

**Government of Maharashtra**  
**Directorate of Industrial Safety and Health**

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Kamgar Bhavan, 5<sup>th</sup> Floor, Block-E, C-20, Bandra-Kurla Sankul, Bandra (East), Mumbai- 400 51, Phone No. 26572504/09/22/58, Fax No. 26572474, Email ID – [dirdish.mum-mh@gov.in](mailto:dirdish.mum-mh@gov.in)

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***Circular- 6/2020***

***Subject: Safety Norms to Be Followed in Dyes Industries.***

*Introduction:*

*In the current situation of Covid-19 lockdown, the inspection of all the factories may not be possible by this directorate. Hence all such type of factories are hereby directed to follow the following safety measures in addition to the provisions of The Factories Act, 1948 and The Maharashtra Factories Rules, 1963.*

*The given guide lines are not exhaustive in nature; any additional precaution as may be necessary based on specific requirement should be adopted by the factory management for safe manufacturing operation of the factory based on the nature of manufacturing activity*

**Definitions:**

A) "Prohibited Substance": Following chemical substances shall be classified as "prohibited substances" except when these substances are present or are formed as a by-product of a chemical reaction in a total concentration not exceeding one per cent:-

- (a) Beta-naphthylamine and its salts;
- (b) Benzidine and its salts;
- (c) 4-amine diphenyl and its salts;
- (d) 4-nitro diphenyl and its salts; and
- (e) any substance containing any of these compounds.

B) "Controlled Substances" : Following chemical substances shall be classified as "controlled substances", namely:-

- (a) Alpha-naphthylamine or alphanaphthylamine containing not more than one per cent of betanaphthylamine either as a by- product of chemical reaction or otherwise and its salts;
- (b) Ortho-tolidine and its salts;
- (c) Dianisidine and its salts;

(d) Dichlorobenzidine and its salts;

(e) Auramine;

(f) Magenta.

1. No person shall be employed in the processes in which any prohibited substance is used, handled, manufactured, processed or formed unless the process is duly certified and exempted by the Chief Inspector.
2. Wherever any of the controlled substances are formed, manufactured, processed, handled or used, all necessary steps shall be taken to prevent inhalation, ingestion or absorption of the said controlled substance by the workers while engaged in processing that substance, and its storage or transport within the plant, or in cleaning or maintenance of the concerned equipment, plant, machinery and storage area.
3. All operations shall be carried out in a totally enclosed system. Wherever such enclosure is not possible, efficient exhaust draught shall be applied at the point where the controlled substances are likely to escape into the atmosphere during the process.
4. The controlled substances shall be received in the factory in tightly closed containers and shall be so kept except when these substances are used, handled or manipulated. The controlled substances shall leave the factory only in tightly closed containers approved by the inspector to be safe for carrying the controlled substances. All the containers shall be clearly labelled to indicate the contents.
5. **Efficient exhaust draught** - Unless the manufacturing process is completely enclosed so as not to dust or fume it shall be carried on without the use of an efficient exhaust draught when any controlled substance,- (a) is introduced into a tank hopper machine or container or filled into cartridge; or (b) is ground, crushed, mixed, sieved or blended
6. **Personal protective equipment** - (1) The following items of personal protective equipment shall be provided and issued to every worker employed in the said processes, namely:- (a) Long trousers and shirts or overalls with full sleeves and head coverings. The shirt or coverall shall over the neck completely. (b) Rubber gum-boots. (2) The following items of personal protective equipment shall be provided in sufficient numbers for use by workers employed in the said processes, namely:- (a) Rubber hand-gloves, (b) Rubber-aprons, (c) Airline respirators or other equivalent respiratory protective equipment. (3) It shall be the responsibility of the manager to

maintain all items of personal protective equipment in a clean and hygienic condition and in good state of repair.

7. **Prohibition relating to employment of women and young persons** - No woman or young persons shall be employed or permitted to work in any room in which the said processes are carried on.
8. **Floors of work room** - The floor of every work room in which the said processes are carried on shall be: (a) smooth and impervious to water without using asphalt or tar in the composition of the floor, (b) maintained in a good state of repair, (c) with a suitable slope for easy draining and provided with gutters, and (d) thoroughly washed daily with the drain water being led into a sewer through a closed channel.
9. **Disposal of empty container** - (1) Empty containers used for holding or storing controlled substances shall be thoroughly cleaned of their contents and treated with an inactivating agent before being discarded. (2) Empty non-metallic containers used for holding controlled substances shall be burnt.
10. **Manual handling** - Controlled substances shall not be allowed to be mixed, filled, emptied or handled except by means of a scoop with a handle. Such scoop shall be thoroughly cleaned daily.
11. **Instructions regarding risk** - Every worker on his first employment in the said processes shall be fully instructed on the properties of the toxic chemicals to which he is likely to be exposed and of the dangers involved and the precautions to be taken. Workers shall also be instructed on the measures to be taken to deal with an emergency.
12. **Cautionary placards** - Cautionary placards in the form specified in the Appendix to this Schedule and printed in the language of the majority of the workers employed in the said processes shall be affixed in prominent places frequented by them in the factory, where the placards can be easily and conveniently read. Arrangements shall be made by the manager to instruct periodically all such workers regarding the precautions contained in the cautionary placards.
13. **Medical examinations**—
  - (1) Every worker employed in the said processes shall be examined by a Medical Inspector of Factories or a Certifying Surgeon within 14 days of his first employment. Such examination shall include tests which the Medical Inspector of Factories or Certifying Surgeon may consider appropriate and shall include exfoliative cytology of

the urine. No worker shall be allowed to work after 14 days of his first employment in the factory unless certified fit for such employment by the Medical Inspector of Factories or Certifying Surgeon.

(2) Every worker employed in the said processes shall be re-examined by a Medical Inspector of Factories or Certifying Surgeon at least once in every six calendar months. Such examination shall include tests which the Medical Inspector of Factories or Certifying Surgeon may consider appropriate but shall include exfoliative cytology of the urine.

(3) A person medically examined under sub-paragraph (1) shall be granted by the Medical Inspector of Factories or Certifying Surgeon a certificate of fitness in Form No. 23. Record of each re-examination carried out under sub-paragraph (2) shall be entered in the certificate. The Certificates shall be kept in the custody of the manager of the factory.

(4) The record of each examination carried out as referred to in sub-paragraphs (1) and (2) including the nature and the results of the tests shall be entered by the Medical Inspector of Factories or Certifying Surgeon in a health register in Form No. 7.

(5) The certificates of fitness and the health register shall be kept readily available for inspection by any Inspector.

(6) If at any time the Medical Inspector of Factories or Certifying Surgeon is of the opinion that a person is no longer fit for employment in the said processes or in any other work on the ground that continuance therein would involve damage to his health, he shall make a record of his findings in the said certificate and the health register. The entry of his findings in these documents shall also include the period for which he considers that the said person is unfit for work in the said processes or in any other work, as the case may be.

(7) No person who has been found unfit to work as said in sub-paragraph (6) shall be re-employed or permitted to work unless the Medical Inspector of Factories or Certifying Surgeon, after further examination, again certifies him to be fit for employment.

(8) No worker shall be required to pay the charges or fees for the medical examination, re-examination or tests required to be done under this paragraph. Such charges or fees shall be paid by the occupier of the factory.

14. **Obligations of the workers** - It shall be the duty of the persons employed in the said processes to submit themselves for the medical examination including exfoliative cytology of urine by the Medical Inspector of Factories or Certifying Surgeon or the appointed doctor as provided for under these rules.

15. **Washing and bathing facilities**—

(1) The following washing and bathing facilities shall be provided and maintained in a clean state and in good repair for the use of all workers employed in the said processes, namely:-

(a) A wash place under cover having constant supply of water and provided with clean towels, soap and nail brush and with at least one stand pipe for every five such workers. (b) 50 per cent of the stand pipes provided under clause (a) shall be located in bathrooms where both hot and cold water shall be made available during the working hours of the factory and for one hour thereafter.

(c) The washing and bathing facilities shall be in close proximity of the area housing the said processes but the same shall not be at a distance longer than 15 meters. Before the end of each shift one hour shall be allowed for bathing for each worker who is employed in the said processes and at least 10 minutes shall be allowed for washing before each meal in addition to the regular time allowed for meals.

(d) Clean towels shall be provided individually to each worker. (e) In addition to the taps mentioned under clause (a), one stand pipe, in which warm water is made available, shall be provided on each floor. (2) Arrangement shall be made to wash factory uniforms and other work clothes every day.

16. **Food, drinks, etc. prohibited in work-room** - No worker shall consume food, drink, pan, supari or tobacco or shall smoke on any premises in which the said processes are carried on and no worker shall remain in any such room during intervals of meals or rest. 20. Cloak room - There shall be provided and maintained in a clean state and in good repair for the use of the workers employed in the said processes:- (a) a cloak room with lockers having two compartments - one for street clothes and the other for work clothes, and (b) a place separate from the locker room and the mess room for the storage of protective equipment's provided under paragraph 7. The accommodation so provided shall be under the care of a responsible person and shall be kept clean.

17. **Mess room** - There shall be provided and maintained for the use of workers employed in the said processes who remain on the premises during the meal intervals, a mess

room which shall be furnished with tables and benches and provided with suitable means for warming food. Mess shall be placed under the charge of a responsible person and shall be kept clean.

18. **Drying oven or stoves** - (1) Every drying stove shall be efficiently ventilated to the outside air in such manner that hot air from the stove shall not be drawn into any work-room. (2) No person shall enter stove to remove the contents until a free current of air has been passed through it by mechanical means.
19. **Restrictions on age of persons employed** - No worker under the age of 40 years shall be engaged in the factory in the said processes for the first time after the date on which the Schedule comes into force. 24. **Separation of processes** - The said process shall be carried on in a room or rooms which shall not directly communicate with any other room or rooms not having the said process except through a passage open entirely to outside atmosphere.
20. **Testing of atmosphere etc.** - The prohibited substances in the atmosphere of the work-room where the manufacturing process is carried on shall be estimated once in every week and records of results of such estimation shall be made available when required by the Inspector.

**General Safety Precautions :-**

21. All fixed vessels; sump, tank, pit or opening in the ground or in a floor shall be either securely covered or securely fenced.
22. A suitable breathing apparatus, Safety goggles for protection of eyes, safety shoes, aprons, hand gloves, earplugs, Dust masks etc shall be provided for the use of workers and use of it shall be insisted upon the workers.
23. No worker shall be required / allowed to enter any chamber, tank, vat, pit, pipe, flue or other confined space until all practicable measures and prescribed safety measures have been taken to remove any gas, fume, vapour or dust which may be present as per section 36 of The Factories Act, 1948.
24. Portable electrical light / appliance having voltage less than or equal to 24 shall only be used inside any chamber, tank, vat, pit, pipe, flue or other confined space. If inflammable gas, fume, vapour or dust is likely to present in chamber, tank, vat, pit, pipe, flue or other confined space no lamp or light other than that of flame-proof construction shall be permitted to be used therein.

25. Poisonous gas leakage system shall be provided in the shed where it is stored and where it is used.
26. The top of the mixer shall be provided with a suitable cover having interlocking system, which will not allow the machine to start when the lid of the machine is open.
27. All electrical fittings in the room where inflammable chemicals are handled/stored shall be of flameproof type
28. Dyke wall be provided around the acid, oil etc storage tanks.
29. The occupier of the factories shall prepare & as often as may be appropriate revise, a return statement of his general policy with respect to the health & safety (including risk assessment and safety audits) of the workers at the work & the organization & arrangement for the time being in force for carrying out that policy & to bring the statement & any revision thereof to the notice of workers as per section 7 (A) (3) of the Factories Act, 1948, and as per rule 73-L of The Maharashtra Factories Rules, 1963. Four copies of it shall be submitted to the office.
30. On site emergency plan as per section 41-B(4) of the Factories Act, 1948 shall be prepared & copy of it shall be submitted to the office.
31. Mock drills of an on site emergency plan shall be carried out once in a six months and report of it shall be sent to the office.
32. The dangers including health hazards & the measures to overcome such hazards arising from the exposures to or handling of the chemicals in the manufacture, transportation, storage & other process shall be disclosed to the workers employed in the factory, the Chief Inspector, the local authority & the general public in the vicinity. It shall include accurate information as to the quantity, specifications & other characteristics of waste & the manner of their disposal, as per section 41B(1) of the Factories Act, 1948.
33. Material safety data sheets of every chemical used in the factory shall be obtained. Copy of it shall be submitted to the office as per rule 73 (M) of the Maharashtra Factories Rules, 1963.
34. Information in relation to handling of hazardous chemicals in the manufacture, transportation, storage & other process shall be supplied to the workers in the form of booklet or leaflets as prescribed under the rule 73N of the Maharashtra Factories Rules, 1963.

35. Occupational health centre, as per rule 73-W of The Maharashtra Factories Rules, 1963 shall be provided and maintained.
36. Decontamination facilities to meet emergencies shall be provided as per rule 73-Y of The Maharashtra Factories Rules, 1963.
37. The workers shall be trained in handling emergencies arising out of leakage of toxic / poisonous gas, fire and others.
38. Efficient scrubbing system shall be provided to scrub the fumes/gases given out during process.
39. Steam shall be supplied through a pressure reducing valve and a safety valve correctly set to ensure that the critical temperature of the process is not exceeded.
40. A suitable rupture disc shall be provided on the vessel in addition to the usual spring-loaded safety valve. The pipe duct leading away from the rupture disc shall be taken out of the work-room shall be straight and without any bends in order to minimise resistance at the time of blowing and to avoid any chance of a secondary vapour/air explosion.
41. Breaking of vacuum, if the process is done under vacuum, on account of consideration of special hazards inherent in the process, shall be done only with nitrogen, other suitable inert gas or steam. Compressed air 'connection to the manifolds of the vessel equipment shall be avoided.
42. There shall be an automatic cut-off device of steam supply or other heating devices as well as of further feed to the vessel set to operate, no sooner the critical temperature is reached, beyond which the reaction, if any, in the vessels is likely to get out of control or reach run-away stage.
43. There shall be arrangement such that it would be possible to introduce quickly, preferably chilled water or at least ordinary cool water circulation in the steam or other heating coils, no sooner the heating element is cut-off or separate coils or jackets for this purpose shall be provided for the vessel.
44. An alarm system shall be provided linked to the pressure indicator of the vessel, so that automatically an audible warning will be given as soon as the pressure exceeds the present safe limit.
45. There shall be provided an automatic arrangement such that if the mechanical agitation, where so provided, fails on account of failure of motive power or due to broken shaft, broken blades, failing of blades or such other contingencies, the supply



of steam or other heating devices as well as further feed of material would stop automatically.

Dr. Mahendra Kalyankar (IAS)  
Director  
Industrial Safety and Health  
Government of Maharashtra  
Mumbai (A. C)