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GOVERNING EMPLOYMENT OF MINORS BETWEEN 16 AND 18 YEARS OF AGE

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IN LABORATORIES

Male and female minors between the ages of 16 and 18 may be employed in scientific, technical, or research laboratories within the limitations prescribed by the child labor law (Chapter 153, Laws of 1940) and the amendments thereto, (Chapter 129, Laws of 1941).

In order to comply with the requirements of the law governing such employment, the employer must:—

1. File and keep on file an employment certificate for each minor during the period of employment.
2. Not exceed work hours beyond eight hours per day or forty hours in any one week.
3. Not permit employment beyond six consecutive days.
4. Permit employment only between the hours of 6 a.m. and 10 p.m. for males and 7 a.m. and 10 p.m. for females, subject to the limitations of (2) above.
5. Post an abstract of the child labor laws and a schedule of hours of work for each minor upon a form furnished by the Department of Labor and Industry.
6. Keep a work time record for each minor showing:—
 - a. name
 - b. address
 - c. date of birth
 - d. time of starting and stopping work, and time of starting and stopping meal period
 - e. wages paid
7. Allow a 30-minute meal period after not more than five consecutive hours of work.
8. Prohibit any such minors from being employed, permitted or suffered to work in, about, or in connection with:—
 - a. handling of dangerous or poisonous acids or dyes
 - b. exposure to benzol or any benzol compounds which is volatile or which can penetrate the skin
 - c. injurious quantities of toxic or noxious dust, gases, vapors, or fumes
 - d. use of high inflammable substances
 - e. grinding, abrasive, polishing or buffing machines
 - f. cutting machines having a guillotine action
 - g. heating, melting or heat treatment of metals

(NOTE: The seven prohibited forms of employment, above stated, are abstracted from a number of prohibitory provisions expressly stated in section 17 of the Child Labor Law and are given because of their relation to laboratory work.)

It must be understood that, while all of the foregoing are included in these regulations, the pre-stated requirements are mandatory under law and permit of no variance for any reason. It must be furthermore understood that the Commissioner of Labor and Industry has not been empowered to grant any exceptions under the law, irrespective of the emergency.

However, the purpose of these regulations is to not only indicate mandatory requirements, but also to amplify such provisions of the statutes which are general in context and require further clarification. In regard to laboratory employment for minors, an extension of the mandatory prohibitions is felt to be necessary. The use of a list of permissible and prohibited operations, equipment and substances is considered to be the best possible form to adopt because of its clarity and directness.

DEFINITIONS

1. Dangerous acids are those that either have a corrosive action on the body or readily become unstable in the presence of certain substances or under certain conditions of pressure and temperatures.
2. Poisonous acids are those that are capable of destroying or adversely affecting the body tissues, or are capable of affecting or destroying the functions of the organs of the body.
3. Dangerous dyes are those which on contact with the skin or eyes may cause burns, dermatitis or infections or may penetrate the skin to cause cyanosis or otherwise disturb the normal body functions.
4. Poisonous dyes are those that upon inhalation, ingestion or by penetration of the skin may cause loss of organic functions, cyanosis or otherwise interfere with normal body functions.
5. Dangerous chemicals are those that are explosive in themselves, or give off explosive or toxic vapors or both or otherwise injurious vapors or may cause burns or dermatitis on contact with the skin.

GENERAL CLASSIFICATION OF SUBSTANCES

1. **Dangerous acids** - Hydrofluoric acid, and solutions in excess of 10% strength, hydrochloric acid, sulphuric acid, nitric acid, formic acid, perchloric acid, etc., and organic acids of the lower carbon group.
2. **Poisonous acids** - Dangerous acids (see (1) above); oxalic acid, etc.
3. **Dangerous dyes** - Intermediates for dyes and chemicals, such as unsulphorated derivatives of benzene, naphthalene and anthracene; hydroxy - and nitro-compounds.
4. **Poisonous dyes** - Organic dyes.
5. **Highly flammable chemicals** - Solvents such as benzene, toluene, xylene, naphtha, carbon bisulphide, ether, compounds of the lower carbon group, alcohols, ethers; esters; aldehydes, ketones.
6. **Toxic or noxious dust, fumes, gases or vapors** - Such as chloroform, polychlor benzenes, carbon tetrachloride, aliphatic halides, toluene, xylene, beryllium, etc.

Trenton, New Jersey

LIST OF PERMISSIBLE AND PROHIBITED OPERATIONS, EQUIPMENT AND SUBSTANCES
OF THE KIND USUALLY FOUND IN SCIENTIFIC, TECHNICAL OR RESEARCH
LABORATORIES GOVERNING PERMISSIBLE EMPLOYMENT OF MINORS
BETWEEN 16 AND 18 YEARS OF AGE

GENERAL OPERATIONS

- Permissible - (1) Preparation of samples for testing
(2) Chemical analysis of sample
(3) Physical analysis of sample
(4) Preparation of reagents, test solutions, and standards
(5) Testing of samples
(6) Laboratory preparation of intermediate and final products
(7) Sampling, filing and dispatching
(8) Clean-up of work space
(9) Errands to plant and stores
- Prohibited - Any of the above general operations which are affected by the prohibitions expressly stated in section 8a to 8g inclusive, page 1.

SPECIFIC OPERATIONS

- Permissible - Weighing, measuring, filtering, drying, hand grinding, dissolving, precipitation, extracting, washing, reducing, fusions, hydrolysis, couplings, condensation, determining melting point, freezing point, boiling point, boiling range, ph. density screen size, viscosity.
- Prohibited - Machine grinding, and any of the above specific operations which are affected by the prohibitions expressly stated in section 8a to 8g inclusive, page 1.

EQUIPMENT

- Permissible - Autoclaves, balances, centrifuges, comptometer, drying ovens, drum dryers, enamelware, fusion pots, glassware, heating racks, hot plates, microscopes, muffle furnaces, par bombs, potentimeters, sample containers, stirrers (mechanical), steam, water and oil baths, vacuum pumps, vacuum stills.
- Prohibited - Any of the above which are used in connection with dangerous or poisonous acids or dyes and highly flammable substances.

SUBSTANCES:

Under the provisions of the child labor law certain substances are prohibited for use by virtue of being dangerous or toxic. Such substances or materials of the kind usually found in laboratories are defined and classified below. As such, they are all in the prohibited class in consequence of which no minor under eighteen years of age is permitted to work in, about or in connection with these materials.

This list is illustrative of substances, commonly used in laboratories, which are in the prohibitive classification. It is not intended to be complete but is to be used as a guide for such substances that are not named on the list.

IMPORTANT. Where minors are engaged in permissible employment in laboratories, they must be always under the immediate supervision of an experienced chemist, technician, scientist or engineer who is thoroughly familiar with the work as regards not only the properties of the materials or equipment but accepted safety practices and such supervisor should preferably be a licensed professional engineer.