

Any abnormalities should be considered as a basis for possible rejection on the preplacement exam and appropriate followup on the peiodic exam.

(5) (i) Entry into unknown concentrations or concentrations greater than 36,000 ppm (lower explosive limit) may be made only for purposes of life rescue; and

(ii) Entry into concentrations of less than 36,000 ppm, but greater than 3,600 ppm may be made only for purposes of life rescue, firefighting, or securing equipment so as to prevent a greater hazard from release of vinyl chloride.

(6) Where air-purifying respirators are used:

(i) Air-purifying canisters or cartridges shall be replaced prior to the expiration of their service life or the end of the shift in which they are first used, whichever occurs first; and

(ii) A continuous monitoring and alarm system shall be provided where concentrations of vinyl chloride could reasonably exceed the allowable concentrations for the devices in use. Such system shall be used to alert employees when vinyl chloride concentrations exceed the allowable concentrations for the devices in use.

(7) Apparatus prescribed for higher concentrations may be used for any lower concentration.

(h) **Hazardous operations.** (1) Employees engaged in hazardous operations, including entry of vessels to clean polyvinyl chloride residue from vessel walls, shall be provided and required to wear and use:

(i) Respiratory protection in accordance with paragraphs (c) and (g) of this section; and

(ii) Protective garments to prevent skin contact with liquid vinyl chloride or with polyvinyl chloride residue from vessel walls. The protective garments shall be selected for the operation and its possible exposure conditions.

(2) Protective garments shall be provided clean and dry for each use.

(i) **Emergency situations.** A written operational plan for emergency situations shall be developed for each facility storing, handling, or otherwise using vinyl chloride as a liquid or compressed gas. Appropriate portions of the plan shall be implemented in the event of an emergency. The plan shall specifically provide that:

(1) Employees engaged in hazardous operations or correcting situations of existing hazardous releases shall be equipped as required in paragraph (h) of this section;

(2) Other employees not so equipped shall evacuate the area and not return until conditions are controlled by the methods required in paragraph (f) of this section and the emergency is abated.

(j) **Training.** Each employee engaged in vinyl chloride or polyvinyl chloride operations shall be provided training in a program relating to the hazards of vinyl chloride and precautions for its safe use.

(1) The program shall include:

(i) The nature of the health hazard from chronic exposure to vinyl chloride including specifically the carcinogenic hazard;

(ii) The specific nature of operations which could result in exposure to vinyl chloride in excess of the permissible limit and necessary protective steps;

(iii) The purpose for, proper use, and limitations of respiratory protective devices; [Section 1910.93q (i) amended at 39 FR 41848, December 3, 1974]

(iv) The fire hazard and acute toxicity of vinyl chloride, and the necessary protective steps;

(v) The purpose for and a description of the monitoring program;

(vi) The purpose for, and a description of, the medical surveillance program;

(vii) Emergency procedures;

(viii) Specific information to aid the employee in recognition of conditions which may result in the release of vinyl chloride; and

(ix) A review of this standard at the employee's first training and indoctrination program, and annually thereafter.

(2) All materials relating to the program shall be provided upon request to the Assistant Secretary and the Director.

(k) **Medical surveillance.** A program of medical surveillance shall be instituted for each employee exposed, without regard to the use of respirators, to vinyl chloride in excess of the action level. The program shall provide each such employee with an opportunity for examinations and tests in accordance with this paragraph. All medical examinations and procedures shall be performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee.

(1) At the time of initial assignment, or upon institution of medical surveillance:

(i) A general physical examination shall be performed, with specific attention to detecting enlargement of liver, spleen or kidneys, or dysfunction in these organs, and for abnormalities in skin, connective tissues and the pulmonary system (See Appendix A).

(ii) A medical history shall be taken, including the following topics:

(A) Alcohol intake;

(B) Past history of hepatitis;

(C) Work history and past exposure to potential hepatotoxic agents, including drugs and chemicals;

(D) Past history of blood transfusions; and

(E) Past history of hospitalizations.

(iii) A serum specimen shall be obtained and determinations made of:

(A) Total bilirubin;

(B) Alkaline phosphatase;

(C) Serum glutamic oxalacetic transaminase (SGOT);

(D) Serum glutamic pyruvic transaminase (SGPT); and

(E) Gamma glutamyl transpeptidase.

(2) Examinations provided in accordance with this paragraph shall be performed at least:

(i) Every 6 months for each employee who has been employed in vinyl chloride or polyvinyl chloride manufacturing for 10 years or longer; and

(ii) Annually for all other employees.

(3) Each employee exposed to an emergency shall be afforded appropriate medical surveillance.

(4) A statement of each employee's suitability for continued exposure to vinyl chloride including use of protective equipment and respirators, shall be obtained from the examining physician

promptly after any examination. A copy of the physician's statement shall be provided each employee.

(5) If any employee's health would be materially impaired by continued exposure, such employee shall be withdrawn from possible contact with vinyl chloride.

(6) Laboratory analyses for all biological specimens included in medical examinations shall be performed in laboratories licensed under 42 CFR Part 74.

(7) If the examining physician determines that alternative medical examinations to those required by paragraph (k) (1) of this section will provide at least equal assurance of detecting medical conditions pertinent to the exposure to vinyl chloride, the employer may accept such alternative examinations as meeting the requirements of paragraph (k) (1) of this section, if the employer obtains a statement from the examining physician setting forth the alternative examinations and the rationale for substitution. This statement shall be available upon request for examination and copying to authorized representatives of the Assistant Secretary and the Director.

(l) **Signs and labels.** (1) Entrances to regulated areas shall be posted with legible signs bearing the legend:

CANCER-SUSPECT AGENT AREA
AUTHORIZED PERSONNEL ONLY

[Section 1910.93q (l) (1) amended at 39 FR 41848, December 3, 1974]

(2) Areas containing hazardous operations or where an emergency currently exists shall be posted with legible signs bearing the legend:

CANCER-SUSPECT AGENT IN THIS AREA
PROTECTIVE EQUIPMENT REQUIRED
AUTHORIZED PERSONNEL ONLY

[Section 1910.93q (l) (2) amended at 39 FR 41848, December 3, 1974]

(3) Containers of polyvinyl chloride resin waste from reactors or other waste contaminated with vinyl chloride shall be legibly labeled:

CONTAMINATED WITH
VINYL CHLORIDE
CANCER-SUSPECT AGENT

[Section 1910.93q (l) (3) amended at 39 FR 41848, December 3, 1974]

(4) Containers of polyvinyl chloride shall be legibly labeled:

POLYVINYL CHLORIDE (OR TRADE NAME)
Contains
VINYL CHLORIDE

VINYL CHLORIDE IS A CANCER-SUSPECT AGENT

(5) Containers of vinyl chloride shall be legibly labeled either:

(i) VINYL CHLORIDE
EXTREMELY FLAMMABLE GAS UNDER PRESSURE
CANCER-SUSPECT AGENT

or (ii) In accordance with 49 CFR Parts 170-189, with the additional legend:

CANCER-SUSPECT AGENT
applied near the label or placard.

[Section 1910.93q (l) (5) (ii) amended at 39 FR 41848, December 3, 1974]

(6) No statement shall appear on or near any required sign, label or instruction which contradicts or detracts from the effect of, any required warning, information or instruction.

(m) **Records.** (1) All records maintained in accordance with this section



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ATTACHMENT # 2

HEALTH CERTIFICATE

_____, Dept. _____, Badge # _____,

has been examined on _____ as a part of _____

physical and is hereby (approved--conditionally approved--disapproved) for:

1. Continued work in the Vinyl Chloride/Organics Area for one year.
2. Use of respirators of any kind.
3. Use of protective equipment.

Based on medical and laboratory examination--provided clinical findings do not change during this time.

REASONS FOR DISAPPROVAL: _____

H. B. Lovejoy, M.D.
Plant Physician