



Government Gazette Staatskoerant

REPUBLIC OF SOUTH AFRICA
REPUBLIEK VAN SUID-AFRIKA

Regulation Gazette

No. 7292

Regulasiekoerant

Vol. 440

Pretoria, 28 February 2002
Februarie

No. 23175



AIDS HELPLINE: 0800-0123-22 Prevention is the cure

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GOVERNMENT NOTICE GOEWERMENTSKENNISGEWING

DEPARTMENT OF LABOUR DEPARTEMENT VAN ARBEID

No. R. 236

28 February 2002

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993

LEAD REGULATIONS, 2001

The Minister of Labour has under section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), after consultation with the Advisory Council for Occupational Health and Safety, made the regulations in the Schedule.

SCHEDULE

Definitions

1. In these Regulations, any word or expression to which a meaning has been assigned in the Act shall have the meaning so assigned and, unless the context otherwise indicates—

"approved lead inspection authority" means an approved inspection authority for the—

(a) monitoring of lead concentrations in the air; or

(b) analysis of blood lead or urinary lead concentrations;

"exposed" means exposed to lead while at the workplace and "exposure" has a corresponding meaning;

"General Administrative Regulations" means the General Administrative Regulations published under section 43 of the Act under Government Notice No. R.1449 of 6 September 1996;

"health and safety standards" means the health and safety standards that have been incorporated into these regulations under section 44 of the Act;

"HSG 173" means 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" means lead, lead alloys and lead compounds that can be absorbed in any way by any person;

"lead paint" means 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" means a programme according to the monitoring strategy as contemplated in HSG 173 and OESSM;

"monitoring" means the planning and carrying out of a measurement programme and the recording of the results thereof;

"occupational exposure limit for lead, in the case of tetra-ethyl lead", means 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 for lead, other than for tetra-ethyl lead", means an exposure limit of 0,15 mg lead per cubic metre of air, measured in accordance with a health and safety standard;

"OEL" or "occupational exposure limit" means a limit value set by the Minister for a stress factor in the workplace;

"OESSM" means 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;

"provincial director" means the provincial director as defined in regulation 1 of the General Administrative Regulations;

"respiratory protective equipment" means 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;

"respirator zone" means a respirator zone contemplated in regulation 9 (a);

"SABS 0228" means 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" means 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" means 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 1164" means the Standard method for the determination of lead (inorganic and tetra-alkyl) in the workplace air by atomic absorption and spectrophotometry, SABS SM 1164, published by the South African Bureau of Standards (SABS);

"the Act" means the Occupational Health and Safety Act, 1993 (Act No.85 of 1993).

Scope of application

2.(1) Subject to subregulation (2), these regulations shall apply to every employer and self-employed person at a workplace where lead is produced, processed, used, handled or stored in a form in which it can be inhaled, ingested or absorbed by any person in that workplace.

(2) Regulations 4(1), 4(2), 4(3), 4(4), 4(6), 6(2), 7, 8, 10(c), 10(d), 10(f), 11(2)(f) and 12(6) shall not apply in the case of self-employed persons.

Exposure to airborne lead

3. Subject to regulation 12(1), no employer or self-employed person shall 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.

Information and training

4.(1) An employer shall, before any employee is exposed or may be exposed to lead, and after consultation with the health and safety committee established for that section of the workplace, ensure that the employee is adequately and comprehensively informed and trained, on both practical aspects and theoretical knowledge, with regard to—

- (a) the contents and scope of these Regulations;
- (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, the necessity of medical surveillance and the long term benefits of undergoing such 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; and
- (o) all other matters contemplated in regulation 5.

(2) Refresher training shall be given on matters contemplated in subregulation (1) at least every year or at more frequent intervals that may be recommended by the health and safety committee.

(3) Training shall be given more frequently than once a year if—

- (a) work methods change;
- (b) the type of work carried out, changes significantly; or
- (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) An employer or a self-employed person shall ensure, as far as is reasonably practicable, 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) An employer shall keep a record of any training, both practical and theoretical, that was given to an employee.

(7) An employer or a self-employed person shall give instructions in writing of the procedures contemplated in subregulation (1)(k) to drivers of vehicles carrying lead or lead-containing material that has the potential of causing environmental pollution or bodily absorption.

Duties of persons who may be exposed

5. Any person who is or may be exposed to lead in the workplace, shall obey any lawful instruction given by or on behalf of the employer or a self-employed person, 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 as required by regulation 8;
- (e) the notification of pregnancy to the occupational health practitioner;
- (f) the cleaning up and disposal of materials containing lead;
- (g) housekeeping at the workplace, personal hygiene and good environmental and health practices; and
- (h) information and training received as contemplated in regulation 4.

Assessment of potential exposure

6.(1) An employer or a self-employed person shall cause—

- (a) his or her undertaking to be assessed within six months after the commencement of these regulations and thereafter at intervals not exceeding two years, to determine if any person may be exposed to lead; and
- (b) the results of the assessment contemplated in paragraph (a) to be recorded as required by regulation 10.

(2) An employer contemplated in subregulation (1) shall, before causing an assessment to be made, consult with the relevant health and safety representative or 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) When making the assessment contemplated in subregulation (1)(a), the employer or a self-employed person shall take the following into account:

- (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; and
 - (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; and
- (g) procedures for removal of lead waste from the workplace, and the disposal thereof.

(4) If the assessment or any of its reviews made in accordance with subregulations (1) and (5) indicates that any person may possibly be exposed to lead, the employer or a self-employed person shall ensure that the exposure is adequately controlled as contemplated in regulation 11.

(5) An employer or a self-employed person shall forthwith review the assessment required by subregulation (1) 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; or
- (d) there has been a significant change in—
 - (i) work methods;
 - (ii) the type of work carried out; or
 - (iii) the type of equipment used to control exposure,

and subregulations (2) and (3) shall apply.

Air monitoring

7.(1) Where exposure to airborne lead is in excess of half the OEL for lead, an employer contemplated in regulation 2(1) 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 these Regulations;
- (b) carried out only after the relevant health and safety representative or 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; or
 - (ii) a person whose ability to do the measurements is verified by an approved lead inspection authority;
- (d) representative of the exposure of employees to airborne lead in accordance with subregulation (2); and
- (e) verified in accordance with subregulation (3) if the measurements are carried out by a person contemplated in subregulation (1)(c)(ii).

(2) In order to comply with the provisions of subregulation (1)(d) an employer shall ensure—

- (a) that the measurement programme—
 - (i) in the case of a group measurement, makes provision for the selection of the number of persons for a sample to be done as contemplated in chapters 3 and 4 and table A-2 of Technical Appendix A of the OESSM: Provided that in so far as any provision of the OESSM and the HSG 173 is repugnant to a provision of the Occupational Health and Safety Act, 1993, and these Regulations, the provisions of the Act and these Regulations shall apply;
 - (ii) in the case of the most exposed employee measurement, if the exposure exceeds the OEL for lead, then any other employee whose exposure could be above the OEL for lead is identified and that measurements representative of typical exposure shall be carried out on every employee identified; and
- (c) that representative measurements are carried out at least every 12 months: Provided that whenever the OEL for lead is exceeded, regulation 11 shall apply.

(3) In order to comply with subregulation (1)(e), an employer shall obtain the services of an approved lead inspection authority who shall, at intervals not exceeding 12 months, perform the required verification by—

- (a) examining the measurement and analysis equipment of the employer;
- (b) questioning the person contemplated in subregulation (1)(c)(ii) regarding the measurement programme;
- (c) carrying out, together with the person contemplated in subregulation (1)(c)(ii), the measurement programme required by subregulation (2) for any one group; and
- (d) recording the results of the measurement and investigation as contemplated in subregulations (2) and (3) respectively, as required by regulation 10.

Medical surveillance

8.(1) An employer shall ensure that an employee is under the medical surveillance of an occupational medicine practitioner if—

- (a) the employee is exposed to an airborne lead concentration exceeding the OEL;
- (b) the employee is exposed to tetra-alkyl lead; or
- (c) an occupational medicine practitioner certifies that the relevant employee should be under medical surveillance.

(2) In order to comply with subregulation (1), an employer shall ensure that—

- (a) an initial medical examination comprising of the following is carried out immediately before or within 14 days after a person commences employment:
 - (i) An evaluation of the employee's medical and occupational history;
 - (ii) clinical examinations; and
 - (iii) in the case of lead other than tetra-alkyl lead, measurement of the employee's blood lead and haemoglobin concentrations and other relevant biological tests at the discretion of the occupational medicine practitioner: Provided that the measurement of blood lead concentrations shall be repeated during the third and the sixth month after commencement of employment: Provided further that when monitoring of zinc protoporphyrine (ZPP) in blood expressed in μg ZPP/g haemoglobin is performed at intervals not exceeding two months, only annual blood lead concentration measurements are required;
- (b) subject to the provisions of subregulation (2)(a)(iii), biological monitoring consisting of the following is carried out:
 - (i) Measurement of blood lead concentration for employees exposed to lead other than tetra-alkyl lead, at intervals as prescribed in the Table contained in Annexure A to these Regulations: Provided that in the case of female employees who are capable of procreation, all such measurements are carried out at three-monthly intervals;
 - (ii) immediate measurement of urinary lead concentration for employees exposed to tetra-alkyl lead and thereafter at intervals as prescribed in the Table contained in Annexure B to these Regulations;
- (c) clinical examinations and relevant biological tests are carried out at the discretion of the occupational medicine practitioner;
- (d) where the blood lead concentration of an employee exposed to lead other than tetra-alkyl lead, is equal to or greater than $60 \mu\text{g}/100 \text{ ml}$, the test is repeated, and if the result of the repeated test corrected for the haematocrit value, with reference to a standard value of 43 % for men and 38 % for women, is greater than $60 \mu\text{g}/100 \text{ ml}$, that the employee is certified to be unfit for work in an area where he or she is exposed to lead: Provided that the occupational medicine practitioner, if he or she deems it necessary, may certify an employee who has a blood lead concentration of less than $60 \mu\text{g}/100 \text{ ml}$ to be unfit for work in an area in which he or she is exposed to lead: Provided further that the removal blood lead level of $60 \mu\text{g}/100 \text{ ml}$ may be phased-in by reducing the level from $80 \mu\text{g}/100 \text{ ml}$ to $75 \mu\text{g}/100 \text{ ml}$ with effect from 30 June 2002, and then by a further $5 \mu\text{g}/100 \text{ ml}$ every twelve months thereafter in order to reach $60 \mu\text{g}/100 \text{ ml}$ by

30 June 2005, as depicted in the Table contained in Annexure C to these Regulations;

- (e) where the urinary lead concentration of an employee exposed to tetra-alkyl lead is equal to or greater than $150 \mu\text{g}/\ell$, the test is repeated, and if the result of the repeated test is greater than $150 \mu\text{g}/\ell$, that the employee is certified to be unfit for work in an area in which he or she is exposed to lead: Provided that the occupational medicine practitioner, if he or she deems it necessary, may certify an employee who has a urinary lead concentration of less than $150 \mu\text{g}/\ell$ to be unfit for work in an area in which he or she is exposed to lead; and
- (f) where the ZPP value in the blood of an employee who is exposed to lead other than tetra-alkyl lead, is equal to or greater than $10 \mu\text{g ZPP/g haemoglobin}$, the blood lead shall be measured as contemplated in subregulation 2(d): Provided that the occupational medicine practitioner, if he or she deems it necessary, may certify an employee who has a ZPP value of less than $10 \mu\text{g/g haemoglobin}$, but higher than $8 \mu\text{g ZPP per gram haemoglobin}$ in his or her blood, to be unfit for work in an area in which he or she is exposed to lead.

(3) An employer shall ensure that no employee certified by the occupational medicine practitioner to be unfit for work in an area which exposes him or her to lead, returns to work until—

- (a) the occupational medicine practitioner certifies in writing that the employee is fit for such work;
- (b) the employee's blood lead concentration is less than $50 \mu\text{g}/100 \text{ ml}$: Provided that the return blood lead level of $50 \mu\text{g}/100 \text{ ml}$ may be phased-in by reducing the level from $70 \mu\text{g}/100 \text{ ml}$ to $65 \mu\text{g}/100 \text{ ml}$ with effect from 30 June 2002, and then by a further $5 \mu\text{g}/100 \text{ ml}$ every twelve months thereafter in order to reach $50 \mu\text{g}/100 \text{ ml}$ by 30 June 2005, as depicted in the Table contained in Annexure D to these Regulations;
- (c) the ZPP value in the blood of the employee is less than $6 \mu\text{g/g haemoglobin}$; or
- (d) the employee's urinary lead concentration is less than $130 \mu\text{g}/\ell$.

(4) An employer shall ensure that—

- (a) a female employee who is capable of procreation and who carries out work that exposes her to lead, is removed from such work when her blood lead concentration exceeds $40 \mu\text{g}/100 \text{ ml}$ or her urinary lead concentration exceeds $75 \mu\text{g}/\ell$, or if she falls pregnant; and
- (b) the employee contemplated in subregulation (4)(a) is not permitted to return to work that will expose her to lead unless her blood lead concentration is less than $30 \mu\text{g}/100 \text{ ml}$ or her urinary lead concentration is less than $65 \mu\text{g}/\ell$, or, where the removal was due to pregnancy, the employee is no longer pregnant.

(5) Where it is found that an employee had to be removed from his or her workplace owing to the provisions of subregulations (2)(d), (2)(e), (2)(f) and (4)(a), the employer shall record and investigate the incident in accordance with regulation 8 of the General Administrative Regulations.

Respirator zone

9. An employer or self-employed person shall ensure that—

- (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 contemplated in regulation 12 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; and
- (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.

Records

10. An employer shall—

- (a) keep records of the results of all assessments, air monitoring, medical surveillance reports and maintenance of control measures required by regulations 6, 7 and 8: Provided that personal medical records shall only be made available to an occupational health practitioner;
- (b) subject to paragraph (c), make the records contemplated in paragraph (a), excluding personal medical records, available for inspection by an inspector;
- (c) subject to formal consent in writing of an employee, allow any person to peruse the records of that particular employee;
- (d) make the records of all assessments and air monitoring available for perusal by the relevant health and safety representative or health and safety committee;
- (e) keep all records of assessments and air monitoring for a minimum period of 40 years;

- (f) keep all medical surveillance records for a minimum period of 40 years and if he, she or it ceases activities, hand over or forward by registered post all those records to the relevant provincial director: Provided that those records shall contain at least the following information:
 - (i) Surname, forename(s), gender, date of birth, name of spouse or closest relative and, where available, permanent address and postal code;
 - (ii) a record of types of work carried out with lead and, where relevant, its location, the starting and finishing dates and the average duration of exposure expressed in hours per week;
 - (iii) a record of any work with lead prior to this employment; and
 - (iv) dates of medical surveillance reports;
- (g) keep record of the tests and investigations carried out in terms of regulation 14(b) and of any repairs resulting from the relevant tests and investigations, and keep that record for at least three years; and
- (h) keep a record of training given to an employee in terms of regulation 4(6) for as long as the employee remains employed at the workplace in which he or she is being exposed to lead.

Control of exposure to lead

11.(1) An employer or self-employed person 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; or
 - (ii) above the OEL but the reason has been identified and action has been taken, as soon as 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/100 ml; or
 - (ii) lead alkyls, the urinary lead level is less than 120 µg/l.

(2) Where reasonably practicable, an employer or a self-employed person 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 or may 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;
- (e) introducing the following engineering control measures for the control of exposure:
 - (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; and
- (f) introducing appropriate written work procedures that an employee must 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; and
 - (iii) early corrective action regarding the control of lead exposure can be taken.

(3) The employer or self-employed person 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).

Personal protective equipment and facilities

12.(1) An employer or self-employed person 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; and

- (c) provide a person with suitable respiratory protective equipment to ensure that the person's exposure is adequately controlled as contemplated in regulation 11.
- (2) Where respiratory protective equipment is provided, the employer or self-employer person 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 necessary with regard to the use of the equipment are known to the persons; and
 - (d) the equipment is kept in good condition and efficient working order.
- (3) An employer or self-employed person shall, as far as is reasonably practicable—
- (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) An employer or self-employed person shall, as far as is reasonably practicable, 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 or self-employed person, 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; and
 - (iii) relevant contractor shall be fully informed of the requirements of these Regulations and the precautions to be taken for the handling of the lead-contaminated equipment.

(5) Subject to subregulation (4)(b), an employer or self-employed person shall ensure that no person removes dirty or contaminated personal protective equipment from the premises: Provided that where contaminated personal protective equipment has to be disposed of, it shall be treated as lead waste as contemplated in regulation 17.

(6) Subject to the provisions of the Facilities Regulations promulgated by Government Notice No. R. 2362 of 5 October 1990, an employer shall, where reasonably practicable, provide employees who use personal protective equipment as contemplated in subregulation (1), 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) 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; and
- (c) 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.

Cleanliness of premises and plant

13. Every employer or self-employed person shall, as far as is reasonably practicable, 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 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 micrometre 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; and
- (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.

Maintenance of control measures

14. An employer or self-employed person shall ensure that—

- (a) all control equipment and facilities provided in terms of regulations 11, 12, and 13 are maintained in good working order; and
- (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 or by a person whose ability to do the measurements and tests is verified by such an approved inspection authority.

Prohibitions

15.(1) No person shall—

- (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; or
- (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; or
- (d) used on furniture.

Labelling, packaging, transportation and storage

16. An employer or self-employed person 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.

Disposal of lead waste

17. An employer or self-employed person shall as far as is reasonably practicable—

- (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 concerned;
- (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; and
- (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 these Regulations.

Offences and penalties

18. Any person who contravenes or fails to comply with any provision of regulation 3, 4, 5, 6, 7, 8, 9, 10, 11(1), 11(2), 12, 13, 14, 15, 16, 17(a), 17(b), 17(c), 17(e) or 17(f) shall be guilty of an offence and liable on conviction to a fine or imprisonment for a period not exceeding six months and, in the case of a continuous offence, to an additional fine of R200 for each day on which the offence continues or additional imprisonment of one day for each day on which the offence continues: Provided that the period of such additional imprisonment shall in no case exceed 90 days.

Repeal of regulations

19. The Lead Regulations published under Government Notice No. R. 586 of 22 March 1991, are hereby repealed.

Short title

20. These regulations shall be called the Lead Regulations, 2001.

ANNEXURE A
[Regulation 8(2)(b)(i)]

Blood lead $\mu\text{g}/100 \text{ m}\ell$	Maximum intervals between blood lead measurements
Under 20	12 months
20 – 39	6 months
40 – 59	3 months
60 and over	At the discretion of the occupational medicine practitioner;

ANNEXURE B
[Regulation 8(2)(b)(ii)]

Urinary lead $\mu\text{g}/\text{litre}$	Maximum intervals between urinary lead measurements
Under 120	6 weeks
120 – 149	1 week
150 and over	At the discretion of the occupational medicine practitioner;

ANNEXURE C
[Regulation 8(d)]

Blood lead level $\mu\text{g} / 100$ mℓ Removal level	Date effected
75	30 June 2002
70	30 June 2003
65	30 June 2004
60	30 June 2005

ANNEXURE D
[Regulation 8(3)(b)]

Blood lead level $\mu\text{g} / 100$ mℓ Return level	Date effected
65	30 June 2002
60	30 June 2003
55	30 June 2004
50	30 June 2005

WET OP BEROEPSGESONDHEID EN VEILIGHEID, 1993**LOODREGULASIES, 2001**

Die Minister van Arbeid het kragtens artikel 43 van die Wet op Beroepsgesondheid en Veiligheid, 1993 (Wet No. 85 van 1993), en na oorleg met die Adviesraad vir Beroepsgesondheid en Veiligheid, die regulasies in die Bylae uitgevaardig.

BYLAE**Woordomskrywing**

1. In hierdie Regulasies het enige woord of uitdrukking waaraan in die Wet 'n betekenis geheg is, daardie betekenis en, tensy uit die samehang anders blyk, beteken—

“Algemene Administratiewe Regulasies” die Algemene Administratiewe Regulasies gepubliseer by Goewermentskennisgewing No. R. 1449 van 6 September 1996 kragtens artikel 43 van die Wet;

“asemhalingbeskermingstoerusting” 'n toestel wat minstens oor die mond en neus gedra word om die inaseming van onveilige lug te verhoed en welke toestel voldoen aan 'n standaard deur die Minister goedgekeur;

“BBD” of “beroepsblootstellingsdrempel” 'n drempelwaarde gestel deur die Minister vir 'n stresfaktor in die werkplek;

“beroepsblootstellingsdrempel vir lood, in die geval van tetra-etiel-lood” 'n blootstellingsdrempel van 0,10 mg lood per kubieke meter lug, gemeet ooreenkomstig 'n gesondheid- en veiligheidstandaard;

“beroepsblootstellingsdrempel vir lood, uitgesonderd tetra-etiel-lood” 'n blootstellingsdrempel van 0,15 mg lood per kubieke meter lug, gemeet ooreenkomstig 'n gesondheid- en veiligheidstandaard;

“blootgestel” aan lood blootgestel terwyl by 'n werkplek en het “blootstelling” 'n ooreenstemmende betekenis;

“die Wet” die Wet op Beroepsgesondheid en Veiligheid, 1993 (Wet No.85 van 1993);

“gesondheid- en veiligheidstandaarde” die gesondheid- en veiligheidstandaarde wat by hierdie regulasies ingelyf is kragtens artikel 44 van die Wet;

“goedgekeurde lood inspeksie-owerheid” 'n goedgekeurde inspeksie-owerheid vir die—

- (a) monitering van loodkonsentrasies in die lug; of
- (b) ontleding van bloedlood- of urienloodkonsentrasies;

"HSG 173" die "Monitoring Strategies for Toxic Substances, HSG 173, published by the Health and Safety Executive of the United Kingdom;

"inname" ook inaseming, ingestie of enige ander wyse van absorbering;

"lood" lood, loodalloorie en loodverbindings wat op enige wyse deur 'n persoon geabsorbeer kan word;

"loodverf" enige verf, grondverf, pasta, spoei, stopsel, vulsel of ander materiaal wat by verwerk gebruik word, en wat, wanneer dit ooreenkomstig die gesondheid- en veiligheidstandaarde behandel word, met 'n waterige oplossing van soutsuur 'n hoeveelheid oplosbare loodverbindings lewer wat, wanneer dit as loodmonoksied bereken word, vyf persent van die droëgewig van die gedeelte wat vir ontleding geneem is, oorskry;

"meetprogram" 'n program in ooreenstemming met die moniteringstrategie soos in HSG 173 and OESSM bedoel;

"monitering" die beplanning en uitvoering van 'n meetprogram en die aantekene van die resultate daarvan;

"OESSM" die *Occupational Exposure Sampling Strategy Manual*, gepubliseer deur die National Institute for Occupational Safety and Health (NIOSH), United States of America: Department of Health, Education and Welfare;

"provinsiale direkteur" 'n provinsiale direkteur soos omskryf in regulasie 1 van die Algemene Administratiewe Regulasies;

"respiratorsone" 'n respiratorsone in regulasie 10(a) bedoel;

"SABS 0228" die Gebruikskode vir die Identifikasie en Klassifikasie van Gevaarlike Substansie en Goedere, SABS 0228, deur die Suid-Afrikaanse Buro vir Standaarde (SABS) gepubliseer;

"SABS 0229" die Gebruikskode vir die Verpakking van Gevaarlike Goedere vir Pad- en Spoorvervoer in Suid-Afrika, SABS 0229, deur die Suid-Afrikaanse Buro vir Standaarde (SABS) gepubliseer;

SABS 0400" die Gebruikskode vir die Toepassing van die Nasionale Bouregulasies, SABS 0400, deur die Suid-Afrikaanse Buro vir Standaarde (SABS) gepubliseer;

"SABS SM 1164" die Standaardmetode vir die bepaling van lood (anorganies en tetra-alkiel) in die werkplekklug deur atoomabsorpsie en spektrofotometrie, SABS SM 1164, deur die Suid-Afrikaanse Buro vir Standaarde (SABS) gepubliseer.

Toepassingsbestek

2.(1) Behoudens subregulasie (2), is hierdie regulasies van toepassing op elke werkgewer en persoon in eie diens by 'n werkplek waar lood geproduseer, geprosesseer, gebruik,

hanteer of geberg word in 'n vorm waarin dit in daardie werkplek deur 'n persoon ingeasem, geïngesteer of geabsorbeer kan word.

(2) Regulasies 4(1), 4(2), 4(3), 4(4), 4(6), 6(2), 7, 8, 10(c), 10(d), 10(f), 11(2)(f) en 12(6) is nie van toepassing nie op persone in eie diens.

Blootstelling aan luggedraagde lood

3. Behoudens regulasie 12(1) mag geen werkgewer of 'n persoon in eie diens van 'n persoon vereis of toelaat dat hy of sy in 'n omgewing werk waarin hy of sy blootgestel sal wees aan lood wat die voorgeskrewe beroepsblootstellingsdrempel oorskry nie.

Inligting en opleiding

4.(1) 'n Werkgewer moet, voordat 'n werknemer blootgestel word of moontlik blootgestel kan word aan lood, en na oorlegpleging met die gesondheids- en veiligheidskomitee ingestel vir daardie afdeling van die werkplek, toesien dat die werknemer voldoende en volledig ingelig en opgelei word oor die praktiese aspekte en teoretiese kennis, met betrekking tot—

- (a) die inhoud en omvang van hierdie Regulasies;
- (b) die potensiële bronne van blootstelling;
- (c) die potensiële gesondheidsrisiko wat deur blootstelling aan lood veroorsaak word, met inbegrip van die gesondheidsrisiko's vir werknemers, gesinne en andere wanneer loodgekontamineerde toerusting en klerasie huis toe geneem word;
- (d) die maatreëls getref deur die werkgewer om 'n werknemer teen enige risiko van blootstelling te beskerm;
- (e) die voorsorgmaatreëls wat deur die werknemer getref moet word om homself of haarself te beskerm teen die gesondheidsrisiko wat met blootstelling geassosieer word, met inbegrip van die dra en gebruik van beskermende klere en asemhalingbeskermingstoerusting;
- (f) die noodsaaklikheid, korrekte gebruik, instandhouding en beperkings van beskermende toerusting, fasiliteite en ingenieursbeheermaatreëls wat voorsien word;
- (g) die evaluering van blootstelling, die doel van lugmonsterneming, die noodsaaklikheid van mediese waarneming en die langtermynvoordele wanneer sodanige mediese waarneming ondergaan word;
- (h) die beroepsblootstellingsdrempels en die betekenis daarvan;
- (i) die belangrikheid van goeie huishoudelike praktyke in die werkplek en persoonlike hygiëne;

- (j) die veilige werkprosedures betreffende die gebruik, hantering, prosessering en opberging van enige materiaal wat lood bevat, welke prosedures insluit die korrekte toepassing van beheermaatreëls om die verspreiding van lood buite die werkgebied te beperk, en om die blootstelling van werkers binne die werkgebied so laag as wat redelikerwys uitvoerbaar is te hou;
- (k) die prosedures wat gevolg moet word in die geval van stortings of enige ander soortgelyke noodgeval of situasie wat toevallig kan plaasvind;
- (l) prosedures vir die rapportering en korrigerende van defekte wat waarskynlik luggedraagde lood vrylating tot gevolg sal hê;
- (m) veilige beskikking oor afval;
- (n) die prosedures vir rekordhouding; en
- (o) aangeleenthede in regulasie 5 bedoel.

(2) Opknappingsopleiding moet minstens elke jaar of met meer gereelde tussenposes soos deur die gesondheids- en veiligheidskomitee aanbeveel, verskaf word oor aangeleenthede in subregulasie 1 bedoel.

(3) Opleiding behoort meer dikwels gegee te word as een keer per jaar indien—

- (a) werksmetodes verander;
- (b) die soort werk wat uitgevoer word, beduidend verander; of
- (c) die soort toerusting wat gebruik word om blootstellingsveranderinge te beheer, verander.

(4) Opleiding moet voorsien word deur iemand wat bedrewe daarin is en oor voldoende praktiese ondervinding en teoretiese kennis beskik van alle aspekte van die werk wat deur die werkgewer verrig word.

(5) 'n Werkgewer of 'n persoon in eie diens moet, sover dit redelikerwys uitvoerbaar is, toesien dat sy of haar gevolmagtigde of enige ander persoon as 'n werknemer wat deur loodblootstelling by die werkplek aangetas kan word, voldoende inligting, opdragte en opleiding ontvang.

(6) 'n Werkgewer moet aantekening hou van enige opleiding, sowel praktiese as teoretiese, wat aan 'n werknemer verskaf is.

(7) 'n Werkgewer of 'n persoon in eie diens moet skriftelike instruksies van die prosedures bedoel in subregulasie (1)(k) gee aan die drywers van voertuie wat lood of loodbevattende materiaal vervoer wat die potensiaal het om omgewingsbesoedeling of liggaamlike absorpsie te veroorsaak.

Pligte van persone wat blootgestel kan word

5. Iemand wat in die werkplek aan lood blootgestel word of moontlik blootgestel kan word, moet gehoor gee aan enige regmatige instruksie wat deur of namens die werkgewer of persoon in eie diens gegee word betreffende tot—

- (a) die voorkoming van vrystelling van lood in die omgewing;
- (b) die dra en gebruik van persoonlike beskermende toerusting;
- (c) die dra van moniteringstoerusting om persoonlike blootstelling aan luggedraagde lood te meet;
- (d) die aanmelding vir mediese waarneming soos vereis deur regulasie 8;
- (e) die aanmelding, by die beroepsgesondheidspraktisyn, van swangerskap;
- (f) die opruiming van en beskikking oor materiaal wat lood bevat;
- (g) huishoudelike praktyke by die werkplek, persoonlike higiëne en goeie omgewings- en gesondheidspraktyke; en
- (h) die ontvang van inligting en opleiding soos in regulasie 4 bedoel.

Beraming van potensiële blootstelling

6.(1) 'n Werkgewer of 'n persoon in eie diens moet toesien dat—

- (a) 'n beraming van sy of haar onderneming binne ses maande na die inwerkingtreding van hierdie regulasies en daarna met tussenposes van hoogstens twee jaar, gedoen word om vas te stel of enigiemand moontlik aan lood blootgestel word; en
- (b) die resultate van die beraming beoog in paragraaf (a) aangeteken word soos deur regulasie 10 vereis.

(2) 'n Werkgewer bedoel in subregulasie (1) moet, voordat hy of sy 'n beraming laat doen, oorleg pleeg met die betrokke gesondheids- en veiligheidsverteenwoordiger of betrokke gesondheids- en veiligheidskomitee en hulle daarna skriftelik verwittig van die reëlins getref vir die beraming in subregulasie (1) bedoel en hulle redelike tyd gee om kommentaar daarop te lewer, en moet toesien dat die resultate van die beraming aan hulle beskikbaar gestel word vir kommentaar.

(3) Wanneer 'n beraming bedoel in subregulasie 1(a) gedoen word, moet die werkgewer of persoon in eie diens die volgende in ag neem:

- (a) Die teenwoordigheid van enige lood (organies of anorganies) waaraan 'n persoon moontlik blootgestel kan word;

- (b) waar die lood aanwesig kan wees en in watter fisiese vorm dit waarskynlik sal wees en die mate waarin 'n persoon blootgestel kan word;
- (c) die aard van die werk, proses en enige redelike verswakking in, of mislukking van, enige beheermaatreëls;
- (d) die besonderhede van die verwagte blootstellings, veral—
 - (i) of die verwagte blootstelling die BBP vir lood oorskry, sodat die geskikte asemhalingbeskermingstoerusting geselekteer kan word in afwagting op implementering van ingenieursbeheermaatreëls;
 - (ii) of sodanige blootstellings met tussenposes plaasvind, ook die frekwensie en duur van blootstellings;
 - (iii) die aantal werknemers en enige ander persone blootgestel en hulle verwagte blootstellingswaardes; en
 - (iv) waar van toepassing, die resultate wat moontlik beskikbaar is van enige vorige monitering wat by die werkplek gedoen is;
- (e) die stappe wat gedoen moet word om blootstelling na die laagste moontlike vlak te verminder en die stappe wat gedoen moet word om die vrystelling van luggedraagde lood in die omgewing te verminder;
- (f) prosedures vir die hantering van noodgevalle; en
- (g) prosedures vir die verwydering van loodafval uit die werkplek, en die wegdoening daarvan.

(4) Indien die beraming of herberaming wat ooreenkomstig subregulasies (1) en (5) gemaak is, aandui dat 'n persoon moontlik aan lood blootgestel kan wees, moet die werkgever of persoon in eie diens toesien dat die blootstelling voldoende beheer word soos in regulasie 11 bedoel.

(5) 'n Werkgever of persoon in eie diens moet die beraming wat deur subregulasie (1) vereis word, onverwyld hersien indien—

- (a) daar rede is om te vermoed dat die vorige beraming nie meer geldig is nie;
- (b) beheermaatreëls nie meer doeltreffend is nie;
- (c) tegnologiese of wetenskaplike vooruitgang doeltreffender beheermetodes moontlik maak; of
- (d) daar beduidende verandering is in—

- (i) werksmetodes;
- (ii) soort werk wat verrig word;
- (iii) soort toerusting gebruik om blootstelling te beheer,

en subregulasies (2) en (3) is van toepassing.

Lugmonitering

7.(1) Indien blootstelling aan luggedraagde lood die helfte van die BBD vir lood oorskry, moet 'n werkgewer toesien dat die meetprogram van die luggedraagde konsentrasies lood waaraan 'n werknemer blootgestel word—

- (a) uitgevoer word ooreenkomstig hierdie Regulasies;
- (b) uitgevoer word eers nadat die betrokke gesondheids- en veiligheidsverteenwoordiger of betrokke gesondheids- en veiligheidskomitee daarvan verwittig is en 'n redelike geleentheid gegun is om daarop kommentaar te lewer;
- (c) uitgevoer word deur—
 - (i) 'n goedgekeurde lood inspeksie-owerheid; of
 - (ii) 'n persoon wie se vermoë om die metings te doen, deur 'n goedgekeurde lood inspeksie-owerheid geverifieer is;
- (d) verteenwoordigend is van die blootstelling van werknemers aan die luggedraagde lood in ooreenstemming met subregulasie (2); en
- (e) geverifieer is ooreenkomstig subregulasie (3) indien die metings deur 'n persoon bedoel in subregulasie (1)(c)(ii) uitgevoer word.

(2) Ten einde aan subregulasie (1)(d) te voldoen, moet 'n werkgewer toesien dat—

- (a) die meetprogram—
 - (i) in die geval van 'n groepsmeting, moet voorsiening maak vir die selektering van die aantal persone vir 'n monsterneming wat gedoen moet word soos in Hoofstukke 3 en 4 en die Tegniese Bylae A van die OESSM bedoel: Met dien verstande dat, vir sover 'n bepaling van die OESSM en die HSG 173 onversoenbaar is met 'n bepaling van die Wet op Beroepsgesondheid en Veiligheid, 1993, en hierdie Regulasies, die bepaling van die Wet en hierdie Regulasies van toepassing is;

- (ii) in die geval van die mees blootgestelde werknemer meeting, waar die BBD vir lood oorskry word, dan moet enige ander werknemer van wie die blootstelling moontlik hoër as die BBD kan wees, geïdentifiseer word en moet metings, wat verteenwoordigend van tipiese blootstelling is, gedoen word op elke werknemer wat geïdentifiseer is; en
 - (c) verteenwoordigende metings moet minstens elke 12 maande gedoen word: Met dien verstande dat wanneer die BBD vir lood oorskry word, regulasie 11 van toepassing is.
- (3) Ten einde aan subregulasie (1)(e) te voldoen, moet 'n werkgewer die dienste bekom van 'n goedgekeurde lood inspeksie-owerheid wat met tussenposes van nie langer as 12 maande nie, die verifiëring moet doen deur—
 - (a) van die meet- en ontledingstoerusting van die werkgewer te ondersoek;
 - (b) die persoon in subregulasie (1)(c) (ii) bedoel, oor die meetprogram te ondervra;
 - (c) die meetprogram wat by subregulasie (2) vir 'n bepaalde groep vereis word, tesame met die persoon bedoel in subregulasie (1)(c)(ii) uit te voer; en
 - (d) die resultate van die meting en ondersoek soos in in subregulasies (2) en (3) onderskeidelik bedoel, aan te teken soos vereis by regulasie 10.

Mediese waarneming

8.(1) 'n Werkgewer moet toesien dat 'n werknemer onder die mediese waarneming van 'n beroepsgeneeskundige is indien—

- (a) die werknemer blootgestel word aan luggedraagde loodkonsentrasie wat die BBD oorskry;
 - (b) die werknemer blootgestel word aan tetra-alkiel-lood; of
 - (c) 'n beroepsgeneeskundige sertifiseer dat die betrokke werknemer onder mediese waarneming moet wees.
- (2) Ten einde aan subregulasie (1) te voldoen, moet 'n werkgewer toesien dat—
 - (a) daar onmiddellik voor of binne 14 dae nadat 'n persoon diens aanvaar, 'n eerste mediese ondersoek uitgevoer word en wat behels:
 - (i) 'n Evaluering van die werknemer se mediese en beroepsgeskiedenis;
 - (ii) kliniese ondersoeke; en
 - (iii) in die geval van lood, uitgesonderd tetra-alkiel-lood, die meting van die werknemer se bloedlood- en hemoglobienkonsentrasies en ander

tersaaklike biologiese toetse na goeëdunke van die beroepsgeneeskundige: Met dien verstande dat die meting van die bloedloodkonsentrasies herhaal word gedurende die derde en die sesde maand na diensaanvaarding: Met dien verstande verder dat wanneer die monitering van sinkprotoporfirien (ZPP) in bloed, uitgedruk in μg ZPP/g hemoglobien, met tussenposes van hoogstens twee maande uitgevoer word, slegs jaarlikse bloedloodkonsentrasiemetings vereis word;

- (b) behoudens die bepalings van subregulasie (2)(a)(iii), biologiese monitering uitgevoer word wat bestaan uit:
- (i) Meting van bloedloodkonsentrasie vir werknemers wat aan lood, uitgesonderd tetra-alkiel-lood, blootgestel word met tussenposes soos voorgeskryf in die Tabel bevat in Aanhangsel A van hierdie Regulasies: Met dien verstande dat in die geval van vroulike werknemers wat tot voortplanting in staat is, al sodanige metings met tussenposes van drie maande uitgevoer word;
 - (ii) onmiddellike meting van urienloodkonsentrasie vir werknemers blootgestel aan tetra-alkiel-lood, en daarna met tussenposes soos voorgeskryf in die Tabel bevat in Aanhangsel B van hierdie Regulasies;
- (c) kliniese ondersoeke en tersaaklike biologiese toetse uitgevoer word na goeëdunke van die beroepsgeneeskundige;
- (d) waar die bloedloodkonsentrasie van 'n werknemer wat blootgestel is aan lood, uitgesonderd tetra-alkiel-lood, gelyk is aan of groter is as $60 \mu\text{g}/100 \text{ ml}$, die toets herhaal word, en indien die resultaat van die herhalingstoets gekorrigeer vir die hematokritwaarde, met verwysing na 'n standaardwaarde van 43% vir mans en 38% vir vroue, groter as $60 \mu\text{g}/100 \text{ ml}$ is, die werknemer ongeskik verklaar word vir werk in 'n gebied waar hy of sy aan lood blootgestel word: Met dien verstande dat die beroepsgeneeskundige, indien hy of sy dit nodig ag, 'n werknemer wat 'n bloedloodkonsentrasie van minder as $60 \mu\text{g}/100 \text{ ml}$ het, kan sertifiseer as ongeskik vir werk in 'n gebied wat hom of haar aan lood blootgestel: Met dien verstande verder dat die verwyderingsbloedloodvlak van $60 \mu\text{g}/100 \text{ ml}$ ingefaseer kan word deur die verlaging van die vlak van $80 \mu\text{g}/100 \text{ ml}$ tot $75 \mu\text{g}/100 \text{ ml}$, met ingang van 30 Junie 2002, en daarna met 'n verdere $5 \mu\text{g}/100 \text{ ml}$ elke twaalf maande daarna om $60 \mu\text{g}/100 \text{ ml}$ te bereik teen 30 Junie 2005, soos in die Tabel bevat in Aanhangsel C van hierdie Regulasies uiteengesit is;
- (e) waar die urienloodkonsentrasie van 'n werknemer blootgestel aan tetra-alkiel-lood gelyk is aan of meer is as $150 \mu\text{g}/\text{l}$, die toets herhaal word en indien die resultaat van die herhalingstoets groter as $150 \mu\text{g}/\text{l}$ is, die werknemer gesertifiseer word as ongeskik vir werk in 'n gebied wat hom of haar aan lood blootgestel: Met dien verstande dat die beroepsgeneeskundige, indien hy of sy dit nodig ag, kan sertifiseer dat 'n werknemer wat 'n urienloodkonsentrasie van minder as $150 \mu\text{g}/\text{l}$ het, ongeskik is vir werk in gebied waarin hy of sy aan lood blootgestel word; en

- (f) waar die ZPP-waarde in bloed van 'n werknemer wat blootgestel is aan lood, uitgesonderd tetra-alkiel-lood, gelyk is aan of groter is as $10 \mu\text{g}$ ZPP/g hemoglobien, moet die bloedlood gemeet word soos beoog in subregulasie 2(d): Met dien verstande dat die beroepsgeneeskundige, indien hy of sy dit nodig ag, 'n werknemer met 'n ZPP in bloedwaarde van minder as $10 \mu\text{g}$ /g hemoglobien, maar hoër as $8 \mu\text{g}$ ZPP/g hemoglobien in sy of haar bloed, kan sertifiseer as ongeskik vir werk in 'n gebied waarin hy of sy aan lood blootstel is.

(3) 'n Werkgewer moet toesien dat geen werknemer wat deur die beroepsgeneeskundige as ongeskik vir werk gesertifiseer is in 'n gebied wat hom of haar aan lood blootstel, na sodanige werk terugkeer nie totdat—

- (a) die beroepsgeneeskundige skriftelik sertifiseer dat die werknemer vir sodanige werk geskik is;
- (b) die werknemer se bloedloodkonsentrasie minder as $50 \mu\text{g}/100 \text{ ml}$ is: Met dien verstande dat die terugkeerbloedloodvlak van $50 \mu\text{g}/100 \text{ ml}$ ingefaseer kan word deur die verlaging van die vlak vanaf $70 \mu\text{g}/100 \text{ ml}$ tot $65 \mu\text{g}/100 \text{ ml}$ met ingang van 30 Junie 2002, en daarna met 'n verdere $5 \mu\text{g}/100 \text{ ml}$ elke twaalf maande daarna om $50 \mu\text{g}/100 \text{ ml}$ te bereik teen 30 Junie 2005, soos in die Tabel bevat in Aanhangsel D van hierdie Regulasies uiteengesit is;
- (c) die ZPP-waarde in die bloed van werknemer minder as $6 \mu\text{g}/\text{g}$ hemoglobien is; of
- (d) die werknemer se urienloodkonsentrasies minder as $130 \mu\text{g}/\text{l}$ is.

(4) 'n Werkgewer moet toesien dat—

- (a) 'n vroulike werknemer wat tot voortplanting in staat is en wat werk verrig wat haar aan lood blootstel, van sodanige werk verwyder word wanneer haar bloedloodkonsentrasie $40 \mu\text{g}/100 \text{ ml}$ oorskry of haar urienloodkonsentrasie $75 \mu\text{g}/\text{l}$ oorskry, of indien sy swanger word; en
- (b) die werknemer in subregulasie (4)(a) bedoel, nie toegelaat word om na die werk wat haar aan lood blootstel, terug te keer nie tensy haar bloedloodkonsentrasie minder as $30 \mu\text{g}/100 \text{ ml}$ of haar urienloodkonsentrasie minder as $65 \mu\text{g}/\text{l}$ is.

(5) Indien daar gevind word dat 'n werknemer as gevolg van die bepalinge van subregulasies (2)(d), 2(e), 2(f) of (4)(a) van sy of haar werkplek verwyder moes word, moet die werkgewer die voorval ooreenkomstig regulasie 8 van die Algemene Administratiewe Regulasies aanteken en ondersoek.

Respiratorsone

9. 'n Werkgewer of 'n persoon in eie diens moet toesien dat—

- (a) 'n werkplek of deel van 'n werkplek onder sy of haar beheer, waar die loodkonsentrasie in die lug sodanig is of kan wees dat die blootstelling van persone in daardie werkplek die BBD oorskry sonder die dra van die asemhalingbeskermingstoerusting, as 'n respiratorsone gesoneer word;
- (b) 'n respiratorsone duidelik afgebaken en geïdentifiseer word per kennisgewing wat aandui dat die betrokke gebied 'n respiratorsone is en dat asemhalingbeskermingstoerusting en beskermende klere in regulasie 12 bedoel, gedra moet word;
- (c) niemand 'n respiratorsone binnegaan of daar bly nie tensy hy of sy die vereiste asemhalingbeskermingstoerusting en beskermende klere dra; en
- (d) die rede waarom die BBD oorskry word, geïdentifiseer word en dat stappe gedoen word om so gou as wat dit redelikerwys uitvoerbaar is deur 'n ander middel as asemhalingbeskermingstoerusting, die konsentrasie lood in die lug te verminder sodat dit nie die BBD oorskry nie.

Aantekeninge

10. 'n Werkgewer moet—

- (a) aantekeninge hou van die resultate van alle evaluerings, lugmonitering, mediese waarnemingsverslae en instandhouding van beheermaatreëls vereis deur regulasies 6, 7 en 8: Met dien verstande dat persoonlike mediese rekords slegs aan 'n beroepsgeneeskundige bekendgemaak mag word;
- (b) behoudens paragraaf (c), die aantekeninge in paragraaf (a) bedoel, uitgesonderd persoonlike mediese aantekeninge, beskikbaar stel vir inspeksie deur 'n inspekteur;
- (c) behoudens formele skriftelike toestemming van 'n werknemer, 'n persoon toelaat om insae te hê in die aantekeninge betreffende daardie betrokke werknemer;
- (d) die aantekeninge van alle evaluerings en lugmonitering beskikbaar stel vir insae deur die betrokke gesondheids- en veiligheidsvertegenwoordiger of betrokke gesondheids- en veiligheidskomitee;
- (e) alle aantekeninge van evaluerings en lugmonitering vir 'n minimum tydperk van 40 jaar bewaar;
- (f) alle mediese waarnemingsaantekeninge vir 'n minimum tydperk van 40 jaar bewaar en indien die werkgewer werksaamhede staak, moet al daardie aantekeninge oorhandig word aan of per geregistreerde pos aangestuur word

na die betrokke provinsiale direkteur: Met dien verstande dat daardie aantekeninge minstens die volgende inligting moet bevat:

- (i) Die van, voorname, geslag, geboortedatum, naam van eggenoot of naaste familielid en, waar beskikbaar, permanente adres en poskode;
 - (ii) 'n geskiedenis van soorte werk wat met lood verrig is en, waar ter sake, die ligging daarvan, met begin- en einddatums en gemiddelde duur van blootstelling in ure per week;
 - (iii) 'n geskiedenis van enige werk met lood voor hierdie indiensneming; en
 - (iv) datums van mediese ondersoeke;
- (g) vir minstens drie jaar alle aantekeninge bewaar van die toetse en ondersoeke wat ingevolge regulasie 14(b) uitgevoer is, en van enige herstelwerk wat uit hierdie toetse en ondersoeke gespruit het; en
- (h) aantekeninge hou van opleiding wat ingevolge regulasie 4(5) aan 'n werknemer gegee is, vir so lank as wat die werknemer in diens bly by die werkplek waarin hy of sy aan lood blootgestel word.

Beheer van blootstelling aan lood

11.(1) 'n Werkgewer of 'n persoon in eie diens moet toesien dat die blootstelling van 'n persoon aan lood óf voorkom word óf, waar dit nie redelikerwys uitvoerbaar is nie, voldoende beheer word: Met dien verstande dat die beheer van die blootstelling as voldoende beskou moet word indien—

- (a) die vlak van luggedraagde lood—
 - (i) gelyk aan of laer as die BBD is; of
 - (ii) hoër as die BBD is maar die rede geïdentifiseer is en stappe gedoen is om die luggedraagde vlak te verlaag sodat dit nie die BBD oorskry nie, deur 'n ander wyse van beheer as deur asemhalingbeskermingstoerusting sodra dit redelikerwys uitvoerbaar is; of
- (b) in die geval van blootstelling aan—
 - (i) lood wat opgeneem kan word, die bloedloodvlak minder as 20 µg/100 ml is; of
 - (ii) loodalkiels, die urienloodvlak minder as 120 µg/l is.

(2) Waar dit redelikerwys uitvoerbaar is, moet die werkgewer of 'n persoon in eie diens 'n persoon se blootstelling aan lood beheer deur die—

- (a) gebruik van 'n plaasvervanger vir lood of loodbevattende materiaal;
- (b) beperking van die aantal persone wat blootgestel sal word of moontlik blootgestel kan word;
- (c) beperking van die tydperk waartydens 'n persoon blootgestel sal word of moontlik blootgestel kan word;
- (d) beperking van die hoeveelheid lood wat die werkomgewing kan besoedel;
- (e) die instel van onder andere die volgende ingenieursmaatreëls vir die beheer van blootstelling:
 - (i) Skeiding, outomatisering of insluiting van die proses;
 - (ii) die installering van lokale uitsuigventilasiestelsels aan prosesse, toerusting of gereedskap vir die beheer van vrystellings van luggedraagde lood;
 - (iii) die gebruik van nat metodes waar toepaslik;
 - (iv) afsonderlike werkplekke vir verskillende prosesse;
 - (v) die identifisering van vroeë korrektiewe optrede wat toegepas kan word; en
- (f) instel van gepaste skriftelike werkprosedures wat 'n werknemer moet volg om te verseker dat—
 - (i) lood veilig hanteer, gebruik en weggedoen word;
 - (ii) prosesmasjinerie, installasies, toerusting, gereedskap, lokale uitsuig- en algemene ventilasiestelsels veilig gebruik en in stand gehou word; en
 - (iii) vroeë korrektiewe optrede betreffende die beheer van loodblootstelling geneem kan word.

(3) Die werkgever of persoon in eie diens moet toesien dat die vrystelling van lood in 'n omgewing of waterstelsel voldoen aan die Wet op die Voorkoming van Lugbesoedeling, 1965 (Wet No. 45 van 1965), die Wet op Omgewingsbewaring, 1989 (Wet No. 73 van 1989), die Nasionale Waterwet, 1998 (Wet No. 36 van 1998), en die Nasionale Wet op Omgewingsbestuur, 1998 (Wet No. 107 van 1998).

Persoonlike beskermingstoerusting en -fasiliteite**12.(1) 'n Werkgewer of 'n persoon in eie diens moet—**

- (a) alle persone wat aan konsentrasies luggedraagde lood van meer as die helfte van die BBD vir lood blootgestel is, voorsien van geskikte beskermende klere sonder enige sakke, ten einde die moontlikheid van kontaminasie en versameling van loodstof te verminder;
- (b) in die geval van tetra-alkiellood, wat deur die vel geabsorbeer kan word, die persone van geskikte loodondeurdringbare beskermende toerusting voorsien; en
- (c) 'n persoon van geskikte asemhalingbeskermingstoerusting voorsien om te verseker dat die persoon se blootstelling voldoende gekontroleer word soos in regulasie 11 bedoel.

(2) Waar asemhalingbeskermingstoerusting voorsien word, moet die werkgewer of persoon in eie diens toesien dat—

- (a) tersaaklike toerusting in staat is om die blootstelling gelyk aan of laer as die BBD vir die tipe lood te hou;
- (b) tersaaklike toerusting korrek geselekteer en behoorlik gebruik word;
- (c) inligting, voorskrifte, opleiding en toesig wat ten opsigte van die gebruik van die toerusting nodig is, aan die persone bekend is; en
- (d) toerusting in goeie werkende toestand gehou word.

(3) 'n Werkgewer of persoon in eie diens moet, sover redelikerwys uitvoerbaar—

- (a) geen al reeds gebruikte persoonlike beskermingstoerusting aan 'n persoon uitreik nie, tensy die tersaaklike beskermingstoerusting behoorlik gedekontamineer is en, indien nodig, gesteriliseer is;
- (b) afsonderlike houers of bergingsfasiliteite voorsien vir persoonlike beskermingstoerusting wanneer dit nie in gebruik is nie; en
- (c) toesien dat alle persoonlike beskermingstoerusting wat nie in gebruik is nie, slegs in die plek wat daarvoor voorsien is geberg word.

(4) 'n Werkgewer of persoon in eie diens moet, sover redelikerwys uitvoerbaar, toesien dat alle gekontamineerde persoonlike beskermingstoerusting volgens onderstaande prosedures skoongemaak en hanteer word:

- (a) Indien die toerusting op die perseel van die werkgewer of persoon in eie diens skoongemaak word, moet sorg gedra word dat kontaminasie gedurende hantering, vervoer en skoonmaak voorkom word;
- (b) indien die toerusting van die perseel af na 'n kontrakteur toe gestuur word vir skoonmaakdoeleindes moet die—
 - (i) toerusting in ondeurdringbare houers verpak word;
 - (ii) houers dig verseël wees en duidelike aanduidings daarop hê dat die inhoud daarvan met gekontamineer is; en
 - (iii) betrokke kontrakteur ten volle ingelig wees oor die vereistes van hierdie Regulasies en die voorsorgmaatreëls wat vir die hantering van die loodgekontamineerde toerusting getref moet word.

(5) Behoudens subregulasie 4(b), moet 'n werkgewer of persoon in eie diens toesien dat niemand vuil of gekontamineerde persoonlike beskermende toerusting van die perseel af verwyder nie: Met dien verstande dat indien gekontamineerde persoonlike beskermende toerusting weggedoen moet word, dit as loodafval behandel word soos in regulasie 17 bedoel.

(6) Behoudens die bepalinge van die Fasiliteiteregulasies gepubliseer by Goewermenskennisgewing No. R. 1593 of Augustus, moet 'n werkgewer, waar redelikerwys uitvoerbaar, werknemers wat persoonlike beskermende toerusting gebruik soos in subregulasie (1) bedoel, voorsien van—

- (a) voldoende wasfasiliteite wat maklik bereikbaar is en geleë is in 'n gebied waar die fasiliteite nie gekontamineer sal raak nie, ten einde die werknemers in staat te stel om te voldoen aan 'n standaard van persoonlike higiëne wat in ooreenstemming is met genoegsame beheer van blootstelling, en om die verspreiding van lood te voorkom;
- (b) twee afsonderlike sluitkaste wat “beskermende klere” en “persoonlike klere” gemerk is en moet toesien dat die klerasie afsonderlik in die betrokke sluitkaste gehou word; en
- (c) afsonderlike “skoon” en “vuil” kleedkamers indien die werkgewer lood in so 'n mate gebruik of prosesseer dat die lood die gesondheid van persone buite die werkplek in gevaar kan stel.

Sindelikheid van perseel en toerusting

13. Elke werkgewer of persoon in eie diens moet, sover redelikerwys uitvoerbaar, maatreëls tref om toe te sien dat—

- (a) alle werkplekke in 'n skoon toestand gehou word en vry van loodafval is, en indien lood per ongeluk gestort word en luggedraagde lood per ongeluk in die

werkplek vrygestel word, korrektiewe maatreëls onmiddellik getref word voordat enige werk voortgesit word;

- (b) skoonmaakwerk gedoen word deur stofsuigtoerusting met 'n filtreerdoeltreffendheid van ten minste 99 persent vir stofdeeltjies van een mikrometer in grootte, of op 'n ander wyse sodat loodstof nóg kan ontsnap nóg in die lug vrygelaat word op 'n wyse wat enige werkplek of die omgewing besoedel;
- (c) die stofsuigtoerusting gereeld versien word en al die eksterne oppervlakke in 'n skoon toestand en vry van sigbare loodstof gehou word; en
- (d) indien die gebruik van stofsuigtoerusting nie redelikerwys uitvoerbaar is nie, oppervlakke wat skoongemaak moet word natgemaak word en dat persone wat sodanige skoonmaakwerk onderneem, geskikte beskermende klere en asemhalingbeskermingstoerusting dra.

Instandhouding van beheermaatreëls

14. 'n Werkgewer of persoon in eie diens moet toesien dat—

- (a) alle beheertoerusting en -fasiliteite waarvoor daar ingevolge regulasies 11, 12 en 13 voorsiening gemaak word, in goeie werkende toestand gehou word; en
- (b) met tussenposes van hoogstens 24 maande, deeglike ondersoeke en toetse van ingenieursbeheermaatreëls uitgevoer word deur 'n inspeksie-owerheid wat vir sodanige ondersoeke en toetse goedgekeur is of deur 'n persoon wie se vermoë om die metings en toetse te doen deur sodanige goedgekeurde inspeksie-owerheid geverifieer is.

Verbodsbepalings

15.(1) Niemand mag—

- (a) saamgeperste lug gebruik om looddeeltjies van enige oppervlak af weg te blaas nie of vereis of toelaat dat enige ander persoon saamgeperste lug gebruik om looddeeltjies van enige oppervlak af weg te blaas nie; of
- (b) rook, eet, drink of kos of drank hou in 'n gebied wat nie spesifiek daarvoor aangewys is nie, of van enige ander persoon vereis of hom of haar toelaat om binne sodanige gebied te rook, te eet, te drink of kos of drank daarin te hou nie.

(2) Loodverf mag nie—

- (a) gebruik word om die binnekant van geboue te verf nie;
- (b) deur middel van 'n droë proses van 'n oppervlak af geskraap of geskuur word nie;

- (c) deur afbranding verwyder word nie; of
- (d) op meubels gebruik word nie.

Etikettering, verpakking, vervoer en berging

16. 'n Werkgewer of persoon in eie diens moet, ten einde die verspreiding van kontaminasie van lood te voorkom, stappe doen om, sover redelikerwys uitvoerbaar, toe te sien dat—

- (a) die lood wat geberg of versprei word, behoorlik geïdentifiseer, geklassifiseer en hanteer word in ooreenstemming met SABS 0228; en
- (b) 'n houer of 'n voertuig waarin lood vervoer word, duidelik geïdentifiseer, geklassifiseer en verpak word in ooreenstemming met SABS 0228 en SABS 0229.

Beskikking oor loodafval

17. 'n Werkgewer of persoon in eie diens moet sover dit redelikerwys uitvoerbaar is—

- (a) alle loodafval hersikleur, maar nie in nielood-produksieprosesse in nie;
- (b) toesien dat alle versamelde loodafval geplaas word in houters wat die waarskynlikheid van blootstelling tydens hantering sal voorkom;
- (c) toesien dat alle voertuie, houters wat hergebruik gaan word en bedekkings wat met loodafval in aanraking was, na gebruik skoongemaak en gedekontamineer word op so 'n wyse dat sodanige voertuie, houters of bedekkings nie 'n gevaar binne of buite die betrokke persele veroorsaak nie;
- (d) toesien dat daar oor alle loodafval wat blootstelling aan lood kan veroorsaak, beskik word slegs op persele wat ingevolge die Wet op Omgewingsbewaring, 1989 (Wet No. 73 van 1989), en die Nasionale Wet op Omgewingsbestuur, 1998 (Wet No. 107 van 1998), spesifiek vir hierdie doel aangewys is en op so 'n wyse dat dit nie binne of buite die betrokke perseel 'n gevaar veroorsaak nie.
- (e) toesien dat alle persone wat by die versameling, vervoer en beskikking oor loodafval betrokke is en wat aan daardie afval blootgestel kan word, van geskikte persoonlike beskermingstoerusting voorsien word; en
- (f) toesien dat in gevalle waar die dienste van 'n afvalbeskikking-kontrakteur gebruik word, die kontrak 'n bepaling moet bevat wat meld dat die kontrakteur ook aan die bepalings van hierdie regulasies moet voldoen.

Misdrywe en strawwe

18. Enigiemand wat 'n bepaling van regulasie 3, 4, 5, 6, 7, 8, 9, 10, 11(1), 11(2), 12, 13, 14, 15, 16, 17(a), 17(b), 17(c), 17(e) of 17(f) oortree of versuim om daaraan te voldoen, is aan 'n misdryf skuldig en by skuldigbevinding strafbaar met 'n boete of gevangenisstraf vir 'n tydperk van hoogstens ses maande en, in die geval van 'n deurlopende oortreding, met 'n bykomende boete van R200 vir elke dag waarop die misdryf voortduur, of bykomende gevangenisstraf van een dag vir elke dag waarop die misdryf voortduur: Met dien verstande dat die tydperk van sodanige bykomende gevangenisstraf in geen geval 90 dae mag oorskry nie.

Herroeping van regulasies

19. Die Loodregulasies gepubliseer by Goewermentskennisgewing R. 586 van 22 Maart 1991 word hierby herroep.

Kort title

20. Hierdie Regulasies heet die Loodregulasie, 2001.

AANHANGSEL A
[REGULASIE 8(2)(b)(i)]

Bloedlood $\mu\text{g}/100\text{ ml}$	Maksimum tussenposes tussen bloedloodmetings
Onder 20	12 maande
20 – 39	6 maande
40 – 59	3 maande
60 en meer	Na goeddunke van die beroepsgeneeskundige

AANHANGSEL B
[REGULASIE 8(2)(b)(ii)]

Urinêre lood $\mu\text{g}/\text{liter}$	Maksimum tussenposes tussen urinêreloodmetings
Onder 120	6 weke
120 – 149	1 week
150 en meer	Na goeddunke van die beroepsgeneeskundige

AANHANGSEL C
[REGULASIE 8(d)]

Bloedloodvlak µg/100 ml Verwyderingsvlak	Datum van krag
75	30 Junie 2002
70	30 Junie 2003
65	30 Junie 2004
60	30 Junie 2005

AANHANGSEL D
[REGULASIE 8(3)(b)]

Bloedloodvlak µg/100 ml Terugkeervlak	Datum van krag
65	30 Junie 2002
60	30 Junie 2003
55	30 Junie 2004
50	30 Junie 2005

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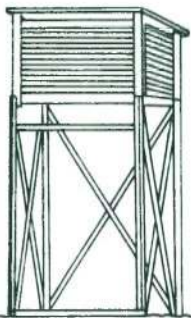
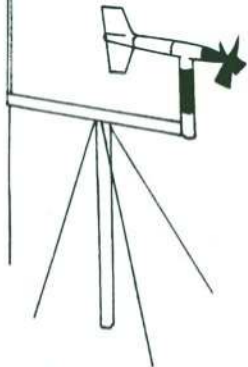
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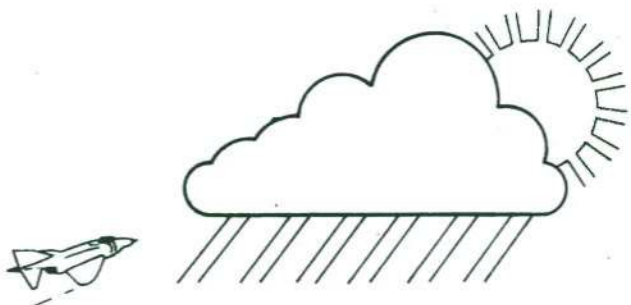
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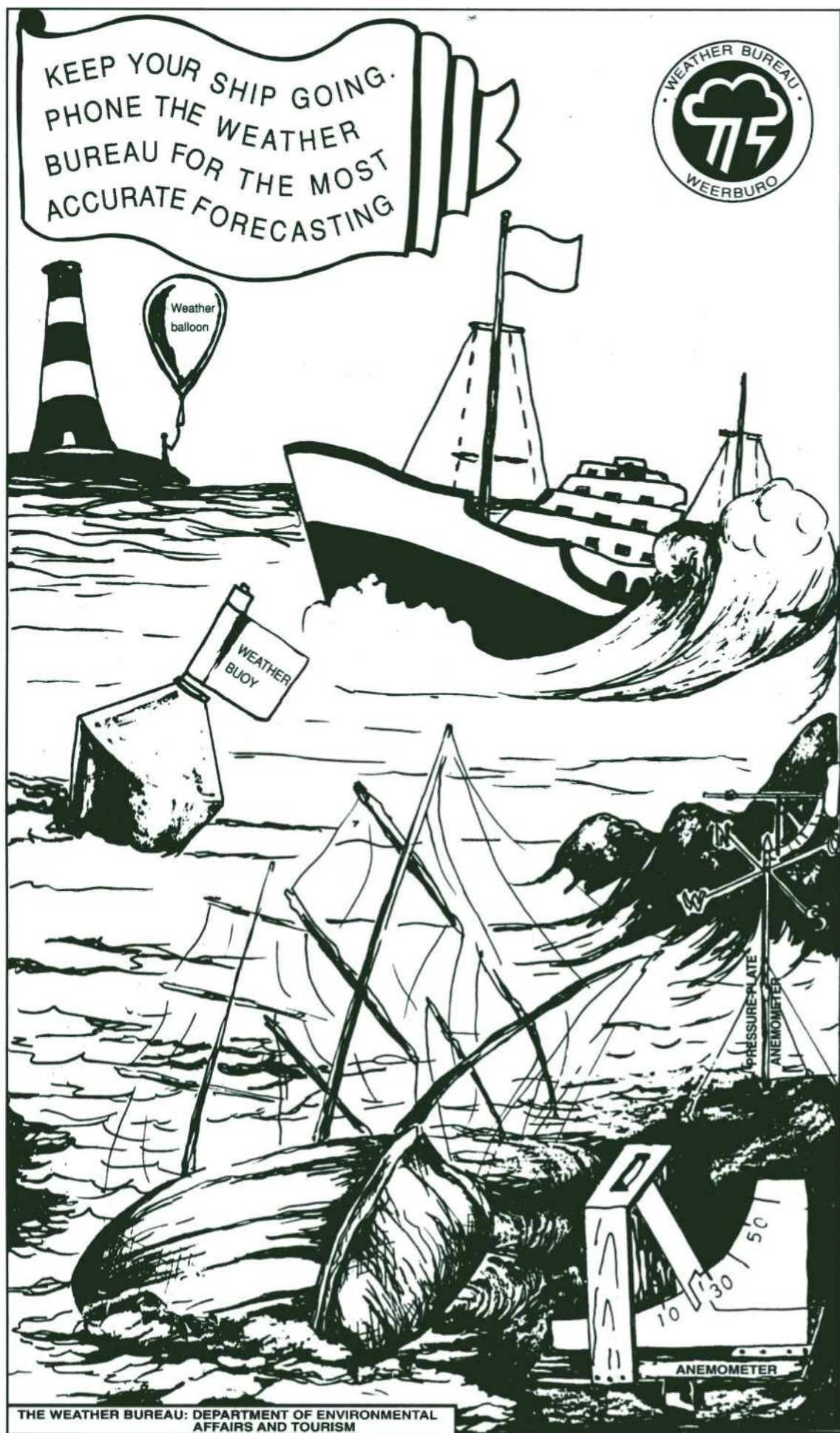
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Publications: Tel: (012) 334-4508, 334-4509, 334-4510

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