

CHEMICAL HYGIENE PLAN



CONSOLIDATED SCHOOL DISTRICT OF NEW BRITAIN

September 2023

CHEMICAL HYGIENE PLAN (CHP) NEW BRITAIN SCHOOLS

Based on a plan developed by the Industrial Health and Safety Consultants and recommended by the Connecticut Department of Education and the Connecticut Department of Occupational Safety and Health. As consistent with the requirements set forth in 29 CFR Part 1910 "Occupational Exposures to Hazardous Chemicals in Laboratories; A Final Rule."

I. Purpose

- A.** This plan is intended to protect the health and safety of those teachers and other personnel working with hazardous chemicals and materials. It is also that intention of the school system that the students be protected by these same Standard Operating Procedures. (SOP)
- B.** The plan is intended to ensure that hazardous materials are properly handled and disposed of in a safe and environmentally proper manner.
- C.** This plan is intended to ensure compliance with applicable Federal, State and local regulations.

II. Scope

- A.** The policy applies to all science, technology, and applied education operations in New Britain Public Schools.
- B.** All other applicable Occupational Safety and Health Administration (OSHA) Safety and Health Standards shall be complied with in addition to the requirements of this policy.

III. Operations

The following laboratories/classrooms/shops are covered by this policy:

- A.** New Britain High School - all rooms in which laboratory activities are done, including greenhouses and associated prep rooms and storage areas.
- B.** Pulaski Middle School - all rooms in which laboratory activities are done, including associated prep rooms and storage areas.
- C.** Satellite Careers Academy - all rooms in which laboratory activities are done, including associated prep rooms and storage areas.
- D.** Slade Middle School - all rooms in which laboratory activities are done, including associated prep rooms and storage areas.

- E. HALS - all rooms in which laboratory activities are done, including associated prep rooms and storage areas.
- F. Technology shops, applied education classrooms, and all associated storage areas in New Britain High School, Satellite Careers Academy, Pulaski, Slade Middle Schools and HALS.
- G. DiLoreto Magnet School – all grade 6 – 8 rooms in which laboratory activities are done, including associated prep rooms and storage areas.

IV. Responsibilities

A. Superintendent of Schools

- i. Support and ensure enforcement of this policy.
- ii. Appoint and support the Chemical Hygiene Officer (CHO) and the Chemical Hygiene Coordinator (CHC).

B. School Principal

- i. Support and ensure enforcement of this policy

C. Environmental Health and Safety Officer

- i. Responsible for coordinating and facilitating the safety policies of the CHP and working closely the CHO and the CHC.

D. Chemical Hygiene Officer (CHO)

- i. Administer and revise/update the Chemical Hygiene Plan.
- ii. Assist in the development of Standard Operating Procedures (SOP) and the development of an Emergency Response Plan (ERP).
- iii. Coordinate the education and training of all employees covered by this plan.
- iv. Oversee and arrange for the monitoring of worker exposures to hazardous materials.
- v. Review Safety Data Sheets (SDS) for adequacy and compliance with OSHA Hazard Communication Standards.
- vi. Periodically inspect the laboratories for compliance with this policy. These include the 3rd floor biology and chemistry lab rooms along

with the science rooms located in the 400's and 500's at New Britain High School.

- vii. Evaluate and ensure the adequacy and use of personnel protective equipment and, as necessary, recommend changes.
- viii. Recommend engineering controls, ensure that the controls are used and periodically evaluate the controls to ensure proper functioning.
- ix. Assist in the preparation of special hazardous operation procedures.
- x. Review and monitor the disposal of hazardous materials.
- xi. Ensure that medical consultative services are available to those employees requesting or needing such services.
- xii. Annually conduct an inventory of all hazardous materials used in the areas covered by this plan.
- xiii. Annually inspect all areas to ensure that they are in compliance with this plan.
- xiv. Annually review the CHP and update as necessary.
- xv. Maintain appropriate records documenting compliance with the CHP.

E. Chemical Hygiene Coordinator (CHC), High School

- i. Develop a teacher SOP and a student SOP. Train all teachers in the use of the SOP. Ensure that all students are required to sign the student SOP/Safety Contract prior to being allowed to participate in lab.
- ii. Ensure that the procedures outlined in the CHP are followed.
- iii. Notify the CHO if a new hazardous material is to be used and work with the CHO to develop procedures to handle the material properly.
- iv. Annually coordinate the inventory of all science and technology education hazardous materials in collaboration with department heads.
- v. Request, as necessary, maintenance on safety equipment (e.g., fume hoods, eyewashes, showers, etc).

- vi. Ensure that SDS are obtained and available for all materials used in the science, technology, and applied education areas.
- vii. Conduct initial and periodic training for employees working with hazardous materials.
- viii. Ensure that information required is available to employees.
- ix. Prepare reports and records that document compliance with the CHP.
- x. Ensure that employees are trained in the use of personnel protective equipment.
- xi. By mutual written agreement with the CHO carry out specific duties normally assigned to the CHO.
- xii. Appropriate compensation shall be agreed upon to adequately carry out the responsibilities of CHC.

**F. Department Chairs of Science and Applied Education, High School.
Science Facilitators, Middle Schools**

- i. Responsible for incorporating chemical safety committees and implementing the CHP within their respective areas.

G. Teachers

- i. Follow all District SOP's
- ii. Utilize the safety equipment provided and promptly report any equipment not functioning properly to the CHO/CHC.
- iii. Participate in any biological or medical monitoring required by the program.
- iv. Follow approved labeling program for hazardous material. Approved programs shall appear in Appendix 3 to this document.
- v. Preparation of chemicals and labs shall not be done by an individual working alone in the building. During after-school hours, prior arrangements must be made to have additional personnel present.
- vi. When properly trained, use appropriate personal protective equipment.

- vii. Attend staff development workshops to update records, classroom activities, and safety training.

H. Medical Staff, Nurses, School Physician

- i. Be familiar with materials and the associated health hazards of chemicals used in the laboratories and related areas.
- ii. Recommend appropriate medical evaluations based on exposure assessments and health hazard assessments.

I. Purchasing

- i. Review with the CHO and CHC all purchasing requests for hazardous materials.
- ii. Forward any SDS received to the CHO/CHC.

V. Standard Operating Procedures

A. Acceptance of the SOP

- i. All teachers and staff covered by this plan must sign the CHP/SOP each year.
- ii. All students must sign a student SOP/Safety Contract in order to participate in lab or related activities.

B. Chemical Procurement, Use and Storage

- i. Chemicals shall not be accepted for use unless accompanied by an SDS.
- ii. All hazardous materials procurement must be reviewed and approved by the CHO/CHC.
- iii. Materials shall be stored in their original container. If the material is transferred to a new container, that container must be approved and labeled as required by the Hazard Communication Standard. A copy of the Hazard Communication Policy can be found in Appendix 1. That policy is part of the CHP.
- iv. All flammable liquids must be stored in approved containers and in approved fire-resistant cabinets if required. Specific guidelines are found in Appendix 5.

- v. Hazardous materials shall not be stored in laboratories or classrooms. Storage shall be in approved prep rooms or storage areas. In rooms without direct access to a prep room hazardous chemical shall be kept in the nearest available prep room.
- vi. Non-hazardous bulk chemicals must be stored in an approved prep room or approved storage rooms. Small quantities of non-hazardous chemicals may be stored in the classroom/lab provided they are in an approved labeled and locked storage cabinet.
- vii. Only explosion-proof refrigerators may be used for storage of flammable chemicals or any chemical needing refrigeration. The refrigeration must be appropriately labeled and it may not be used for food storage.

C. All prep room and storage room doors must be kept closed and locked.

- i. Appendix 5 contains additional specific information on hazardous chemicals.

D. Eating and Smoking

- i. Smoking is **not** permitted on the grounds or in any building of the school system.
- ii. Food and drink are not permitted in the laboratory or in areas where chemicals are in use.

E. Dress Code

- i. Bare feet and open-toed shoes are not permitted.
- ii. Wearing of shorts is not permitted in laboratory areas or areas where chemicals are in use.
- iii. Laboratory coats or aprons shall be worn whenever handling chemicals.
- iv. Long hair should be tied back during lab activities especially during activities that involve heat sources, chemicals and moving machinery.

VI. Personal Protective Equipment

- A.** Safety indirectly vented goggles shall be worn when handling any chemical or hazardous material. They shall also be worn if the activity involves heating, use of glassware, the potential for the splashing of fluids, or the shattering of any material. All eye protection must conform to ANSI Standard Z87.1-1989.
- B.** Impact resistant safety glass should be worn when using projectiles in the classroom.
- C.** Face shields shall be worn when transferring corrosive materials or if there is the possibility of chemical splash.
- D.** Standing shields and splash goggles shall be used when the potential for explosion, implosion, or splashes is present.
- E.** Safety glasses with or without side shields are not an acceptable replacement for splash goggles.
- F.** Vinyl gloves and aprons appropriate for the material shall be worn when using hazardous materials.

VII. Personal Hygiene Guidelines

- A.** Do not apply cosmetics, eat, chew gum or drink in the laboratory.
- B.** Do not pipet by mouth – always use a pipet bulb or suction device.
- C.** Clean work area thoroughly before leaving the laboratory.
- D.** Wash hands thoroughly after any chemical exposure.
- E.** Never smell chemicals directly; always waft the odors to your nose using your hand.
- F.** Never taste any substance to determine its identity.

VIII. Waste Disposal

- A.** All waste material must be stored in a designated storage area. Those areas shall be designated in Appendix 3.
- B.** Waste containers shall be labeled as required under RCAC regulations.

- C. No waste materials will be stored for more time than allowed by DEP/EPA regulations.
- D. Only licensed pre-approved contractors shall be used to dispose of hazardous waste materials.
- E. Waste storage areas shall be equipped with spill control and containment equipment.
- F. All disposal of waste materials shall be manifested as required under Federal and State regulations.

IX. Engineering Controls

A. Laboratory Hoods

- i. All flammable and toxic materials shall be used within a laboratory hood or with local exhaust ventilation.
- ii. Hood and exhaust are to be used to conduct operations, not for storage.
- iii. A review of chemical compatibility shall be conducted to ensure that only compatible chemicals are used in the same system.
- iv. The sash of the hood should be kept as low as possible to perform the required work.
- v. The face velocity of a particular hood should be at least 100 fpm. Lower flow rates may be allowed under special conditions approved by the CHO/CHC.
- vi. The flow rate shall be measured annually by the CHC kept on file. If a hood fails to provide at least 80% of the required velocity, it shall be shut down and not used until repaired.

- B.** All electrical equipment shall be properly grounded. Malfunctioning or damaged equipment shall be tagged out and reported to the CHO/CHC for repair.
- C.** When required, special enclosures or cabinets shall be used to protect employees from exposure to materials.
- D.** Eyewash/drench hose operation shall be tested weekly. Shower operations shall be tested biannually. Problems shall be reported immediately to the

CHO/CHC. Teachers shall keep a log of testing. The log will be reviewed periodically by the CHC.

X. Spills and Accidents

- A.** In the event of an accident, the following procedures should be followed:
- B.** Eye contact – flush with tepid water for at least 15 minutes and seek medical attention immediately.
- C.** Skin contact – flush immediately and remove contaminated clothing. Seek medical attention.
- D.** First aid should be administered by school nurse.
- E.** Other types of accidents – seek medical attention.
- F.** The Principal and Department Chairs must be notified immediately of all accidents. The CHO/CHC shall be notified as soon as possible.
- G.** All appropriate accident/incident forms are to be filled out as required by school policy. A copy of all completed forms shall be given to the CHO/CHC for the OSHA file.
- H.** In the event of a spill, the following procedure is to be followed:
 - i. For flammable liquids, extinguish all sources of ignition.
 - ii. Isolate the area and use the absorption material provided.
 - iii. Place waste materials in proper containers and dispose of hazardous waste as appropriate.
 - iv. Wear protective clothing and respiratory protection if required and you are trained to do so. If you are not trained, immediately notify the CHO/CHC so that trained personnel can be contacted.
 - v. The school evacuation plan must be used for serious spills or if the seriousness of the spill is in doubt. The procedure is found in the Emergency Operations Plan of the Consolidated School District of New Britain.
 - vi. Appropriate documentation must be submitted to the CHO/CHC for all spills.

XI. Exposure Evaluations

- A.** Exposure to chemicals in laboratory/ shop/classroom will be maintained below the OSHA-PEL or ACGIH-TLV by means of work practices or engineering controls.
- B.** Monitoring of the work environment will be performed:
 - i. Whenever there is reason to believe that the PEL, TLV or Action Limit may be exceeded.
 - ii. Medical information indicates sampling is warranted.
 - iii. After changes in the work, methods or engineering controls have been modified.
 - iv. At the request of employees.
- C.** Biological monitoring may be conducted:
 - i. At the recommendation of the medical staff.
 - ii. Routinely as required under an OSHA specific standard.
 - iii. When there is a potential for exposure to a material other than via inhalation.
- D.** All affected employees shall be notified of sampling results no later than **five** days after receipt of the results. If an employee has been exposed above any mandated limits, the school district shall explain the steps that will be taken to reduce and control the exposure.

XII. Medical Consultations

- A.** All employees suspected of or known to have been exposed to materials above the Action Limit or half of the PEL or TLV shall be offered a medical evaluation by the school district.
- B.** Any employee exposed above either the PEL or TLV shall be required to participate in the medical exam program.
- C.** Any employee who exhibits signs or symptoms of exposure shall receive a medical examination.
- D.** Employees involved in a spill, leak or clean-up may receive an examination depending on the nature of the incident.

- E. The physician shall be furnished with the following information:
- F. The physician shall issue a written opinion to both the employee and the school district. This report must contain the following:
 - i. Summary of results including diagnosis, opinion, and any laboratory results.
 - ii. Any follow-up recommendations.
 - iii. Opinion if the employee will be placed at greater risk by returning to their job.
 - iv. A statement by the physician that the employee has been informed of the results of the examination and if any follow-up medical evaluations should be conducted.

XIII. Employee Training and Information

- A. The employee shall be trained about the following:
 - i. The existence, location, availability, and contents of the Chemical Hygiene Plan.
 - ii. 29 CFR 1910.1450 and its appendices.
 - iii. Hazard information about the materials that will be used in the laboratory/shop/classroom, including signs and symptoms of over exposure.
 - iv. The location and availability of Safety Data Sheets. (SDS)
 - v. The medical program.
 - vi. Emergency plans and procedures.
 - vii. Any direct reading monitoring equipment in use.
 - viii. Use of all personal and lab/shop/room safety equipment.
 - ix. The teacher SOP and the student SOP/Safety Contract.
- B. A copy of the CHP, MSDS, OSHA regulations, and other information such as exposure monitoring results shall be available to employees during normal working hours.

XIV. Record Keeping

- A. All training documents.
- B. All monitoring records.
- C. All medical reports.
- D. All accident or incident reports.
- E. Any disciplinary actions.
- F. Engineering control service records.
- G. Disposal records.

XV. Plan Review and Updating

This plan shall be reviewed annually and updated as necessary. The review shall include.

- A. Plan effectiveness
- B. Incident response records.
- C. Biannual meeting of the chemical management team.
- D. Changes made to the plan.
- E. See Appendix 2

APPENDIX 1

| | |
|----------------------------------------------------------------------------|----------------------------------------------------------------|
| Superintendent of Schools | Dr. Anthony Gasper |
| Deputy Superintendent of Schools | Ivelise Velazquez |
| Principal, New Britain High School | Damon Pearce |
| Department Chairperson, Science - NBHS | Matthew Bornn |
| Chief Operations Officer Environmental Health and Safety Officer (EHSO) | Rebecca Gonzalez |
| Manager of Special Projects and Technology | Robert Smedley |
| Manager of Facilities Operations | Sherry Tyler |
| District Coordinator of Science, Technology, Engineering and Math | N/A |
| Chemical Hygiene Officer - NBHS | Vincenzo Buccilli (NBHS) |
| Chemical Hygiene Coordinator | Vincenzo Buccilli (NBHS) |
| Chemical Management Team | EHSO, CHO, CHC, Department Chairs, Science Facilitators, |

APPENDIX 2

Revisions to the Chemical Hygiene Plan (CHP)

Date: September 6, 2023

Revisions developed by:

Vincenzo Buccilli CHO, Biology Teacher NBHS

Revisions reviewed by:

Matthew Bornn Department Chairperson, Science, NBHS

APPENDIX 3

1. Approved chemical inventory program.

ChemInventory™ (V 4.0)
Flinn Scientific Inc.
P.O. Box 219 Batavia, IL 60510-0219
(800) 452-1261

2. Approved chemical safety and storage procedures.

Flinn Scientific Inc.
P.O. Box 219 Batavia, IL 60510-0219
(800) 452-1261

3. Designated Science Department waste storage room at New Britain High School.

Prep-room 321-322

APPENDIX 4

Sources of additional information:

Connecticut Occupational Safety and Health Division (CONN-OSHA)
38 Wolcott Hill Rd.
Wethersfield, CT 06109
(860)263-6900
www.osha.gov

Kenneth Roy Ph.D.
National Safety Consultants LLC
34 Tallwood Drive
Vernon, CT 06066

Clean Harbors Environmental
51 Broderick Rd.
Bristol, CT 06010
(860) 583-8917

Connecticut State Department of Education
School Facilities Unit
Cromwell Commons
136 Berlin Road
Suite 203
Cromwell, CT 06416
(860) 636-3308

State Science Consultant, Elizabeth Buttner (K-8)
State Science Consultant, Mary Ann Butler (9-12)
Connecticut State Department of Education
P.O. Box 2219
Hartford, CT 06145
(860) 713-6849 (Buttner)
(860) 713-6737 (Butler)

Kaufman and Associates/Lab Safety Workshops
192 Worcester Road
Natick, MA 01760
(800) 647-0930
JAKSAFETY@aol.com

Department of Environmental Protection
Source Reduction and Recycling
Planning and Standard Division
Waste Management Bureau
79 Elm Street
Hartford, CT 06106-5127

APPENDIX 5

Specific guidelines for the use of certain chemical substances.

1. No chemical is to be used without an SDS available to the teacher. It is the responsibility of the teacher to check the SDS and other appropriate literature before using any chemical.
2. The use of chemicals that have been identified as carcinogens or suspected carcinogens in animals or in humans is not allowed under any circumstances without the prior written approval of the CHO/CHC.
3. Use of highly toxic chemicals with a PEL or TLV of less than 50 ppm is not allowed without the prior written approval of the CHO/CHC.
4. Highly flammable chemicals classified as 1A with a flash point of less than 73° C and a boiling point of less than 100° C shall be used only with adequate ventilation or in a fume hood. Adequate fire protection must be available and the instructor must be trained in the use of that equipment.
5. Quantities of flammable liquids that exceed 0.50L (500ml) must be stored in an approved flame resistant cabinet. Quantities of less than 0.50L may be stored in prep-rooms provided that the total volume of all flammable liquids does not exceed 0.50L. Flammable liquids are **not** to be stored in classrooms.
6. Reproductive toxins shall not be used without the prior written approval of the CHO/CHC.
7. Corrosive and contact hazard chemicals may only be used when handled with the proper safety precautions. This includes but is not limited to splash goggles, aprons, and gloves specifically suited for that chemical. A working eyewash and shower must also be available.

8. Radioactive substances may be used only if they are encapsulated or in approved sealed containers. The radiation must be classified as a non-registered substance. The radiation count must meet all Federal, State, and Local regulations. Students may not handle radioactive materials. Experimentation should be in a teacher demonstration format using all necessary forms of protection such as gloves, and clothing that covers the arms and legs.

9. Mercury, mercury compounds, and mercury containing equipment are not allowed in the school system under any circumstances.

Appendix 6

Reference Sources: The following list of references and conferences is not intended to be a full resource list. It is a short summary of the many resources used to develop and update the chemical hygiene plan.

Conditionally Exempt Small Quantity Generator Handbook
Connecticut Department of Environmental Protection
1998

2022 Emergency Response Guidebook
U.S. Department of Transportation

Flynn Chemical & Biological Catalog/Reference Manual
Flynn Scientific
P.O. Box 219
Batavia, IL 60510
2022

Laboratory Safety Pocket Handbook
Paul Mercier
Genium Publishing Corporation
1996

NIOSH Pocket Guide to Chemical Hazards
U.S. Department of Health and Human Services
2022

Mercury in Your School and in the Environment
Skavroneck & Stenstrup
Wisconsin Department of Natural Resources
1998

Safety in Academic Chemistry Laboratories 6th edition

American Chemical Society
1995

Safety in the Science Classroom
Connecticut Science Supervisors Association

Safety Audit/Inspection Manual
American Chemical Society
2000

Safety in School Science Labs
Clair G. Wood
James Kaufman & Associates
1995

School Science Laboratories
A Guide to some Hazardous Substances
Council of State Science Supervisors

Conference Resource List

Chemical Waste Management for Schools
Pfizer Corporation
3-15-2000

Connecticut DEP Hazardous Waste Training Program
11-20, 21-2000

Getting Toxic Chemicals Out of Connecticut Schools
Quinnipiac University
Major Sponsors; EPA(Boston Regional Office), Connecticut DEP
5-21-2002

Healthy and Safe School Environments
Connecticut School Indoor Resource Team
Major Sponsors; NEA, CT DEP, EPA, UCONN Medical Center Occupational Health
Center
10-16-2001

How to be a More Effective Chemical Hygiene Officer
RJC Associates James Kaufman, PhD; Russell Phifer, C.E.T.;
George Whal, PhD

1-06-1999

The Inaugural International Conference on Science Safety and Science Education
Sacred Heart University, the Laboratory Safety Institute, ICASE
7-8, 10-2002

Laboratory Safety Workshop, Part I Basic, Part II Advanced
Laboratory Safety Workshop, Dr. James Kaufman
1994-1995

Science Safety Workshop
Mary Gromko
Science Supervisor K-12
Colorado Springs, Colorado