

# CTMM POLICY ON LEAD

## A. POLICY

To provide a safe and healthy workplace for all CTMM employees.  
To prevent environmental pollution.

## 1. SCOPE

All CTMM departments where lead are produced, processed, used, handled, stored transported or disposed of in a form in which it can be inhaled, ingested or absorbed by any person plant or animal.

## 2. OBJECTIVES

- 2.1 To ensure that lead are managed according to the CTMM policy and legal requirements.
- 2.2 To avoid the potential liabilities and damage to life and the environment from irresponsible management of hazardous chemical substances.
- 2.3 To avoid possible environmental pollution due to the incorrect handling of lead.

## 3. REFERENCES

- 3.1 Lead Regulations, promulgated under the Occupational Health & Safety Act, (Act 85 of 1993)
- 3.2 SABS Code 0228: The Identification and Classification of Dangerous Substances and Goods.
- 3.3 SABS Code 0229: Packaging of Dangerous Goods for Road and Rail Transportation in South Africa.
- 3.4 Mine Health and Safety Act, 29 of 1996, Regulation 9.2
- 3.5 SABS 1164: 1996 Standard method for the determination of lead (inorganic and tetra-alkyl) in the workplace air by atomic absorption and spectrophotometry
- 3.5 Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965)
- 3.6 Environment Conservation Act, 1989 (Act No. 73 of 1989)
- 3.7 National Water Act, 1998 (Act No. 36 of 1998)
- 3.8 National Environmental Management Act, 1998 (Act No. 107 of 1998).

## 4. DOCUMENTATION

- 4.1 Occupational Hygiene Survey Reports on Lead Exposure

## 5. DEFINITIONS

**Approved Lead Inspection Authority (ALIA):** an approved inspection authority for the:

- a) Monitoring of lead concentrations in the air.

**Approved Lead Laboratory:** A laboratory approved for the analysis of blood lead or urinary lead concentrations.

**Exposed:** exposed to lead while at the workplace and "exposure" has a corresponding meaning.

**General Administrative Regulation:** the General Administrative Regulations published under section 43 of the OHSAct under Government Notice No. R.1449 of 6 September 1996.

**Health & Safety Representative:** A departmental representative elected in terms of section 17 or appointed in terms of section 19 in the Occupational Health & Safety Act, 85 of 1993.

**Health and safety standards:** the health and safety standards that have been incorporated into these regulations under section 44 of the Act.

**HSG 173:** the Monitoring Strategies for Toxic Substances, HSG 173, published by the Health and Safety Executive of the United Kingdom.

**Intake:** includes inhalation, ingestion and any other means of absorption.

**Lead:** lead, lead alloys and lead compounds that can be absorbed in any way by any person, plant or animal.

**Lead paint:** any paint, primer, paste, spray, stopping, filling or other material used in painting, which, when treated in accordance with the health and safety standards, yields to an aqueous solution of hydrochloric acid a quantity of soluble lead compound exceeding five percent of the dry weight of the portion taken for analysis when calculated as lead monoxide.

**Measurement programme:** a programme according to the monitoring strategy 9s contemplated in HSG 173 and OESSM.

**Monitoring:** the planning and carrying out of a measurement programme and the recording of the results thereof.

**Occupational exposure limit (OEL) for tetra-ethyl lead :** an exposure limit of 0,10 mg lead per cubic metre of air, measured in accordance with a health and safety standard.

**Occupational exposure limit (OEL) for lead other than for tetra-ethyl lead** an exposure limit of 0.15 mg lead per cubic metre of air, measured in accordance with a health and safety standard.

**OESSM:** the Occupational Exposure Sampling Strategy Manual, published by the National Institute for Occupational Safety and Health (NIOSH), United States of America Department of Health, Education and Welfare.

**Occupational Safety Officer:** A person employed in the Occupational Health & Safety Section of the CTMM, sub-section Occupational Safety.

**Provincial Director:** the provincial director as defined in regulation 1 of the General Administrative Regulations.

**Respiratory protective equipment:** a device which is worn over at least the mouth and nose to prevent the inhalation of air that is not safe and which furthermore conforms to a standard approved by the Minister of Labour.

**Respirator zone:** An area where the concentration of Lead exceeds the Occupational Exposure Limit for Lead.

**SABS 0228:** the Code of Practice for the Identification and Classification of Dangerous Substances and Goods, SABS 0228, published by the South African Bureau of Standards (SABS).

**SABS 0229:** the Code of Practice for Packaging of Dangerous Goods for Road and Rail Transportation in South Africa, SABS 0229, published by the South African Bureau of Standards (SABS).

**SABS 0400:** the Code of Practice for the Application of the National Building Regulations. SABS 0400, published by the South African Bureau of Standards (SABS).

**SABS SM 11 64:** the Standard method for the determination of lead (inorganic and tetra-alkyl) in the workplace air by atomic absorption and spectrophotometry, SABS SM 1 164, published by the South African Bureau of Standards (SABS).

## 6. RESPONSIBILITY

**Prime:** Head of Division (General Manager)

**Secondary:** Head of Occupational Health and Hygiene  
Head of Environmental Management Systems

The execution of this policy is the responsibility of the Head of the Division which is in line with his obligations to provide and maintain a safe and healthy work environment as per the CTMM Health & Safety Policy.

The Head of Occupational Health and Hygiene must provide an advisory service in line with this policy which may in some instances include the rendering of Occupational Hygiene measurements. Any costs incurred through the appointment of external consultants or analysis fees on samples taken will be for the specific department.

The Head of Environmental Management Systems shall provide an environmental advisory service in line with this policy.

Any delegations made in respect of this policy by the Head of the Division to subordinates must be done in writing.

## 7. EXECUTION

### 7.1 Exposure to airborne lead

The Head of the Division shall not require or permit any person to work in an environment in which he or she would be exposed to lead in excess of the prescribed occupational exposure limits.

## 7.2 Prohibitions

It is the policy of the CTMM to prevent the use of lead in any process as far as is reasonably practicable. Should it become necessary to utilise lead or any lead containing product that may expose employees thereto, the Deputy Manager: Occupational Hygiene must be notified in advance of the intend to do so. A preliminary risk assessment must be conducted in the project planning phase by the Head of the Division to quantify employee exposure to lead. The risk assessment must accompany the notification by the manager to the Head of Occupational Health and Hygiene.

- 1) No employee may:
  - a) Use compressed air to blow away particles of lead from any surface, or require or permit any other person to use compressed air to blow away particles of lead from any surface.
  - b) Smoke, eat, drink or keep food or beverages in an area not specifically designated for it or require or permit any other person to smoke, eat, drink or keep food or beverages in such area.
- 2) Lead paint shall not be:
  - a) Used for the interior painting of buildings.
  - b) Scraped or rubbed down from a surface by a dry process.
  - c) Removed by burning.
  - d) Used on furniture.

## 7.3 Work involving Lead

- 1) Every Head of the Division shall take steps to ensure that:
  - a) All workplaces are kept in a clean state and free of lead waste and, when lead is accidentally spilled or airborne lead is accidentally released into the workplace corrective measures (cleaning) are immediately taken, before any work is continued.
  - b) Cleaning is carried out by vacuum-cleaning equipment with a filtration efficiency of at least 99 per cent for particles of one micrometer in size, or by some other means so that lead dust neither escapes nor is released into the air to such an extent that it contaminates any workplace or the environment.
  - c) The vacuum-cleaning equipment is regularly serviced and all its external surfaces are kept in a clean state and free from lead dust.
  - d) Where the use of vacuum-cleaning equipment is impracticable, surfaces which are to be cleaned are dampened and that persons undertaking such cleaning wear appropriate protective clothing and respiratory protective equipment.
  - f) Appropriate written work procedures are available for an employee to follow to ensure that:
    - i) Lead is safely handled, used and disposed of.
    - ii) Process machinery, installations, equipment, tools, local extraction and general ventilation systems are safely used and maintained.
    - iii) Early corrective action regarding the control of lead exposure can be taken.

- 3) The Head of the Division shall ensure that the release of lead into any environment or water system complies with the provisions of the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965), the Environment Conservation Act, 1989 (Act No. 73 of 1989), the National Water Act, 1998 (Act No. 36 of 1998), and the National Environmental Management Act, 1998 (Act No. 107 of 1998).

#### **7.4 Assessment of potential exposure**

- 1) The Head of the Division where lead is used shall ensure that the workplace under his responsibility shall be assessed by an Approved Lead Inspection Authority at intervals not exceeding two years, to determine if any person may be exposed to lead.
- 2) The Head of the Division shall, before causing an assessment to be made, consult with the relevant health and safety committee and thereafter inform them in writing of the arrangements made for the assessment, give them reasonable time to comment thereon and ensure that the results of the assessment are made available to them for comment.
- 3) The Head of the Division must ensure that the following is taken into account when making the assessment:
  - a) The presence of any lead (organic or inorganic) to which a person may be exposed.
  - b) Where the lead may be present, in what physical form it is likely to be and the extent to which a person may be exposed.
  - c) The nature of the work, process and any likely deterioration in or failure of any control measures.
  - d) The details of expected exposures, in particular:
    - i) Whether the expected exposure is above the OEL for lead, so that the appropriate respiratory protective equipment can be selected pending the implementation of engineering control measures.
    - ii) Whether such exposures are intermittent, including the frequency and duration of exposures.
    - iii) The number of employees exposed and any other person who may be exposed, and their expected exposure values.
    - iv) Where applicable, results which may be available from any previous monitoring performed at the workplace.
  - e) The steps to be taken to reduce exposure to the lowest level reasonably practicable and the steps to be taken to reduce the release of airborne lead into the environment:
  - f) Procedures for dealing with emergencies.
  - g) Procedures for removal of lead waste from the workplace and the disposal thereof.
- 4) Should the abovementioned assessment indicates that any person may possibly be exposed to lead, the manager shall ensure that the exposure is adequately controlled as contemplated in paragraph 7.6.
- 5) The Head of the Division shall ensure that a review of the assessment be made if:
  - a) There is reason to believe that the previous assessment is no longer valid.
  - b) Control measures are no longer efficient.

- c) Technological or scientific advances allow for more efficient control methods.
- d) There has been a significant change in:
  - i) Work methods.
  - ii) The type of work carried out.
  - iii) The type of equipment used to control exposure.

## **7.5 Air monitoring**

- 1) Where exposure to airborne lead is in excess of half the OEL for lead, the Head of the Division shall ensure that the measurement programme of the airborne concentrations of lead to which an employee is exposed, is:
  - a) Carried out in accordance with the Lead Regulations, promulgated under the Occupational Health and Safety Act.
  - b) Carried out only after the relevant health and safety committee has been informed thereof and given a reasonable opportunity, as mutually agreed upon, to comment thereon.
  - c) Carried out by:
    - i) An Approved Lead Inspection Authority which will be appointed by the Department on recommendation of the Head of Occupational Health and Hygiene.
- 2) The manager must ensure that representative measurements are carried out at least every 12 months.

## **7.6 Control of exposure to lead**

- 1) The Head of the Division shall ensure that the exposure of a person to lead is either prevented or, where this is not reasonably practicable, adequately controlled.  
Provided that the control of the exposure shall be regarded as adequate if:
  - a) The level of airborne lead is:
    - i) At or below the OEL.
    - ii) Above the OEL but the reason has been identified and action has been taken, as soon is reasonably practicable to lower the airborne level by means other than respiratory protective equipment, so that it does not exceed the OEL for lead or
  - b) In the case of exposure to:
    - i) Ingestible lead, the blood lead level is less than 20 µg/100ml.
    - ii) Lead alkyls, the urinary lead level is less than 120 µg/l.

### **7.6.1 Duties of persons who may be exposed**

- 1) Any CTMM Employee shall obey any lawful instruction given by or on behalf of the employer, regarding:
  - a) The prevention of lead being released into the environment.
  - b) The wearing and use of personal protective equipment.
  - c) The wearing of monitoring equipment to measure personal exposure to airborne lead
  - d) Reporting for medical surveillance.

- e) The notification of pregnancy to Occupational Health as soon as the fact becomes known to the employee.
- f) The cleaning up and disposal of materials containing lead.
- g) Housekeeping at the workplace, personal hygiene and good health practices.

### **7.6.2 Administrative Control**

The Head of the Division shall control a person's exposure to lead by:

- a) Using a substitute for lead or lead-containing material.
- b) Limiting the number of persons who will be exposed.
- c) Limiting the period during which a person will be exposed or may be exposed.
- d) Limiting the amount of lead that may contaminate the working environment.

### **7.6.3 Engineering Control**

The following engineering control measures for the control of exposure to lead must be implemented by the Head of the Division:

- i) Process separation, automation or enclosure.
- ii) The installation of local extraction ventilation systems to processes, equipment or tools for the control of emissions of airborne lead.
- iii) The use of wet methods where appropriate.
- iv) Separate workplaces for different processes.
- v) The identification of early corrective action to be taken.

#### **7.6.3.1 Maintenance of control measures**

- 1) The Head of the Division shall ensure that:
  - a) All control equipment and facilities provided are maintained in good working order.
  - b) Examinations and tests of engineering control measures are carried out at intervals not exceeding 24 months by an Approved Inspection Authority approved for such examinations and tests.

### **7.6.4 Medical surveillance**

- 1) The Head of the Division shall ensure that an employee is on the medical surveillance programme of Occupational Health of the CTMM if:
  - a) The employee is exposed to an airborne lead concentration exceeding the OEL.
  - b) The employee is exposed to tetra-alkyl lead.
  - c) An Occupational Medicine Practitioner certifies that the relevant employee should be under medical surveillance.
- 2) The requirements of the CTMM Policy on pregnant and breastfeeding employees must be adhered to by the Head of Division for all employees exposed to lead.

### 7.6.5 Information and training

- 1) The Head of the Division shall, before any employee is exposed (including drivers) to lead, ensure that the employee is adequately and comprehensively informed and trained, on both practical aspects and theoretical knowledge, with regard to:
  - a) The contents of this policy.
  - b) The potential sources of exposure.
  - c) The potential health risk caused by exposure to lead, including the health risks to employees' families and others, which could result from taking home lead contaminated equipment and clothing.
  - d) The measures taken by the employer to protect an employee against any risk from exposure.
  - e) The precautions to be taken by the employee to protect him- or herself against the health risks associated with the exposure, which precautions include the wearing and use of protective clothing and respiratory protective equipment.
  - f) The necessity, correct use, maintenance and limitations of protective equipment, facilities and engineering control measures provided.
  - g) The assessment of exposure, the purpose of air sampling and medical surveillance.
  - h) The occupational exposure limits and their meaning.
  - i) The importance of good housekeeping in the workplace and personal hygiene.
  - j) The safe working procedures regarding the use, handling, processing and storage of any material containing lead, including the correct application of control measures to limit the spread of lead outside the work area, and to limit the exposure of workers inside the work area as far as is reasonably practicable.
  - k) The procedures to be followed in the event of spillages or any other similar emergency or situation which could arise by accident.
  - l) The procedures for reporting and correcting defects likely to result in the release of airborne lead.
  - m) Safe waste disposal.
  - n) The procedures for record keeping.
- 2) Refresher training shall be given at least every year or at more frequent intervals that may be recommended by the health and safety committee.
- 3) Re-training shall be given when:
  - a) Work methods change.
  - b) The type of work carried out, changes significantly.
  - c) The type of equipment used to control exposure, changes.
- 4) Training shall be provided by somebody who is competent to provide it and has adequate personal practical experience and theoretical knowledge of all aspects of the work being carried out by the employer.
- 5) The Head of the Division shall ensure that his or her mandatory or any person other than employees who may be affected by lead exposure at the workplace, are given adequate information, instruction and training.



- 6) The Head of the Division shall keep a record of any training, both practical and theoretical, that was given to an employee.
- 7) The Head of the Division shall give instructions in writing (refer to Par. 7.6.5(1)) to drivers of vehicles carrying lead or lead-containing material that has the potential of causing environmental pollution or bodily absorption, pertaining to:
  - The procedures to follow in case of an emergency.
  - The hazardous properties of the material they transport.
  - The personal protective equipment they are required to use.
  - The identification criteria of the vehicle.
  - Cleaning of the vehicle after transport.

## **7.7 Personal protective equipment and facilities**

- 1) The Head of the Division shall:
  - a) Provide all persons who are exposed to concentrations of airborne lead in excess of half the OEL for lead, with suitable protective clothing with no pockets so as to reduce the possibility of contamination and collection of lead dust.
  - b) In the case of tetra-alkyl leads which can be absorbed through the skin, provide the person with suitable lead impermeable protective equipment.
  - c) Provide a person with suitable respiratory protective equipment to ensure that the person's exposure is adequately controlled.
- 2) Where respiratory protective equipment is provided, the Head of the Division shall ensure that:
  - a) The relevant equipment is capable of keeping the exposure at or below the OEL for the type of lead.
  - b) The relevant equipment is correctly selected and properly used.
  - c) Information, instruction, training and supervision that are required to ensure safe use of the equipment are communicated to employees.
  - d) The equipment is kept in good condition and efficient working order.
- 3) The Head of the Division shall:
  - a) Issue no personal protective equipment which has already been used to a person, unless the relevant protection equipment is properly decontaminated and, where appropriate, sterilised.
  - b) Provide separate containers or storage facilities for personal protective equipment when not in use; and
  - c) Ensure that all personal protective equipment not in use is stored only in the place provided.
- 4) The Head of the Division shall ensure that all contaminated personal protective equipment is cleaned and handled in accordance with the following procedures:
  - a) Where the equipment is cleaned on the premises of the employer, care shall be taken to prevent contamination during handling, transport and cleaning.
  - b) Where the equipment is sent off the premises to a contractor for cleaning purposes the:
    - i) Equipment shall be packed in impermeable containers
    - ii) Containers shall be tightly sealed and have clear indication thereon that the content thereof is contaminated with lead.

- iii) The relevant contractor shall be fully informed of the requirements of this Policy and the precautions to be taken for the handling of the lead-contaminated equipment.
- 5) The Head of the Division shall ensure that no person removes dirty or contaminated personal protective equipment from the premises
- 6) The Head of the Division shall provide employees who use personal protective equipment with:
- a) Adequate washing facilities which are readily accessible and located in an area where the facilities will not become contaminated, in order to enable the employees to meet a standard of personal hygiene consistent with the adequate control of exposure, and to avoid the spread of lead.
  - b) Separate "clean" and "dirty" change rooms if the employer uses or processes lead to the extent that the lead could endanger the health of persons outside the workplace.
  - c) Two separate lockers labelled "protective clothing" and "personal clothing" respectively, located in both the "dirty" and "clean" change rooms, and also ensure that the clothing is kept separately in the lockers concerned.

## **7.8 Respirator zone**

- 1) The Head of the Division shall ensure that:
- a) A workplace or part of a workplace under his or her control, where the concentration of lead in the air is or may be such that the exposure of persons in that workplace exceeds the OEL without the wearing of respiratory protective equipment, is zoned as a respirator zone.
  - b) A respirator zone is clearly demarcated and identified by notice indicating that the relevant area is a respirator zone and that the respiratory protective equipment and protective clothing must be worn.
  - c) No person enters or remains in a respirator zone unless he or she wears the required respiratory protective equipment and protective clothing.
  - d) The reason why the OEL is exceeded is identified and that action is taken, as soon as is reasonably practicable, by other means than respiratory equipment, in order to lower the airborne lead concentrations so that it does not exceed the OEL for lead.

## **7.9 Labelling, packaging, transportation and storage**

- 1) The Head of the Division shall, in order to avoid the spread of lead, take steps, as far as is reasonably practicable, to ensure that:
- a) The lead in storage or distributed is properly identified, classified and handled in accordance with SABS 0228.
  - b) A container or a vehicle in which lead is transported is clearly identified, classified and packed in accordance with SABS 0228 and SABS 0229.

## **7.10 Disposal of lead waste**

- 1) The Head of the Division shall:
- a) Recycle all lead waste, but not into non-lead production processes

- b) Ensure that all collected lead waste is placed into containers that will prevent the likelihood of exposure during handling.
- c) Ensure that all vehicles, re-usable containers and covers which have been in contact with lead waste are cleaned and decontaminated after use, in such a way that such vehicles, containers or covers do not cause a hazard inside or outside the premises.
- d) Ensure that all lead waste that can cause exposure to lead, is disposed of only on sites specifically designated for this purpose in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989) and the National Environmental Management Act, 1998 (Act No. 107 of 1998), and in such a manner that it does not cause a hazard inside or outside the site concerned.
- e) Ensure that all persons involved in the collection, transport and disposal of lead waste and who may be exposed to that waste, are provided with suitable personal protective equipment.
- f) Ensure that, in cases where the services of a waste disposal contractor are used, a provision is incorporated into the contract stating that the contractor too shall comply with the provisions of this Policy.

#### **7.11 Records**

- 1) The Head of the Division shall:
  - a) Keep records of the results of all assessments, air monitoring, medical surveillance reports and maintenance of control measures for a minimum period of 40 years.
  - b) Keep a record of training given to an employee for as long as the employee remains employed at the workplace.
  - c) Keep a record of safe disposal of lead as provided by the Hazardous waste contractor.

#### **8. ANNEXURES**

Nil