

Workplace Safety and Health (Explosive Powered Tools) Regulations 2009

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No. S 325

WORKPLACE SAFETY AND HEALTH ACT (CHAPTER 354A)

WORKPLACE SAFETY AND HEALTH (EXPLOSIVE POWERED TOOLS) REGULATIONS 2009

In exercise of the powers conferred by section 65 of the Workplace Safety and Health Act, the Minister for Manpower hereby makes the following Regulations:

PART I

PRELIMINARY

Citation and commencement

1. These Regulations may be cited as the Workplace Safety and Health (Explosive Powered Tools) Regulations 2009 and shall come into operation on 1st September 2009.

Definitions

2. In these Regulations, unless the context otherwise requires —

“authorised person” means —

- (a) a manufacturer of tools, projectiles or charges for use in a tool; or
- (b) any person authorised by the manufacturer of a tool to repair the tool;

“charge” means an explosive charge;

“defect” means any defect that may impair or affect the safe and normal operation of a tool;

“direct acting tool” means a tool in which the driving force on the projectile comes

directly from compressed gases from a charge;

“indirect acting tool” means a tool in which the driving force from a charge is transmitted indirectly onto the projectile via a piston;

“operator” means a person who uses a tool and who has successfully completed a training course acceptable to the Commissioner on the operation of that tool;

“projectile” means any stud, pin, dowel, screw, rivet, spike, nail or other object driven against, into or through any substance by means of a tool;

“recognised testing body” means a testing body acceptable to the Commissioner;

“repair” includes any act or attempt to improve, modify, alter or adjust any tool;

“tool” means any explosive powered tool from which a projectile may be driven against, into or through any substance by means of a charge, and includes every attachment or accessory used, adapted or intended to be used with the device, but does not include a firearm within the meaning of the Arms and Explosives Act (Cap. 13) or a side wall coring gun used in exploratory bore hole work;

“use”, in relation to a tool, means to load, unload or discharge the tool, or to attempt to load, unload or discharge the tool.

Application

3. These Regulations shall apply in relation to every workplace in which an explosive powered tool is used.

PART II

GENERAL PROVISIONS

General duty on employer or principal

4. It shall be the duty of —

(a) the employer of a person who uses a tool; or

(b) the principal under whose direction a person uses a tool,

to ensure that the requirements of regulations 5 to 9 are complied with in relation to the tool and any projectile or charge to be used in or with the tool.

Protective shield or device

5. Where a tool is a direct acting tool, it shall have a protective shield or device attached to its muzzle end in such a manner —

- (a) as to effectively arrest the escape of any stray projectile and any other object or particle liberated by the discharge of the tool; and
- (b) that the outer edge of the shield or device is not at any point closer to the centre of the muzzle end of the barrel than a distance of 50 millimetres, except where the tool is used in the circumstances described in regulation 23.

General requirements for tools

6. No tool shall be used unless —

- (a) it is of good construction, sound material and adequate strength, is free from patent defects and is in accordance with a standard or specification acceptable to the Commissioner;
- (b) a projectile cannot be discharged from it if it is dropped onto a surface from a height of 3 metres or more;
- (c) it cannot be discharged accidentally while being handled; and
- (d) where it is a direct acting tool, it can only be discharged —
 - (i) if a force of 110 newtons or more is applied by its operator to the springs of the breech and firing mechanisms; and
 - (ii) if the axis of its barrel or barrel extension does not deviate by more than 7 degrees from a right angle formed by the barrel and the surface into which a projectile is to be fired from it.

Projectiles to meet requirements

7. No projectile shall be used in a tool unless —

- (a) in the case of a smooth shanked projectile, the projectile can be bent through an angle of 40 degrees;
- (b) in the case of a knurled shanked projectile, the projectile can be bent through an angle of 30 degrees; and
- (c) the projectile, in a bend test for ductility, is able to bend about a pin with a diameter equal to the diameter of the shank of the projectile.

Projectiles and charges to be compatible with tools

8. No projectile or charge shall be used with a tool unless it is of a standard or quality that is compatible with the specifications of the manufacturer of the tool.

Colour to indicate strength of charge

9. No charge shall be used in a tool unless the charge is marked, either at the top or at the bottom, with a colour indicating the strength of the charge in accordance with a standard or specification acceptable to the Commissioner.

Record of tools

10. It shall be the duty of the occupier of a workplace to keep and maintain a record of —

- (a) the type and serial number of every tool in use in the workplace; and
- (b) the names and addresses of each of the respective owners and users of the tools.

Information to be engraved, embossed, printed or placed on tools

11. It shall be the duty of the owner of a tool to ensure that —

- (a) the following notice is permanently embossed, printed or placed on the tool:

“DO NOT REMOVE THIS TOOL FROM THE WORK SURFACE
FOR AT LEAST 10 SECONDS AFTER IT HAS FAILED TO
FIRE.”; and

- (b) the serial number and model identification of the tool are permanently and legibly engraved or embossed upon the tool.

PART III

OPERATION AND SAFE USE OF TOOL

General duty on employer or principal

12. It shall be the duty of —

- (a) the employer of a person who uses a tool; or
- (b) the principal under whose direction a person uses a tool,

to ensure that the requirements of regulations 17(1), 18, 20 and 27 are complied with in

relation to the tool and any projectile or charge to be used in or with the tool.

Only operator to use tool

13. It shall be the duty of —

- (a) the employer of a person who uses a tool; or
- (b) the principal under whose direction a person uses a tool,

to ensure that the person is qualified to be an operator.

Inspection of tools

14.—(1) It shall be the duty of the owner of a tool to ensure that the tool is not used unless —

- (a) it has been inspected, examined and maintained by an authorised person in accordance with the manufacturer's recommendations;
- (b) it is free from any patent defect; and
- (c) it has been inspected and tested by a recognised testing body, in accordance with a standard acceptable to the Commissioner, at least once in every 3 years.

(2) It shall be the duty of the operator of a tool to inspect the tool in accordance with its manufacturer's instructions before use.

Repair of tools

15.—(1) No person, other than an authorised person, shall repair a tool.

(2) It shall be the duty of the owner of a tool —

- (a) to ensure that he does not employ, cause or permit any person, other than an authorised person, to repair the tool;
- (b) knowing that the tool has been repaired by a person other than an authorised person, to ensure that he does not use and does not employ, cause or permit any other person to use the tool; and
- (c) to ensure that he does not, at any time, repair or modify the tool in such a way that it does not conform with its manufacturer's specifications.

(3) If an inspector has reason to believe any tool is unsafe, he may direct the owner, purchaser or operator of the tool not to use or not to employ, cause or permit any person to use the tool until —

- (a) the tool has been repaired; and
- (b) a certificate certifying that the tool is safe for use has been issued by a recognised testing body or an authorised person.

Personal protective equipment

16. It shall be the duty of —

- (a) the employer of a person who uses a tool in a workplace; or
- (b) the principal under whose direction a person uses a tool in a workplace,

to ensure that —

- (i) the person;
- (ii) any other person who assists in the use of the tool; and
- (iii) any other person in the workplace who is subject to the risk of injury from the tool,

are provided with suitable eye protection, suitable head protection and such other personal protective equipment or devices as are capable of protecting a person from injury.

Defective tools, projectiles and charges not to be used

17.—(1) No tool, projectile or charge shall be used unless it complies with a standard or specification acceptable to the Commissioner.

(2) It shall be the duty of any person who knows that a tool, projectile or charge is defective to ensure that he does not use, and that he does not cause or permit any other person to use, that tool, projectile or charge.

Projectiles, charges, etc., to be suited to tool

18.—(1) No projectile, charge, breech plug, barrel extension or adaptor shall be used with a tool unless it is of a type suitable for use with the tool.

(2) No tool shall be used for any purpose other than that for which it was made, adapted or intended.

Compliance with manufacturer's instructions

19. It shall be the duty of both the owner of a tool and the operator of the tool to comply with any instruction, advice or recommendation which appears on the tool or its

container, or in any document supplied by the manufacturer of the tool, unless such instruction, advice or recommendation is contrary to these Regulations.

Barrel extensions

20. No barrel extension shall be used on a direct acting tool unless there is attached to the extension a protective shield or device referred to in regulation 5.

Limitation on use of charges

21.—(1) It shall be the duty of any person who loads a charge in a tool to ensure that the charge is not any charge that he knows, or ought reasonably to know from testing, to be —

- (a) in excess of that necessary for the purpose for which the tool is to be used; or
- (b) of such strength as will cause the whole of the projectile to pass through the substance on which the tool is to be used.

(2) Paragraph (1)(b) shall not apply where the substance is backed by a material that is capable of absorbing the energy of the projectile fully.

Use of tools in dangerous environment

22. It shall be the duty of any person who uses a tool to ensure that the tool is not used —

- (a) in the presence of any explosive or flammable gas, dust or vapour;
- (b) in any compressed air environment; or
- (c) in any place where the charge is likely to explode or be rendered dangerous by the presence of heat.

Use of tools on roof

23. It shall be the duty of any person who uses a tool to ensure that the tool is not used on any roof unless the area beneath the person —

- (a) has been cleared; and
- (b) is kept clear for a distance of 6 metres in every direction from the spot beneath the place where the person is working.

Handling of tools

24. It shall be the duty of any person who uses, carries or handles a loaded tool to —

- (a) keep every part of his body clear of the muzzle end of the tool;
- (b) keep the muzzle end of the tool pointed away from any other person; and
- (c) exercise the utmost care to avoid injury to himself and others.

Discharging of tools

25.—(1) It shall be the duty of any person who uses a tool to ensure that the tool is not discharged unless —

- (a) he is in a safe, well-balanced position that will prevent tilting or misalignment of the tool at the time of firing; and
- (b) the tool is placed on the substance into which a projectile is to be driven in such a manner that the protective shield or device referred to in regulation 5 will effectively arrest the escape of stray projectiles and any other object or particle discharged by the firing of the tool.

(2) It shall be the duty of any person who uses a direct acting tool that is fitted with an interchangeable or adjustable protective shield or device referred to in regulation 5 to ensure that the distance between any part of the outer edge of that shield or device and the centre of the muzzle end of the barrel is less than 50 millimetres, unless the escape of a projectile into any area outside the shield but within a radius of less than 50 millimetres from the centre of the barrel will effectively be arrested by other surrounding material.

Free flying projectile prohibited

26. It shall be the duty of any person who uses a tool to ensure that the tool is not fired in such a manner as to cause a projectile to fly free.

Firing into certain materials forbidden

27. No tool shall be used for driving a projectile —

- (a) into high tensile steel, steel hardened by heat treatment, cast iron or any other substance of a hardness that a projectile is not designed to penetrate;
- (b) into tiles, terracotta, glazed brick, glass, marble, granite, thin slate or any other substance that is readily shattered;
- (c) into concrete or reinforced concrete, where any initial trial has shown that the aggregate is of such hardness, or the reinforcing is so positioned, that the use of the tool is unsafe;
- (d) so close to the edge of any substance, or to any hole in the substance, as either to risk cracking or breaking the substance or to risk the escape of the

- projectile from the substance;
- (e) within 15 millimetres, in the case of a direct acting tool, or within 10 millimetres, in the case of an indirect acting tool, of the edge of any exposed steel reinforcement; or
 - (f) into any brick, concrete or similar substance that is within 75 millimetres, in the case of a direct acting tool, or within 50 millimetres, in the case of an indirect acting tool, of an edge of a structure of which the brick, concrete or substance forms a part.

Tools to be kept clean

28. It shall be the duty of any person who uses a tool to ensure that after each firing of the tool, he carefully examines it and removes from it any piece of projectile or explosive charge and any other foreign matter that may be present.

Procedure in case of misfire

29. It shall be the duty of any person who fires a tool to ensure that where the charge fails to explode —

- (a) he continues to hold the tool in the firing position for at least 10 seconds; and
- (b) if the charge does not explode within that time, he unloads the tool or places it in such a position as to eliminate the possibility of a person being injured in the event of the charge exploding subsequently.

PART IV

CARE AND STORAGE OF TOOLS AND EXPLOSIVE CHARGES

Storage of tools

30.—(1) It shall be the duty of the owner of a tool to ensure that the tool is kept in a securely locked container at all times, unless the tool is required for use, inspection or repair.

(2) No person shall take a tool out of its container unless —

- (a) the tool is required for use, inspection or repair by him; or
- (b) the tool is required for use, inspection or repair by another person, and he is taking the tool out of its container for delivery by him to that person.

(3) It shall be the duty of any person who uses, inspects or repairs a tool to ensure that —

- (a) the tool is kept in its container after he has used, inspected or repaired it;
- (b) while the tool is being used, inspected or repaired, the tool is not left unattended, unless effective precautions are taken to ensure that it will not be removed, handled or used by any other person; and
- (c) any charge intended for use in the tool is not left unattended, unless effective precautions are taken to ensure that the charge will not be removed, handled or used by any other person.

Loading and carrying of tools

31. It shall be the duty of —

- (a) the employer of a person who uses a tool; or
- (b) the principal under whose direction a person uses a tool,

to ensure that —

- (i) the tool is not loaded other than at the place where it is to be used; and
- (ii) the tool is not carried from place to place while it is loaded, unless the tool cannot be unloaded by reason of any mechanical failure or misfire.

Storage of charges

32.—(1) It shall be the duty of the owner of any charge intended for use in a tool to ensure that —

- (a) the charge is kept in a securely locked container provided for that purpose; and
- (b) the container referred to in sub-paragraph (a) is clearly marked with —
 - (i) the words “EXPLOSIVE CHARGES”; or
 - (ii) any other markings in accordance with a standard or specification acceptable to the Commissioner.

(2) It shall be the duty of any person who has custody of any charge intended for use in a tool to ensure that —

- (a) every container in which any charge in his custody is kept is securely locked, except when any charge is being kept in or removed from the

container;

- (b) he does not permit any person, other than a person using or assisting in the use of a tool, to open any container in which any charge in his custody is kept; and
- (c) he does not use, or permit any other person to use, any container in which any charge in his custody is kept for any purpose other than the storage of charges.

PART V

MISCELLANEOUS

Offence

33. Any person who contravenes regulation 15(1) or 30(2), or any provision of these Regulations which imposes a duty on him, shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$20,000 or to imprisonment for a term not exceeding 2 years or to both.

Revocation

34. The Factories (Explosive Powered Tools) Regulations (Cap. 104, Rg 12) are revoked.

Made this 8th day of July 2009.

LEO YIP
*Permanent Secretary,
Ministry of Manpower,
Singapore.*

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(To be presented to Parliament under section 65(8) of the Workplace Safety and Health Act).

