

**MINISTRY OF LABOUR**

**MINISTERIAL ORDER NO.(15) OF 2014  
WITH RESPECT TO PROTECTING WORKERS FOR THE HAZARDS OF  
HIGHLY FLAMMABLE LIQUIDS AND LIQUEFIED PETROLEUM GASES AT  
ESTABLISHMENTS AND WORKSITES**

The Minister of Labour,

Having reviewed the Law on Constructional Organisation of Buildings promulgated by Legislative Decree No.(13) of 1977, as amended,

And Legislative Decree No.(5) of 1990 with respect to Civil Defence,

And Legislative Decree No.(21) of 1996 with respect to the Environment, as amended by Legislative Decree No.(8) of 1997,

And Legislative Decree No.(25) of 2009 with respect to the Accession of the Kingdom of Bahrain to the International Labour Organisation's Convention No.(155) of 1981 with respect to Occupational Safety and Health, and Work Environment,

And the Labour Law for the Private Sector promulgated by And Legislative Decree No.(36) of 2012, particularly Article (166) thereof,

And Decree No.(7) of 1983 with respect to the Arabian Agreement No.(13) of 1981 with respect to the Work Environment,

And Decree No.(2) of 1994 with respect to the Accession by the State of Bahrain to the Arabian Agreement No.(7) of 1977 and Recommendation No.(1) of 1977 with respect to the Occupational Safety and Health,

And Ministerial Order No.(31) of 1977 with respect to Determining the Required Conditions and Precautionary Measures for the Protection of Workers from the Hazards of Highly Flammable Liquids and Liquefied Gases,

And having sought the opinion of the Concerned Authorities,

And upon the submission of the Undersecretary of the Ministry of Labour,

**HEREBY ORDERS:**

## **Article 1**

In the application of the provisions of this Order, the terms and expressions shall have the meanings assigned against each unless the context otherwise requires:

- **HIGHLY FLAMMABLE LIQUID:** A chemical substance that ignites a fire once exposed to air or is converted, once it gets into contact with water, into a highly combusted gases.
- **CYLINDER:** A container designed and manufactured in accordance with the internationally approved compression container standards.
- **FIRE RESISTING STRUCTURE:** A store or workers room, chamber or any other closed place designed to become fire resisting in accordance with the fire resistance specifications and measures.

## **Article 2**

The provisions of this Order shall apply to all establishments and worksites that are subject to the provisions of the Labour Law for the Private Sector promulgated by Law No.(36) of 2012 and all existing establishments and worksites at the enforcement time of this Order shall adjust their statuses in conformity with its provisions within three months from its enforcement date.

## **Article 3**

Every employer shall adopt the necessary precautions for the protection of his workers or whoever available at the worksite from the chemical hazards and provide them with the protection means from their hazards in addition to rescue means as indicated in this Order.

An employer may not deduct any sum from the wages of the workers against the provisions of such protection.

## **Article 4**

Every employer shall, in a suitable and effective manner, evaluate the chemical hazards at his establishment and worksite that threatens the safety and health of his workers and persons present therein or close by as follows:

1. To conduct an evaluation at least once every three years.
2. To conduct an evaluation in case of an occupational accident.
3. To conduct an evaluation in case any alteration if the establishment's operations.

Provided the chemical hazards evaluation shall be assigned to an approved specialised authority specialised with the type of existing chemical hazards.

## **Article 5**

The occupational safety and health conditions shall be observed in the following manner:

- a) To isolate and separate work sites from the remaining worksites that are susceptible to chemical material hazards.
- b) To replace the industrial operations using harmful substances with ones that are less harmful.
- c) To conduct operations that generates harmful gases in securely sealed containers under suitable pressure.
- d) To periodically and technically maintain the measuring, technical and industrial devices to ensure their safety.
- e) To provide adequate discharge and suction ventilation systems at the worksite.
- f) To train and educate workers with the chemical substances hazards at work environment.
- g) To use chemical substances supplied with a clear and internationally approved hazard materials identification card (MSDS).
- h) To comply with the cautions and warnings issued by the chemical materials producing and manufacturing companies.
- i) To conduct the periodical measurements of chemical hazards at the worksite.
- j) To observe the determination of daily shift hours and a schedule may be drawn to illustrate it.
- k) To provide sufficient and appropriate places for workers washing after completing the shift period in addition to supplying an emergency sprinkler.
- l) To provide personal safety equipment in conformity with the nature of work.
- m) To conduct the periodical checkup on workers susceptible to chemical hazards and maintain a register thereof.

## **Article 6**

To provide sufficient and secured safety means to prevent and escape from fire at any site where production, use or transport of any flammable chemical substances, gases or liquids is taking place.

The following conditions shall be observed at a worksite to protect from fire:

- a) To prevent smoking inside the worksites especially the ones contain flammable material and to post directions in this respect at each of the factory entrances in a clear and suitable indication that smoking is strictly prohibited with the exception of places where a sign indicates permission thereof.
- b) To adopt the required safety measures upon carrying on welding and cutting jobs in barrels and containers that contains flammable materials or their residues.
- c) To adopt necessary safety measures in the event of frictions, electromagnetic and electric charges.
- d) To adopt the necessary safety and security measures upon using compressed gas cylinders provided they must be examined and supplied with safety certificates.

#### **Article 7**

The following conditions shall be observed whenever as a result of any process or operation involving any highly flammable liquid a deposit of any solid waste residue liable to give rise to a risk is liable to occur on any surface:

- a) Steps shall be taken where reasonably practicable to prevent as far as possible the occurrence of all such deposits.
- b) Where any such deposit occurs, effective steps shall be taken, as often as necessary to prevent danger, to remove all such residues as aforesaid and put them in a safe place.

#### **Article 8**

The following precautions shall be observed:

- a) No highly flammable liquid shall be ignited except in a plant or apparatus suitable for the purpose of burning that highly flammable liquid safely and by the proper use of that plant or apparatus.
- b) Where the sole purpose is to dispose of any highly flammable liquid as waste by burning it, it shall be burnt either in a plant or apparatus suitable for the purpose of burning that highly flammable liquid safely and by a competent person.
- c) The prohibition indicated in Clause (a) of this Article shall not be applicable where highly flammable liquid is burnt in order to provide persons with training in fighting fire provided the burning shall be carried out by a competent person in a safe manner and in a safe place and such

training shall be carried out under the direct and continuous supervision of a competent person.

## **Article 9**

The following shall be observed:

- a) Where a storeroom, workroom, cabinet or enclosure is fire resisting structure provision may be made in its structure for pressure relief in the case of any explosion.
- b) The storeroom shall have adequate natural ventilation notwithstanding in either case, anything contained in any specification approved for the purposes of the definition of the expression "fire resisting structure".
- c) To observe the conditions related to the safety of storerooms and warehouses of chemical materials, liquids or highly flammable gas at worksites as follows:
  1. To separate the storing locations from the manufacturing or circulating locations.
  2. The storeroom or chamber where the chemical materials are stored shall be a solid and non-combustible structure.
  3. To classify the chemical materials according to their nature, characteristics and to implement the directions that are written on the identification cards on each one and to observe their similarity while storing so as each specific type of material shall be stored independently.
  4. To provide independent storage for spoiled and expired chemical materials and to supply the storeroom with a laboratory in order to recycle some these chemicals and reuse them once again.
  5. To provide adequate and suitable ventilation.
  6. To maintain a suitable and appropriate temperature to avoid igniting the flammable materials.
  7. To provide suitable and secure ventilation.
  8. To avoid any igniting sources in the storeroom.
  9. To adopt required measures to limit fire from spreading upon occurrence in the storeroom.
  10. To educate the workers with the hazards of the stored chemicals and methods of prevention thereof.

11. To observe the stores order and arrangement together with adopting measures to prevent materials from or workers tripping.
  12. To ensure the availability of safety supplies and personal safety equipment.
  13. To draw up emergency and evacuation plan in case of leakage or fire.
- d) The cabinets, boxes, apparatuses and containers used at any time to store highly flammable liquids shall be closed and sealed (whether or not containing any highly flammable liquid) unless a need may arise to use, operate or maintain such cabinet, boxes, apparatuses and containers.
- e) To adopt all possible practical measures upon storing highly flammable liquids which may leaked, spilled or may be released in any method in order to avoid their leakage from their apparatus or containers by containing or draining them into a suitable container, a safe place or to be treated in any other method to become safe.

#### **Article 10**

The term "Flammable" or any other suitable term that indicates the flammable liability shall be written on every storeroom, cabinet, apparatus or container used to store flammable liquids.

If it is impractical to place a sign on the storeroom, cabinet, apparatus or container, the term (highly flammable liquid) shall be clearly placed at the nearest place.

#### **Article 11**

The following shall be observed:

- a) Storage of all highly flammable gases or liquids which are not in use shall be made in accordance with the following conditions:
1. The storage shall be in suitable underground reservoirs, land or in the open air or in fixed or mobile storage tanks or vessels in safe areas.
  2. It shall be in pipelines and pumps or other appliances forming a totally enclosed pipeline system.
  3. It shall be in cylinders kept in safe areas in the open air, or where this is not reasonably practical, in a storeroom constructed of non-combustible material being a storeroom which is adequately ventilated, in a secure location or in fire resisting structure.
- b) No gases or flammable liquids other than in suitable cylinders or suitable pipe-lines shall be present in any workplace and the number of gas

cylinders or pipe-lines present at any one time shall be as small as is reasonably practicable having regard to the process or operations being carried thereon.

- c) Gas cylinders shall be stored until such time before first required for use or manipulation as is reasonable, and when its contents have been expended shall, as reasonably practical, be removed from the workplace and stored or filled without delay.

The provisions of the preceding provisions shall be applicable to the following two cases:

1. The gas or liquid in the fuel tanks of vehicles or engines for the purpose of operating such vehicles or engines.
2. Any small securely closed vessel containing not more than 500 cc of flammable gas or liquid.

#### Article 12

- a) To observe using the least minimum and practical quantity of a highly flammable liquid at a workplace whether in production or being used in containers, apparatuses, pipe-lines, equipment or appliances in view of the process or operation being carried thereon.
- b) All possible practical measures must be adopted to secure that no highly flammable gases have leaked from their containing apparatuses or appliances during their production, use, work with or during bottling process, maintenance of the apparatus or appliances. Every apparatus or appliance of this type must be design, install and placed in a manner to practically avoid the danger of spilling or draining it immediately to another suitable container or transfer it to a safe place or process it in any danger preventative manner.
- c) Any apparatus, appliance or container - used to contain and flammable liquid, if not stable, and as soon as emptying it from its contents with the exception of cases where the vapors of such liquid were discharged in a safe open area or to be immediately used – should be transported without any delay to a safe place in an open area or to a store constructed in a suitable place so as such store is designed to be fire-resistant or transported to an apparatus or appliance in a suitable place provided such apparatus or appliance is made of fire resistant material.
- d) All abovementioned apparatuses or appliances which are discharged from any liquid vapor must be kept closed and maintained in a safe place, an apparatus or appliance of aforesaid type until they are once again required to be used or transported.

### **Article 13**

- a) No means likely to ignite vapour from any highly flammable liquid shall be present where a dangerous concentration of vapours from highly flammable liquids may reasonably be expected to be present.
- b) Where in any place a dangerous concentration of vapours from highly flammable liquids may reasonably be expected to be present, any cotton waste or other material in that place has been used in such a manner as to render the cotton waste or other material liable to spontaneous combustion or is contaminated with any highly flammable liquid, shall be deposited without delay in a metal container having a suitable cover or be removed without delay to a safe place.

### **Article 14**

- a) Where any highly flammable liquid is present in any workplace, steps shall be taken to prevent so far as is reasonably practicable the escape of vapours from any such highly flammable liquid into the general atmosphere of that or any workplace.
- b) Where a dangerous concentration of vapours from highly flammable liquids may reasonably be expected to be evolved in any process, the process or operation shall, where reasonably practicable, be carried on within a cabinet or other enclosure which in either case, is effective to prevent the escape of such vapours into the general atmosphere of the workplace or any other place, is adequately ventilated by mechanical means and is a fire resisting structure.

Provided that in the case of a batch-loaded box-type oven used to evaporate highly flammable liquid being an oven with a cubic capacity of less than one and a half cc (1<sup>1/2</sup>) and having natural ventilation sufficient to prevent the occurrence of a dangerous concentration of vapours in the oven, the oven shall be ventilated properly by mechanical means.

- c) Where it is not reasonably practicable to comply with the requirement of the foregoing Clause where in any workroom any such dangerous concentration of vapours may reasonably be expected to be evolved in any process or operation, the workroom shall have exhaust ventilation provided by mechanical means, being exhaust ventilation adequate to remove such vapours from the room.
- d) A workroom required by the foregoing Clause to have exhaust ventilation shall be a fire resisting structure with the exception of any of the following forming part thereof, that is to say, any external doors, external windows and external walls, any openings provided for ventilation and any tops or ceilings of single storey buildings or of top floor rooms.
- e) Ventilation provided or secured in pursuance of this Article shall be kept in operation or use at all necessary times.



- f) All ducts, trunks and casings used in connection with the ventilation provided or secured in pursuance of this Article shall be fire resisting structure.
- g) All venting devices of fixed tank and fixed vessels containing highly flammable liquids shall discharge to a safe place, and where necessary, shall be provided with a suitable wire-gauze effective as a flame arrestor or other suitable flame arrestor.

### **Article 15**

Fire-fighting appliances should be placed in visible areas and easy to be accessed.

### **Article 16**

The following procedures and measures shall be observed when conveying chemicals:

- a) Upon using vehicles for conveying chemicals, they shall be secured and appropriate to transport materials of that nature and extent of its hazardous.
- b) To place warning signs on the chemical appliances, apparatuses and cabinets particularly the hazardous ones indicated by factories producing, importing and dealing with such materials.
- c) To examine containers prior to their shipping and to carefully load and unload them.
- d) Containers that are open or contents leaking therefrom should not be transported at all.
- e) To use suitable and safe methods upon transferring the contents of big containers in small containers to prevent hazardous liquids spilling.
- f) Workers conveying chemicals should be experienced and knowledge of the nature of such materials provided having a copy of the chemical identification card to be transported.
- g) Transportation workers must have the knowledge of the first aid conditions, standards and procedures.
- h) To ensure that workers are wearing the suitable personal protective clothing.
- i) Chemical refuse containers must be conveyed from the production to the treatment place to be practically disposed of without being stored.

## **Article 17**

- a) Upon using pipe-lines for conveying, storing or producing highly flammable materials, the required occupational safety and health conditions must be observed particularly:
1. It should of safe specifications and appropriate for the nature of materials used therein.
  2. It shall be made of durable and non-combustible materials.
  3. It shall be made, to a practical limit, from heat insulating materials.
  4. Pipes must be periodically be tested and ensure their resistance to chemical and natural factors.
  5. Pipes must be maintained to prevent the occurrence of any cracks or expansion that may lead to leakage therefrom.
  6. Preventative methods must be used to prevent breaking of any fire upon the leakage of substance inside such pipes.
  7. To educate and train workers on fighting fires.
  8. To use methods, measurements and indicators showing the pressure and heat inside such pipes.
- b) The following conditions shall be observed upon using or conveying gas or compressed gas cylinders:
1. Cylinders must be made from durable and resistant materials.
  2. Cylinders must be filled with gas in a secure manner in order to protect workers from any hazard.
  3. Quantity of gas filled shall be in conformity with the cylinder's size to avoid explosion or leakage.
  4. Workers, upon using and filling cylinders, must be trained and educated.
  5. Suitable tools must be used in filling cylinders with gas.
  6. To observe the cylinders validity period.
  7. Continuous periodical examination and maintenance of cylinders in terms or observing the pressure indicator, its efficiency and quantity of gas therein together with maintenance of connectors attached thereto.

8. Cylinders, during welding and fabrication process, should be safe from explosion and fire hazards and must be examined to ensure that no gas is leaking therefrom.
9. A register must be maintained to indicate the cylinders maintenance date.
10. Suitable and secure storage to avoid the hazard of fire or explosion.

#### **Article 18**

- a) Where highly flammable liquids or gases are to be conveyed within a factory they shall, where it is reasonably practicable to do so, be conveyed through a totally enclosed system incorporating pipe-lines, pumps or any other similar appliances.
- b) Where highly flammable liquids or gases are to be conveyed through a totally enclosed system is impractical, it shall be conveyed in vessels which are so designed and constructed as to avoid so far as is practical the risk of spilling.
- c) A totally enclosed system used for such conveyance shall be so far as is practicable be so designed, constructed, installed, placed and maintained to avoid leakage.

#### **Article 19**

A worker shall not commit any act or omission with the object of preventing the execution of the instructions or the misuse or causing damage to the facilities installed for the protection of the health and safety of workers employed in the establishment where he is employed.

#### **Article 20**

A worker shall be required to use such means of protection and handle carefully whatever may be in his possession and to carry out the instructions laid down for the maintenance of his health and for his protection against the hazards of chemicals, gases and highly flammable liquids.

#### **Article 21**

Any person who violates the provisions of this Order shall be liable for the penalties provided for in Article (192) of the Labour Law for the Private Sector promulgated by Law No.(36) of 2012.

#### **Article 22**

Ministerial Order No.(31) of 1977 with respect to Determining the Required Conditions and Precautionary Measures for the Protection of Workers from the

Hazards of Highly Flammable Liquids and Liquefied Gases shall be revoked and any provision that contravene the provisions of this Order shall be revoked.

**Article 23**

The Ministry's Undersecretary shall implement this Order which shall come into effect three months after the date of its publication in the Official Gazette.

**Signed: Jameel bin Mohamed Ali Humaidan.  
Minister of Labour.**

Issued on: 29<sup>th</sup> Rajab, 1435 Hijra,  
Corresponding to: 28<sup>th</sup> May, 2014 A.D.