
HEALTH AND SAFETY PROGRAM 410 – Vinyl Chloride Compliance Plan

1.0 PURPOSE

The purpose of this document is to provide a safe working environment for our employees concerning vinyl chloride and have a written vinyl chloride work place protection plan to comply with the Occupational Safety and Health Administration's (OSHA) vinyl chloride regulation (29 CFR 1910.1017).

2.0 SCOPE

This document is mandated by the Occupational Safety and Health Administration and applies to the manufacture, reaction, packaging, repackaging, storage, handling or use of vinyl chloride or polyvinyl chloride at the Plaquemine facility. This document does not apply to handling or use of products made of polyvinyl chloride.

3.0 DEFINITIONS

- 3.1 Action Level** - an airborne concentration of vinyl chloride of 0.5 ppm averaged over an 8-hour workday.
- 3.2 Authorized person** - any person specifically authorized by the employer whose duties require him/her to enter the regulated area or any person entering such an area as a designated representative of employees for the purpose of observing monitoring and measuring procedures.
- 3.3 Emergency** - any occurrence such as, but not limited to, equipment failure, or operation of a relief device, which is likely to, or does, result in a massive release of vinyl chloride
- 3.4 Fabricated product** - a product made wholly or partially from polyvinyl chloride and which does not require further processing at temperatures, and for times, sufficient to cause mass melting of polyvinyl chloride resulting in the release of vinyl chloride.
- 3.5 Hazardous operations** - any operation, procedure, or activity where the release of either vinyl chloride liquid or gas might be expected as a consequence of the operation or because of an accident in the operation which would result in an employee in excess of the permissible exposure limits.
- 3.6 Polyvinyl chloride** - polyvinyl chloride homopolymer or copolymer before such is converted to a fabricated product.
- 3.7 Time weighted average (TWA)** - the airborne concentration of vinyl chloride averaged over eight hours.

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3.8 Unstripped Polyvinyl Chloride (PVC) – PVC resin containing unreacted vinyl chloride monomer.

3.9 Short term exposure limit (STEL) - the airborne concentration of vinyl chloride averaged over a 15- minute time period.

3.10 Vinyl chloride - vinyl chloride monomer.

3.11 OSHA Permissible Exposure Limits (PEL)

No employee may be exposed to vinyl chloride at concentrations greater than 1.0 ppm averaged over any eight-hour period.

No employee may be exposed to vinyl chloride at concentrations greater than 5 ppm averaged over any period not exceeding 15 minutes.

No employee may be exposed to vinyl chloride by direct contact with liquid vinyl chloride.

4.0 RESPONSIBILITIES

4.1 Health and Safety

4.1.1 Conducting exposure monitoring in accordance with OSHA's vinyl chloride regulation (29 CFR 1910.1017).

4.1.2 Assisting the production Unit Supervisors and Process Engineers in complying with the requirements of this Program.

4.2 Operations Management

4.2.1 Ensuring that all affected employees receive annual training in accordance with this program.

4.2.2 Ensuring that all affected employees receive annual physicals in accordance with this program.

4.2.3 Ensuring that all containers, regulated/hazardous operations areas, etc. are posted or labeled in accordance with this program.

4.2.4 Reporting all potential employee exposures and emergency releases to Health and Safety.

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5.0 PROCEDURE

5.1 Monitoring

- 5.1.1 A program of initial monitoring and measurement shall be undertaken to determine if there is any employee exposed without regard to the use of respirators, in excess of the action level.
- 5.1.2 Where a determination conducted under the program of initial monitoring shows any employee exposures without regard to the use of respirators, in excess of the action level, a program for determining exposures for each such employee shall be established.
- 5.1.3 Monitoring shall be repeated at least-quarterly for employees exposed, without regard to the use of respirators, in excess of the permissible exposure limits (TWA and/or STEL).
- 5.1.4 Monitoring shall be repeated not less than every six months for employees exposed, without regard to the use of respirators, at or above the action level.
- 5.1.5 Monitoring may be reduced to an annual requirement for any employee when at least two consecutive monitoring determinations, made not less than 5 working days apart, show exposures for that employee at or below the action level.
- 5.1.6 Monitoring shall be conducted (as per the program of initial monitoring) whenever there is a change in production, process or control change which may result in an increase in the release of vinyl chloride, or the employer has any other reason to suspect that any employee may be exposed in excess of the action limit.
- 5.1.7 The method of monitoring shall have an accuracy (with a confidence level of 95 percent) of not less than plus or minus 50% from 0.25 through 0.5 ppm, plus or minus 35% from over 0.5 ppm through 1.0 ppm and plus or minus 25% over 1.0 ppm.
- 5.1.8 Employees or their designated representatives shall be afforded reasonable opportunity to observe the monitoring and measuring.

5.2 Regulated Area (s)

- 5.2.1 Regulated areas shall be established where vinyl chloride or polyvinyl chloride is manufactured, reacted, repackaged, stored

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handled or used; and vinyl chloride concentrations are in excess of the OSHA-PELs.

5.2.2 Access to regulated areas shall be limited to authorized persons.

5.2.3 Currently there are no regulated areas for vinyl chloride in the Plaquemine facility.

5.3 Signs and Labels

5.3.1 Entrances to regulated areas shall be posted with legible signs bearing the legend:

**DANGER
VINYL CHLORIDE
MAY CAUSE CANCER
AUTHORIZED PERSONNEL ONLY**

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

**DANGER
VINYL CHLORIDE
MAY CAUSE CANCER
WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA
AUTHORIZED PERSONNEL ONLY**

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

**CONTAMINATED WITH VINYL CHLORIDE
MAY CAUSE CANCER**

5.3.4 Containers of polyvinyl chloride shall be legibly labeled per the OSHA Hazard Communication Standard (29 CFR 1910.1200(f)). An example of this GHS compliant label is:

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PVC Suspension Resin



This product is not considered a hazardous substance or mixture according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

WARNING: This product contains a chemical known to the State of California to cause cancer. Read Safety Data Sheet before use. Keep out of reach of children. For additional product information, contact Axiall, LLC.



Axiall, LLC
1000 Abernathy Road NE
Suite 1200
Atlanta, GA 30328

Emergency Telephone Number: 304-455-6882

Sample – Not for Resale

PVC-SP-US-0916C-IH

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5.3.5 Containers of vinyl chloride shall be legibly labeled per the OSHA Hazard Communication Standard (29 CFR 1910.1200(f). An example of this GHS compliant label is:

UN1086		Vinyl Chloride		axiall
		Contains: Vinyl Chloride Monomer (75-01-4)		
Danger    	Extremely flammable gas. Contains gas under pressure; may explode if heated. Harmful if swallowed. Causes skin irritation. May cause cancer.			
	PRECAUTIONARY STATEMENTS			
	Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, sparks, open flames and/or hot surfaces. No smoking. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.			
	Response: LEAKING GAS FIRE: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash before reuse. If skin irritation occurs: Get medical advice/attention. Specific treatment, see supplemental first aid information. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. IF EXPOSED OR CONCERNED: Get medical advice/attention.			
	Storage and Disposal: Protect from sunlight. Store in a well-ventilated place. Store locked up. Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.			
Other: Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite. Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.				
California-Proposition 65: Warning: This product contains a chemical known to the State of California to cause cancer. Read Safety Data Sheet before use. Keep out of reach of children. For additional product information, contact Axiall, LLC.				
axiall Axiall, LLC 1000 Abernathy Road NE Suite 1200 Atlanta, GA 30328		Emergency Telephone Number: 304-455-6882		Made in U.S.A. 2015 Axiall, LLC VCM-SP-US-0415A-IH
Sample – Not for Resale				

5.3.6 In accordance with 49 CFR Parts 170-189, the additional legend shall be applied near the label or placard:

CANCER-SUSPECT AGENT

5.3.7 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.

5.4 Methods of Compliance

5.4.1 OSHA mandates employee exposures to vinyl chloride shall be controlled to at or below the OSHA-PEL by engineering, work practice, and personal protective equipment.

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- 5.4.2** Feasible (economic and/or technologic) engineering controls and work practice controls shall immediately be used to reduce exposures to at or below the OSHA-PEL.
- 5.4.3** Where feasible engineering and work practice controls are not sufficient to reduce exposures to at or below the permissible exposure limits, they shall nonetheless be used to reduce exposures to the lowest practicable level, and shall be supplemented by respiratory protection.
- 5.4.4** A written Exposure Reduction Plan will be established and implemented to reduce exposures to at or below the permissible exposure limit, or to the greatest extent possible. This written plan will be updated at least annually.

5.5 Respiratory Protection

- 5.5.1** Respiratory protection will be required where vinyl chloride concentrations exceed or have the potential to exceed the permissible exposure limits.
- 5.5.2** Respirator Selection
 - 5.5.2.1** Pressure demand, self-contained breathing apparatus (SCBA) with full face-piece or airline respirator with full face-piece and five minute escape pack for vinyl chloride concentrations above 10 ppm or unknown.
 - 5.5.2.2** Full face-piece, air-purifying respirators with organic vapor cartridges may be used for tasks that have been evaluated by accepted industrial hygiene practices and sampling has shown that exposures for the given task do not exceed 10 ppm as per 29 CFR 1910.1017 (g) (3). The use of this type of respiratory protection for any task must be approved by the Industrial Hygiene or the Health & Safety Department.
 - 5.5.2.3** Air-purifying cartridges must 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. Service life calculations shall be determined prior to cartridge use.

Note: MSA Cartridge Life Expectancy calculation for organic vapor/acid gas (GMC) cartridges is two hours at 10 ppm, with a 50% safety factor.

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- 5.5.2.4** A respiratory protection program must be implemented according to applicable regulations for operations that have the potential to exceed the Action Level.

5.6 Hazardous Operations

- 5.6.1** 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 respiratory protection in accordance with Section 5.5 of this document, and 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. The protective garments shall be provided clean and dry for each use.
- 5.6.2** Signs found in Section 5.3.2 of this document are required to be posted at Hazardous Operations in order to limit access to authorized personnel.

5.7 Emergency Situations

- 5.7.1** A written operational plan for emergency situations shall be developed for the facility. Appropriate portions of the plan shall be implemented in the event of an emergency. The plan shall specifically provide that:
- 5.7.2** Employees engaged in hazardous operations or correcting situations of existing hazardous releases shall be equipped as required by the “Hazardous Operations” section of this document.
- 5.7.3** Other employees not so equipped shall evacuate the area and not return until conditions are controlled by the methods required in the “Methods of Compliance” section of this document and the emergency is abated.
- 5.7.4 EMERGENCY PLAN**
- 5.7.4.1** Evacuate personnel from the affected area
- 5.7.4.2** Response personnel must wear a positive pressure, full-face piece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA.

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5.7.4.3 Response personnel must wear chemical protective clothing when the leak poses a potential for skin contact with liquid vinyl chloride.

5.7.4.4 Secure the leak.

5.7.4.5 Continue to monitor the area until readings are clear

5.7.4.6 Return operations to normal state

5.7.4.7 Following the incident all affected personnel must be offered medical surveillance for vinyl chloride exposure. Affected personnel include all workers in the area at the time of release and all response personnel, regardless of respiratory protection.

5.7.5 Alarm Response Procedure

5.7.5.1 When organic vapor detector readings (portable PID or area monitor) are detected at or exceeding 5 ppm or when airborne concentrations are unknown:

5.7.5.2 The board operator should notify the outside operator of the respective area to secure the area by regulating or vacating the area until the cause of the alarm can be determined. The board operator should initiate the VCM Emission Follow-up Log.

5.7.5.3 Utilizing supplied air respiratory protection and a direct reading instrument capable of detecting low concentrations of vinyl chloride, the respective outside operator should proceed to the alarm location to determine the source of the leak and determine if it can be controlled. If it can be controlled, take necessary steps to control and contain the leak.

5.7.5.4 Use supplied air respiratory protection and the appropriate level of PPE until it is determined that the potential exposures are below the Permissible Exposure Limits.

5.7.5.5 Once the leak has been evaluated and controlled, the outside operator should notify the board operator. The

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board operator will then complete the VCM Emission Follow-up Log.

- 5.7.5.6** The board operator shall notify the Shift Supervisor of the event and keep him informed, especially if the leak cannot be controlled.

5.8 REPORTING

5.8.1 Exposure Notification

Exposure notifications shall be performed within 15 working days following receipt of any monitoring results. Each such employee shall be notified in writing of the results of the exposure measurement and, when applicable, the steps being taken to reduce the exposure to within the permissible exposure limits.

5.8.2 Protocol for Employee Notification

- 5.8.2.1** The employee notification of his/her exposure measurement within 15 working days after the receipt of the results should be signed by the monitored employee, signifying the notification has taken place.
- 5.8.2.2** The notification for may be generated within the IH Database, or by utilizing Employee Notification of Personal Sampling Results (Appendix A).
- 5.8.2.3** The signed notification forms shall be maintained in the medical record for record retention purposes.

6.0 TRAINING

6.1 Training Requirement for Vinyl Chloride and Polyvinyl Chloride Workers

- 6.1.1** 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. This training will be provided upon the employee's initial assignment and annually thereafter.
- 6.1.2** The training program shall include but not be limited to:
- 6.1.2.1** The nature of the health hazard from chronic exposure to vinyl chloride including the specific carcinogenic hazard.

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- 6.1.2.2** The specific nature of operations that could result in exposure to vinyl chloride in excess of the permissible exposure limit and necessary protective steps.
- 6.1.2.3** The purpose for, proper use, and limitations of respiratory devices.
- 6.1.2.4** The fire hazard and acute toxicity of vinyl chloride and the necessary protective steps.
- 6.1.2.5** The purpose for and a description of the monitoring program.
- 6.1.2.6** The purpose for and a description of the medical surveillance program.
- 6.1.2.7** Emergency procedures.
- 6.1.2.8** Specific information to aid the employee in recognition of conditions that may result in the release of vinyl chloride.
- 6.1.2.9** A review of the OSHA Vinyl Chloride Standard (29 CFR 1910.1017)

7.0 MEDICAL SURVEILLANCE

A program of medical surveillance shall be instituted for each Westlake employee exposed, without regard to use of respirators, to vinyl chloride in excess of the action level (0.5 ppm).

- 7.1** The medical surveillance program shall provide each such employee with an opportunity for examinations and tests in accordance with 29 CFR 1910.1017(k).
- 7.2** 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 at the time of initial assignment, or institution of medical surveillance.
- 7.3** A general physical exam shall be performed with specific attention to detecting enlargement of the liver, spleen or kidneys; or dysfunction of these organs and for abnormalities in skin, connective tissues and the pulmonary system.
- 7.4** A medical history shall be taken, including the following topics:
 - 7.4.1** Alcohol intake
 - 7.4.2** Past history of hepatitis
 - 7.4.3** Work history and past exposure agents to hepatotoxic agents, including drugs and chemicals

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7.4.4 Past history of blood transfusions and hospitalizations

7.4.5 A serum specimen shall be obtained and determinations made of:

- 7.4.3.1 Total bilirubin
- 7.4.3.2 Alkaline phosphatase
- 7.4.3.3 Serum glutamic oxalacetic transaminase (SGOT)
- 7.4.3.4 Serum glutamic pyruvic transaminase (SGPT)
- 7.4.3.5 Gamma glutamyl transpeptidase

7.5 Examinations shall be provided at least annually in accordance with 29 CFR 1910.1017(k).

7.6.1 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.

7.6.2 A copy of the physician's statement shall be provided each employee.

7.6.3 If the employee's health would be materially impaired by continued exposure, such employee shall be withdrawn from possible contact with vinyl chloride.

7.6.4 Laboratory analyses for all biological specimens included in medical examinations shall be performed in accredited laboratories.

7.6.5 If the examining Physician determines that alternative medical examinations 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, 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 Director

7.6 Protocol for Obtaining Emergency Medical Surveillance

7.6.1 Employees exposed to a vinyl chloride emergency will be offered medical surveillance as per 29 CFR 1910.1017(k)(3) Vinyl Chloride by supervision.

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7.6.2 Employees that elect to waive medical surveillance will be required to complete a Vinyl Chloride Emergency Medical Surveillance Waiver Form ([Appendix B](#)). This completed form will be forwarded to the Medical Department for filing in the employee's medical file maintained for the duration of employment of each employee plus 30 years.

7.6.3 Employees that elect to receive medical surveillance will have their appointment arranged by the Medical Department at the nearest convenience.

8.0 RECORDS

8.1 All records maintained in accordance to the OSHA vinyl chloride regulation shall include the name and sufficient information to allow easy cross reference to the social security number of each employee, where relevant.

8.2 Records of required monitoring and measuring and medical records shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with OSHA's [Access to Employee Medical and Monitoring Records](#) (29 CFR 1910.1020). These records shall be provided upon request to the Director. Authorized personnel rosters shall also be provided upon request to the Assistant Secretary and Director.

8.3 Monitoring and Measuring records shall:

8.3.1 State the date of such monitoring and measuring and the concentrations determined and identify the instruments and methods used.

8.3.2 Include any additional information necessary to determine individual employee exposures where such exposures are determined by means other than individual monitoring of employees and be maintained for not less than 30 years.

8.4 The monitoring/measuring records requirements are:

8.4.1 The airborne concentration of vinyl chloride

8.4.2 The date of the monitoring/measuring

8.4.3 The identity of the monitoring/measuring instrument

8.4.4 The sampling and analytical method used

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8.4.5 The steps taken to reduce exposures to within the permissible exposure limits

8.5 Medical records shall be maintained for the duration of employment of each employee plus 20 years, or 30 years, whichever is longer.

8.6 In the event the employer ceases to do business and there is no successor to receive and retain his records for the prescribed period, these records shall be transmitted by registered mail to the Director, and each employee individually notified in writing of this requirement set forth in 29 CFR 1910.1020.

9.0 REFERENCES

Occupational Safety and Health Administration “Vinyl Chloride Regulation” 29 CFR 1910.1017 and published letters of interpretation.

Revision History

Rev	Changes	Approved	Date
7	Revised Westlake Branding. Review Cycle. Added revision history.	H. Garner	3/7/2023

Appendix A – Employee Notification of Personal Sampling Results



EMPLOYEE NOTIFICATION OF PERSONAL SAMPLING RESULTS

Employee Name:		SSN/ID:	
Job Title/SEG:		Area:	
Date of Monitoring		Date Results Received:	

In accordance with company policy, you are notified of the following industrial hygiene sampling results. *Note: The results below may not reflect your actual personal exposure as it depends on a number of factors including the proper use of PPE. You should talk with your IH/H&S representative if you have questions regarding your sample results.*

Type of Monitoring

☐ 8-hr TWA (Full Shift) ☐ STEL (Short Term Exposure Limit)

Sample No.	Date Sampled	Sample Duration (mins)	Chemical Sampled	Exposure Limit*	Reference	Results (ppm)

*The occupational exposure limit(s) represent the level under which it is believed that nearly all workers may be repeatedly exposed, day after day, over a working lifetime without adverse health effects.

The following controls were in place (Please list all PPE worn):

☐ This sample resulted in an overexposure according to the established exposure limits (Internal PEL, OSHA-PEL, ACGIH-TLV, others)

Management Actions

- | | |
|---|---|
| ☐ None Required | ☐ Respiratory Protection |
| ☐ Process Controls | ☐ Hearing Protection Devices |
| ☐ Ventilation Controls | ☐ Administrative Controls |
| ☐ Other Engineering Controls | ☐ Other- _____ |

Comments

Employee Acknowledgement

I certify that I have read and understand the information provided to me.

Employee Signature

Date

Appendix B – Emergency Medical Surveillance Waiver Form

Emergency Medical Surveillance Waiver Form

Employee's name (Print)_____

Date of birth_____

Employee's department_____

Date of exposure_____

Chemical(s) exposed to:_____

Unit/Dept where emergency occurred:_____

Description of Event:_____

I do **not** wish to participate in the medical surveillance
offered.

Employee's Signature_____

Date_____