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NATIONAL ENVIRONMENTAL (DOMESTIC AND INDUSTRIAL PLASTIC, RUBBER AND FOAM SECTOR) REGULATIONS 2011

ARRANGEMENT OF REGULATIONS

SCHEDULES

SCHEDULE I :	Effluent Limitation Standards for Plastic and Rubber Manufacturing Industries.
SCHEDULE II :	Air Emission Level for Plastic and Rubber Manufacturing Industries.
SCHEDULE III :	Potential Release of Substance at high Processing Temperatures for Plastic Manufacturing Industries
SCHEDULE IV .	Effluent Limitation for Petroleum-based Polymer Industries.
SCHEDULE V	Air Emission Limitation for Petroleum-based polymer Industries.
SCHEDULE VI :	Best Practices.
SCHEDULE VII :	Pollution Prevention and Control Technique.
SCHEDULE VIII :	Banned/Restricted Chemicals.
Schedule IX :	Draft Guide Template for Emergency Procedures in Industry.
SCHEDULE X :	Guidelines for Preparing Environmental Management Plan (EMP).
SCHEDULE XI :	Prevention and Control of hazards due to Fire and Pentane.
Schedule XII :	Occupational Exposure, Prevention and Control Measures.
SCHEDULE XIII :	Guidelines for Consumer Products Stewardship Programme
SCHEDULE XIV	Sludge Disposal Permissible Limit.
SCHEDULE XV :	Organizational System for Pollution Control.
SCHEDULE XVI :	Monthly Discharge Monitoring Report (MDMR) (NESREA Discharge Monitoring Report).
SCHEDULE XVII :	Hearing Conservation Table.

S. I. No. 17 of 2011

NATIONAL ENVIRONMENTAL (DOMESTIC AND INDUSTRIAL PLASTIC, RUBBER AND FOAM SECTOR) REGULATIONS 2011

In exercise of the powers conferred on me by section 34 of the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act, 2007, and all other powers enabling me in that behalf, I, Mr John Odey, Honourable Minister, Federal Ministry of Environment hereby make the following Regulations.

[28*th April*, 2011] Commencement.

Part 1—General Provisions

1. These Regulations may be cited as the National Environmental (Domestic and Industrial Plastic, Rubber and Foam Sector) Regulations 2011. Citation.

2. The principal thrust of these Regulations is to prevent and minimize pollution from all operations and ancillary activities of the Domestic and Industrial Plastic, Rubber and Foam Sector to the Nigerian environment. Environmental Governance.

3.—(1) Every facility shall · Planning.

(*a*) carry out Environmental Impact Assessment (EIA) for new projects or modification including expansion of existing ones before commencement of activity ;

(*b*) submit Environmental Audit Report (EAR) for existing industries every 3 years. Environmental Audit should be conducted by external consultants accredited by NESREA.

(*c*) submit Environmental Management Plan (EMP) as contained in Schedule X to these Regulation.

(2) New facilities and investments in the sector shall apply up-to–date, cost effective, efficient 'cleaner production' technologies to minimize pollution to the barest degree practicable.

(3) Facilities emphasis on environmental planning shall be to prevent and/or reduce and/or eliminate pollutants at source and less emphasis shall only be placed on external hardware which are end-of-pipe mechanisms.

4.—(1) Every facility shall plan and set up machinery for combating pollution hazards and maintain functional equipment in the event of an emergency. Emergency Response plan.

(2) Every facility shall for the purposes of sub-regulation (1) of this regulation have an operational emergency plan as prescribed in Schedule IX to these Regulations and a stock of functional pollution response equipment

which shall be readily accessible and available to combat pollution from accidental discharges.

(3) The owner or operator of a facility shall prepare an Emergency Response Plan that describes the measures to be taken in respect of the deleterious substance(s) ; to prevent any deposit(s)/discharges out of the normal course of events of such a substance and to mitigate the effects of such deposits/discharges and the Emergency Response Plan shall include such details as stated under Schedule IX to these Regulations.

Pollution abatement equipment.

5.—(1) Every facility shall install anti-pollution equipment for the detoxification of effluent and emission emanating from it so as to meet the effluent and emissions standard prescribed in Schedule IV to these Regulations.

(2) An installation made pursuant to sub-regulation (1) of this regulation shall be based on the Best Available Technology (BAT) as prescribed in Schedule VII to these Regulations or the Best Practicable Technology (BPT) as certified by the Agency.

(3) Vehicles and equipment used in the industrial activity are to be operated and maintained in a manner that prevents ground and surface water pollution.

Polluter-Pays-Principle.

6.—(1) The Polluter-Pays-Principle shall apply to every facility that pollutes.

(2) The collection, treatment, transportation and final disposal of wastes shall be the responsibility of the facility generating the wastes within the specified standards and guidelines.

(3) In the event of an incident resulting in an adverse impact on the environment whether socio-economically or health wise, the facility shall be responsible for :

(*a*) the cost of damage assessment, control and clean-up ;
(*b*) remediation ;
(*c*) reclamation/restoration ; and
(*d*) compensation to affected parties.

Best Practices.

7.—(1) Implementation of cleaner production processes and pollution prevention measures as outlined under Schedules VI and VII to these Regulations respectively shall be employed to yield economic, social and environmental benefits.

(2) Pollution prevention programs shall focus on reduction of use of water and more efficient use of process chemicals.

(3) All recyclables, damaged and disused packaging materials (e.g. glass, plastics, metals, paper, wood, nylon, etc) shall be recycled.

(4) Where applicable, the 5Rs namely—Reduce, Repair, Re-use, Recycle and recover shall be encouraged.

(5) Every facility shall ensure that no employee is exposed to any hazardous condition in the work place without awareness.

(6) Every facility shall provide Personnel Protective Equipment (PPE) for their employees working in hazards—prone sections and take such measures as outlined under Schedule XII to these Regulations.

Global Warming.

8. Every facility, corporation or organisation shall prepare a voluntary action programme for global warming control measures and such measures shall take into account energy-saving and best available technology in their production processes.

Volatile Organic Compound.

9. Every facility, corporation or organisation shall control Volatile Organic Compounds.

Pollution Control Organisational System.

10.—(1) Every facility shall put in place organizational system for pollution control and assign an Environmental Manager (EM) who shall oversee pollution control and prevention duties and such organizational system shall be as prescribed under Schedule XV to these Regulations.

(2) In addition, capacity building schemes and assessments shall be conducted to help Environmental Pollution Control Managers and operators to obtain required competence and certification by the Agency as prescribed under Schedule XV to these Regulations.

Extended Producer Responsibility (EPR).

11.—(1) All manufacturers and importers shall subscribe to an Extended Product Stewardship Program including the Buy Back Program as outlined under Schedule XIII to these Regulations.

(2) The Agency shall work with the sector to achieve the Buy Back Program within the period of three years.

Chemical use.

12.—(1) Every facility shall submit on a quarterly basis to the nearest office of the Agency the following information :

(*a*) list of the chemicals used in the manufacture of its products ;

(*b*) details of stored chemicals and storage conditions ,

(*c*) list of obsolete or abandoned chemicals and the proposed plan for their environmentally sound management.

(2) Every facility shall ensure that the use of

(*a*) organic solvents are minimized ,

(*b*) ozone Depleting Substances are used in accordance with the provisions of the National Environmental (Ozone Layer Protection) Regulations, 2009.

Banned/ Restricted chemicals.

13.—(1) Use of restricted chemicals shall be with a permit from the Agency

(2) The list of banned or restricted chemicals is as outlined in Schedule VIII to these Regulations.

Permits.

14.—(1) All permits (notices, orders, consents or demands) shall be in writing.

(2) A facility shall not ·

(*a*) discharge or cause to be discharged any effluent, or oil in any form into water system, public drains, or underground injection and land without a permit from the Agency ;

(*b*) release hazardous or toxic substances into the water or on land or air of Nigeria's ecosystem beyond the permissible limits listed under Schedules I, II, IV and V to these Regulations.

(3) Application for a permit is as set out in Part 3 of these Regulations.

(4) The permit forms shall be as set out in the National Environmental (Permit and Licensing System) Regulations, 2009 or as may be specified by the Agency.

Management of chemicals, oil station and fuel dumps site.

15.—(1) There shall not be contamination arising from leakage of surface/underground oil/fuel or chemicals storage tank likely to cause pollution of the environment including surface water and ground water.

(2) Every facility shall have an impermeable base for any ancillary equipment and provide an appropriate bund wall in the event of any unanticipated discharge or spillage.

(3) Every facility with underground tanks and fuel dumps shall be installed with leak detection equipment and shall be regularly inspected for leakages to prevent seepage into ground water.

Community Relations.

16. Every facility shall have a sustainable community relations programme as part of demonstration of compliance with Corporate Social Responsibility.

EFFLUENT LIMITATION

Effluent Limitation Standard.

17.—(1) The National Environmental Standards for effluent limitations for the sector shall be as set out under Schedules I and IV to these Regulations.

(2) Any effluent shall be deemed to be non-compliant and polluted if :

(*a*) the concentration of any of its parameters exceeds the permissible limits as specified in Schedules I and IV to these Regulations.

(*b*) it does not comply with the corresponding limit specified in Schedules I and IV to these Regulations.

(*c*) it is discharged from a facility without pre-treatment.

(3) Such an effluent as described in sub-regulation (2) of this regulation shall not be discharged from a facility, without pre-treatment to national standards set out in Schedules I and IV to these Regulations.

Restriction on the release of toxic effluent.

18.—(1) A facility shall not discharge effluent onto land, into a watercourse or into a water body unless the facility ensures that the parameters of the effluent do not exceed the permissible limits set out in Schedules I and IV to these Regulations.

(2) Notwithstanding sub-regulation 1 of this regulation, any facility using an influent, the limits of concentration or value of any of the parameters of which exceeds the permissible limit for that parameter set out in Schedules I and IV to these Regulations, shall ensure that the concentration or value of the parameters of the effluent conforms to the prescribed standard.

Treatment of effluent.

19.—(1) Facilities that intend to discharge effluent into the environment shall treat the effluent to the permissible level as specified in Schedule I to these Regulations, to ensure assimilation by the receiving medium.

(2) Every facility shall .

(*a*) carry out effective treatment of discharges all the time that the plant or unit is operating.

(*b*) ensure that environmentally sound management of sludge containing heavy metals or other toxic materials are disposed to designated disposal site/landfill by the appropriate Regulatory Authority.

(*c*) ensure the treatment and disposal of toxic organics contained in both effluent and sludge in a manner approved by the Agency.

(*d*) not dilute effluent to achieve the standards contained in Schedules I and IV to these Regulations.

(3) Treated effluent shall go beyond primary treatment to ensure that all hazardous compounds are eliminated including . Ethylene thiourea, diethanolamine, hydroquinone, phenols, alpha naphthylamine, p-phenylenediamine, benzoyl peroxide, dibutyl phthalate, dioctylphthalate, and bis(2-ethylhexyl) (adipate).

(4) Granular Activated Carbon (GAC) or any other approved material shall be used to eliminate organics in waste water and recommended pollution prevention options as are prescribed in Schedule VII to these Regulations.

(5) Wastes that contain toxic organics shall be subjected to thermal treatment to effectively destroy or remove over 99.99 percent of toxic organics and the resulting residue shall be disposed of in an environmentally sound manner as prescribed by the Agency.

Sludge Disposal.

20.— (1) A facility shall not discharge sludge directly into any water body. Any discharge to any part of the environment is prohibited except with a sludge disposal permit.

(2) Sludge disposed onto land shall be classified and none of its components shall exceed the permissible limit prescribed in Schedule XIV to these Regulations

(3) Any other sludge besides purely domestic (Organic) sludge and purely agricultural (Organic) sludge will be treated as hazardous waste if it contains hazardous substances.

(4) Hazardous sludge shall be treated and disposed of in a secure landfill approved by the Agency.

EMISSIONS

Emission Standards.

21. Every facility shall comply with the prescribed emission Standards in Schedules II and V to these Regulations.

Emission Control.

22.— (1) Every facility with any source or potential source of emission shall be required, to measure the emission of every priority air pollutant emitted therefrom and to develop and implement a plan to control such emission in accordance with the Standards as prescribed in Schedules II and V.

(2) Every facility shall be required to report the emission data, sources of emissions and undertake emission reduction in accordance with the implementation plan which shall be reviewed every three years by the Agency.

(3) Every facility shall ensure that it measures the odour detection threshold and the odorous dilution ratio of the working environment or emissions. The dilution methods of testing odours shall be adopted such as that of the American Society for Testing Materials (ASTM) or any other method as may be by the Agency to safeguard the health of the workers.

Burning of Fuels.

23.—(1) A facility shall not burn, or be permitted to burn light oil fuel containing over 0.5 percent sulphur by weight.

(2) A facility shall not burn, or permit to be burnt, medium fuel oil containing over 1.1 percent sulphur by weight as fired.

(3) Notwithstanding sub-regulation (1) of this regulation , heavy fuel oil with no more than 3 percent sulphur may be burnt at a new or existing

facility with new fuel combustion sources or a combination of new and existing fuel combustion sources if ,

(*a*) one or more of such sources operate in a manner that sulphur dioxide is absorbed by coming into contact with the product or with a scrubbing device or other material , and

(*b*) the actual total sulphur dioxide emissions from the entire facility is less than the allowable sulphur dioxide emissions.

24 Every facility, where applicable, shall

Dust/ Particulate Matter Emission Control

(*a*) use bag filters to control emissions from the internal mixers ;

(*b*) have its process line designed to avoid or minimize the creation of surfaces onto which polymer dust can settle or stick ;

(*c*) adjust settings of cutter knives or other similar equipment and ensure adequate maintenance of same to minimize dust generation.

25. Every facility shall put in place measures to prevent and control the release of pentane and other highly flammable chemical as outlined in Schedule XI to these Regulations.

Fire Hazards Prevention.

26.—(1) Every facility which discharges gaseous emission shall reduce it to the permissible level as prescribed in Schedule II and V to these Regulations.

Abatement Technologies.

(2) Reduction can be achieved through the use of appropriate treatment technologies for minimizing the release of significant pollutants to the air, these include among others .

(*a*) stack gas scrubbing, carbon adsorption or combustion (for toxic organics) ;

(*b*) bag houses (for particulate matter removal) ;

(*c*) biological filters ,

(*d*) cyclone or any other appropriate technology.

NOISE

27. Every Facility shall evaluate its installations and ensure that routine controls are sufficient to prevent risks of noise pollution.

Noise Standards.

28. Noise abatement measures should be in place to achieve either the levels prescribed in the National Environmental (Noise Standards and Control) Regulations 2009.

Noise Abatement.

29.—(1) Every facility shall administer a continuing, effective hearing conservation programme, whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 90 decibels

Hearing Conservation Programme.

measures on the A scale (slow response) or, equivalent to a dose of 80 as stipulated by Occupational Safety and Health Act (OSHA 18001) as stated in Schedule XVIII to these Regulations.

(2) For purposes of the hearing conservation programme, employee noise exposures shall be computed, regardless of the provision and the use of Personal Protective Equipment.

(3) An 8-hour time weighted average of 90 decibels shall be referred to as the action level.

Noise Monitoring.

30. Monitoring shall be repeated whenever a change in production, process, equipment or control, increases noise exposures to the extent that

(*i*) additional employees may be subjected to risk at the action level , or

(*ii*) the attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet requirements of sub-section (*i*) of this section.

PART II—SAMPLING PROCEDURES

Collection and Analysis of Samples.

31. For the purposes of determining license classification and license compliance, the facility shall examine samples according to standard analytical methods in an accredited laboratory by NESREA.

Spot Sampling for Physical or Chemical Parameters.

32. A spot sample for the purpose of analysis for all the tests including oil and grease, dissolved oxygen, pH, chlorine and sulphide shall be taken as follows :

(*a*) the whole sample volume is to be taken at one time, at the point of discharge or, if the discharge has stopped, at the nearest practicable point within one kilometre upstream and downstream of the point of discharge ,

(*b*) the sample shall be analyzed immediately after collection where possible but not later than 24 hours after taking the sample and the whole sample volume shall be used.

Composite Sampling for Physical or Chemical Parameters.

33. A composite sample for the purpose of analysis for all tests other than those for temperature and pH shall be taken by combining individual samples as follows :

(*a*) a minimum of five samples of equal volume of not less than 500 ml each shall be taken at the point of discharge or, if the discharge has stopped, at the nearest practicable point within one kilometre upstream and downstream of the point of discharge, at approximately equal intervals of time over a minimum period of four hours within any 24 hours period ;

(*b*) two of the composite samples, collected when the discharge has been stopped, will be used to prove the source and extent of pollution ;

(*c*) the samples shall be kept as cool as at site conditions licence. Sample analysis shall commence not later than 24 hours after taking the last sample ;

(*d*) where the discharge has stopped or is intermittent, two grab samples shall be collected at the nearest practicable point within one kilometre upstream and downstream each of the point of discharge.

Sampling for license classification.

34. The whole volume of sample for spot and further laboratory analysis shall be taken at one time at the point of discharge.

Sampling for other parameters.

35. If full laboratory facilities do not exist on the site, the oxygen in the sample may be "fixed" at the time of sampling by adding any of the following reagents ; alkaline azide, sulphuric acid, permanganate, oxalate, manganous sulphate and alkaline iodide or any other approved scientific method provided that :

(*a*) the stopper of the sample container shall be replaced and the solution shall be well mixed ;

(*b*) the remaining steps shall be carried out later in the laboratory.

Sampling for microbiological analysis.

36.—(1) When a number of samples for different purposes are to be taken from the same sampling point, the following precautions are to be observed :

(*a*) the sample for microbiological examination shall be collected first unless special investigations are necessary ;

(*b*) samples for microbiological examination shall be kept strictly separate from all others to avoid contamination ;

(*c*) boxes for the transportation of samples shall be made of materials that can be disinfected regularly, and they shall not be used for carrying anything other than samples of water for microbiological examination

(2) Sterile bottles used exclusively for bacteriological purposes that are fit for immediate use shall be provided by the laboratory performing the examination.

(3) Officers must ensure that the volume of each sample is at least 500 ml, and that at least one sample is taken at each sampling point.

Air Sampling for Analysis.

37.—(1) Measurement of air quality parameters shall take place at any facility, downwind and upwind.

(2) Measurement of total suspended particulate shall be by gravimetric method using air sampler :

(*a*) a three sampling period (morning, afternoon and evening) shall be adopted as appropriate.

(*b*) the heavy metals level of total suspended particulate shall be determined, using any referenced standard method.

(3) Gaseous pollutants shall be measured by any of the following or as approved by the Agency :

(*a*) passive sampling method shall require the submission of analysis certificate along with results. A three sampling period (morning, afternoon and evening) shall be adopted as appropriate.

(*b*) active sampling for NO_x shall use the Saltzman or any other standard method.

(*c*) active sampling for SO_2 shall use the West-Gaeke, hydrogen peroxide/ conductimetry or any other standard method.

(*d*) active sampling for hydrocarbons shall use the adsorption on activated charcoal method ; and

(*e*) continuous sampling of any gaseous air pollutant shall use instrument with detection range accommodating the maximum allowable limit of measured parameter. Measurement shall be for a span of at least 1 hour in every sampling location.

Noise Measurement.

38.—(1) Noise levels shall be measured with instrument having both A and C weighting, a resolution not more than 0.1 dB and fast/slow responses

(2) Measurement shall be taken at least 3 metres from any barrier or other sound reflecting sources, at about 1.2–1.5 metres above ground level or working platform and shall last for at least 10 seconds.

(3) Daytime (07:00 – 22:00) and night time (22:00 –7:00) measurements shall be taken at the fence line of any facility.

Part III—Permits (General Provision)

Procedures for licenses and Permits.

39. Procedure for application for issuing of permits and revocation of such permits where they have already been issued, are as contained in the National Environmental (Permitting and Licensing System) Regulations, 2009 S.I. 29.

Part IV—Industrial Effluent/Air Emission Monitoring and Reporting

Reporting Requirements.

40.—(1) The Permit holder shall subject to categorical standards comply with reporting requirements under the Agency's Permit including (but not limited to) Incident Report, and Monthly Effluent Data Sheet by submitting these documents to the Agency's Field Offices.

(2) The Permit holder shall submit to the Agency at least quarterly, (on

dates specified) a description of the nature, concentration and flow of all pollutants in the monthly Effluent Data Sheet.

(3) The information shall be based on sampling analysis performed in the period covered by the report and all reports shall be in compliance with the format as in Schedule XVI to these Regulations.

(4) The Permit holder shall report all sample results for parameters listed on the Effluent Limitations and Monitoring Requirement, on the Industrial/ Commercial Discharge Monitoring Report forms as in Schedule XVI to these Regulations.

(5) The Permit holder shall install (at its own cost) monitoring equipment approved by the Agency to facilitate the accurate observation, sampling and measurement of wastes as required by the permit and the equipment shall be in working order and kept safe and accessible to all authorized officials at all times.

(6) Permit holder discharging or proposing to discharge effluent to a general sewer or treatment plants shall maintain the following :

(*i*) records of production ;

(*ii*) water consumption and discharge flow records ;

(*iii*) complete monitoring records as specified in these regulations ;

(*iv*) process monitoring records ;

(*v*) incident reports ;

(*vi*) waste handling records ; and

(*vii*) any other records necessary to demonstrate compliance with these Regulations.

(7) Permit holder shall be required to file reports with the Agency for explanation if the permit holder

(*a*) commits a serious violation or fails to submit a completed Effluent Data Sheet. ;

(*b*) exceeds an effluent limitation for the same pollutant at the same discharge point source by any amount for four out of six consecutive months ; and

(*c*) has emergency discharges that could cause problems to the environment, including any sludge loadings.

Authorized Signatory.

41.—(1) The Permit holder shall sign the report and attach a copy of the Certificate of Analysis from the Agency's accredited laboratory.

(2) Each report must be signed by the appropriate officer as follows :

(*a*) a responsible corporate officer, if the Permit holder submitting the reports is a corporation.

(*b*) for the purpose of this paragraph, a responsible corporate officer means Chief Executive, or Managing Director, or Chairman, of the corporation in charge of a principal business function, or any designated person who performs similar policy or decision making functions for the corporation,

(3) All reports shall include the following certification statement :

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information therein submitted is, to the best of my knowledge and belief, true, accurate, and complete".

Monitoring Records.

42. Such records shall be made available to the Agency, and shall be retained for a minimum of ten (10) years and throughout the course of any pertinent litigation.

Confidential Information and Public Access to Records.

43. Public access to records shall also be governed by NESREA Act. Information or reports on Effluents constituents and characteristics, however may not be recognized as confidential.

PART V—ENFORCEMENT

Enforcement Notices.

44. An enforcement notice shall be served

(1) If the Agency is of the opinion that an operator has contravened, is contravening or is likely to contravene any condition of the permit ,

(2) An enforcement notice shall specify the—

(*a*) matters constituting the contravention or the matters making it likely that the contravention will arise, as the case may be ;

(*b*) steps that must be taken to remedy the contravention or to remedy the matters making it likely that the contravention will arise, as the case may be ; and

(*c*) period within which those steps must be taken.

(3) The measures in sub-regulation 2 of this regulation shall be carried out within 30 days from the service of Notice of enforcement.

(4) Sub-regulation 2 of this regulation shall apply whether or not the particular manner of operating the facility in question, is regulated by or contravenes a condition of the permit.

Enforcement Notice Reminder.

45.—(1) A reminder notice shall be issued and served upon failure to comply with enforcement notice issued pursuant to regulation 43 of these Regulations.

(2) Failure to comply with the second notice (reminder) within the specified time limit will lead to the issuance of a suspension notice or any other punitive action as may be necessary.

Mode of Delivery.

46. Enforcement notice shall be delivered by hand, registered post/ courier, electronic transmission or posted at the facility/registered premises of the organization.

Suspension of Permit.

47.—(1) Where a suspension notice is served under these regulations the permit shall, on the service of the notice, cease to have effect as stated in the notice.

(2) The Agency may withdraw a suspension notice after verification of compliance.

Equity.

48. Every facility shall be given equal treatment without preference as far as inspection and enforcement of relevant laws are concerned.

PART VI—OFFENCES AND PENALTIES

Contravention of permit conditions.

49. It is an offence if any facility fails to comply with :

(*i*) condition of a permit ;

(*ii*) the requirements of an enforcement notice, or a closure notice under these regulations ; and

(*iii*) any requirement imposed by a notice served by the Agency.

False statement.

50.—(1) It shall be an offence for a facility to make a statement which is known to be false or misleading particularly, where the statement is made—

(*a*) in purported compliance with a requirement to furnish any information imposed by or under any provision of these Regulations ;

(*b*) for the purpose of obtaining a permit for the facility for variation, transfer or surrender of a permit ;

(*c*) to intentionally make a false entry in any record pertaining to the permit : and

(*d*) with intent to deceive, to forge or use a document issued or authorized to be issued under a condition of a permit.

(2) It shall be an offence to make a statement or have in possession a document that is likely to mislead or deceive the Agency.

Use of Banned Chemicals/ Pesticides.

51. It shall be an offence for any facility to use banned chemicals/ pesticides.

Failure to Comply with Abatement Measures.

52.—(1) It shall be an offence if a facility fails to :

(*a*) take appropriate measures to remove or otherwise treat and dispose of any effluent to minimize adverse effects ;

(*b*) take measures required by the Agency after unauthorized release of effluent ;

(*c*) remediate the environment to the standard prescribed by the Agency ;

(*d*) furnish all information to the inspector ;

(*e*) remove equipment or contain materials causing release into the environment from within the facility when requested by inspector ;

(*f*) produce document when requested by the inspector ;

(*g*) comply with the guidelines with respect to the handling, storing and transport of any effluent ; and

(*h*) ensure the use of Personnel Protective Equipment (PPE) while handling, storing, treating, or disposing of wastes.

(2) It shall be an offence if a facility :

(*a*) handles effluent in a manner which causes adverse effect to human health and the environment ;

(*b*) knowingly obstructs the inspectors from performing their duties ;

(*c*) dismisses or suspends or sanctions employee(s) who report(s) contravention of the NESREA Act ;

(*d*) imposes penalty on employee who reports cases of contravention of the Regulations to the Agency ;

(*e*) transports any effluent and sludge which is not covered by a manifest ,

(*f*) transports effluent and sludge which are not completely enclosed, covered and secured ;

(*g*) transports effluent and sludge in bulk without prior authorization from the Agency.

Failure to Report.

53. It shall be an offence if a facility fails to :

(*a*) maintain records of all discharges ;

(*b*) file quarterly and annual reports of all discharges.

Discharge of Effluent beyond Permissible Level.

54. It shall be an offence for a facility to :

(*a*) release effluent and sludge into the environment in excess of permissible levels.

(*b*) fail to report release of effluent and sludge into the environment in excess of permissible level as contained in Schedules I, IV and XIV to these Regulations.

(*c*) fail to take reasonable measures to prevent, reduce or remedy the adverse effect of effluent, sludge and emissions released into the environment.

Penalties.

55.—(1) Any person who violates the provisions of these Regulations commits an offence and shall on conviction, be liable to a fine not exceeding ₦200,000 or to imprisonment for a term not exceeding six months or to both such fine and imprisonment and an additional fine of ₦5,000 for every day the offence subsists.

(2) Where the offence under these Regulation is committed by a body corporate, it shall on conviction, be liable to a fine not exceeding ₦1,000, 000 and an additional fine of ₦50, 000 for every day the offence subsists.

PART VIII—MISCELLANEOUS

Interpretation.

56. In these Regulations ·

"*Act*" means the National Environmental Standards and Regulations Enforcement Agency (Establishment), Act 2007 ;

"*Agency*" means the National Environmental Standards and Regulations Enforcement Agency (NESREA)

"*Air Emission*" means any emission or entrainment process emanating from a point, non-point or mobile source that results in air pollution.

"*Air pollution*" means any change in composition of the air caused by smoke, soot, dust (including Fly-ash),cinders, solid particle of any kind, gases, fumes, aerosols and odorous substances.

"*Condenser wastewater*" means effluent originating from a factory condenser.

"*Designated Officer*" means a person who has been appointed by the Agency to be responsible for processing applications with respect to activities designated under these regulations, and includes an acting officer.

"*Director General/Chief Executive Officer* (DG/CEO)" means the Director General of the National Environmental Standards and Regulations Enforcement Agency (NESREA).

"*Effluent*" means waste water treated or untreated that is discharged from a treatment plant, sewer, or industrial outfall resulting from the commercial or industrial use of water.

"*Enforcement*" means actions to obtain compliance with environmental laws, rules , regulations or agreements and / or obtain penalties or criminal sanctions for violations.

"*Environment*" means the sum of all external conditions affecting the life, development and survival of an organism.

"*Environmental Audit* (EAu.)" means :

(*a*) an independent verification of current status of a facility's compliance with applicable legislative requirements.

(*b*) an independent evaluation of a facility's environmental compliance, policies, practices and control.

"*Environmental Impact Assessment* (EIA)" means the process of identifying, predicting, evaluating and mitigating the biophysical, social and other relevant effects of development proposals prior to major decisions being taken and commitments made.

"*Environmental Impact Statement* (EIS)" means a document arising from the EIA required by NESREA for major projects or legislative proposals significantly affecting the environment. A tool for decision making, it describes the positive and negative effects of the undertaking and lists alternative actions.

"*Emission*" means the direct or indirect release of substances, vibrations, heat or noise from individual or diffuse sources in a facility into the air, water or land.

"*Emission limit*" means the mass, expressed in terms of specific parameters, concentration or level of an emission, which may not be exceeded during one or more periods of time.

"*Extension*" means an increase in size, volume or other physical dimensions of an activity such that the increase may cause an adverse effect if not properly mitigated.

"*Facility*" means a person, natural or body corporate, or any inanimate object like plastics, rubber, tyres and foam manufacturing and processing outfit, etc.

"*Hazardous waste*" Means waste with properties that make it dangerous or potentially harmful to human health or the environment as described in the NESREA Act 2007

"*Holder*" means holder of a permit or Permittee.

"*Grey water*" means waste water resulting from the use of water for domestic purposes, but does not include human excreta.

"*Influent water*" means either processed waste water or raw water from a river, stream, spring or canal, or water abstracted from underground and used by a facility;

"*Inspection Officer/Inspector*" means an officer of the Agency or its representative who has the legal authority to conduct inspection as specified in the NESREA Act.

"*Sludge*" means paste, sediments or other residue from industrial processes and sewage collection and treatment system

"*Spot sampling*" means sample of liquid or sediments obtained at a specific depth or location.

"*Treated sludge*" means the sludge which has undergone biological, chemical, heat treatment, long term storage or any other appropriate process so as to reduce or completely eliminate its toxicity/hazards to human and the environment.

"*Five Rs*" means Reduce, Repair, Reuse, Recycle and Recover.

"*Modification*" means a change in any activity that may have a negative environmental impact if not properly mitigated and includes, but not limited to, the expansion of the same process, addition of product lines and replacement of equipment with different technology other than that presently in use.

"*Permit*" means an official document, authorization, license, or equivalent control document issued by the Agency to implement the requirements of these regulations to discharge effluent especially for a limited period of time.

"*Permittee*" means an individual/group of individual(s)/organization(s)/ facility(s) that have been empowered by the permit to discharge effluent.

"*Polluter*" means anybody who discharges substances beyond the permissible limits.

"*Polluter-Pays-Principle*" means the principle that a facility that causes pollution should pay for the cost of removing it, or provide compensation to those who have been affected by it.

"*Minister*" means the Honourable Minister of Environment.

"*Water bodies*" means underground water, river, stream, spring, canal, reservoir, well, lake, lagoon, ocean etc.

"*Water efficient device*" means any device that minimizes the use of water in the production process.

Wastewater system—means

(*a*) a sewer, conduit, pump, engine or other appliance used or intended to be used for the reception, conveyance, removal, treatment and disposal of effluent ; and

(*b*) does not include house sewers.

"*Watercourse*" means any natural or artificial channel, pipe or conduit, excluding the sewage system, carrying, or that may carry, and discharging water directly or indirectly into a water body.

SCHEDULE I

Regulations 5(1), 14(2)(3), 17(1)(2) and (3) 18(1)(2), 19(1)(2) and 54(*b*)

EFFLUENT LEVELS FOR PLASTICS AND RUBBER MANUFACTURING INDUSTRIES

S/N	*Parameter*	*Unit*	*Guideline value*
1.	pH	S.U	6 - 9
2.	COD	mg/l	250
3.	TSS	mg/l	50
			25 (electroplating)
4.	Oil and grease	mg/l	10
5.	Aluminium	mg/l	3
6.	Arsenic	mg/l	0.1
7.	Cadmium	mg/l	0.1
8.	Chromium (total)	mg/l	0.1
9.	Chromium (hexavalent)	mg/l	0.5
10.	Copper	mg/l	0.1
11.	Iron	mg/l	3
12.	Lead	mg/l	0.2
13.	Mercury	mg/l	0.01
14.	Nickel	mg/l	0.5
15.	Silver	mg/l	0.2
16.	Tin	mg/l	2
17.	Zinc	mg/l	2
18.	Cyanides (total)	mg/l	1
19.	Cyanides (free)	mg/l	0.2
20.	Ammonia	mg/l	10
20. (electroplating)			
21.	Fluorides	mg/l	20
22.	Phenols	mg/l	0.5
23.	Total Nitrogen	mg/l	15
24.	Total Phosphorus	mg/l	5
25.	Sulphides	mg/l	1
26.	VOCs	mg/l	0.1
27.	Toxicity	To be determined on a case specific basis	
28.	Temperature increase	°C	<3[a]

[a]At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity.

SCHEDULE II

Regulation 14(2)(*b*), 21, 22 and 26(1)

AIR EMISSION LEVEL FOR PLASTIC AND RUBBER MANUFACTURING INDUSTRIES

S/N	*Pollutant*	*Unit*	*Guideline value*
1.	VOCs - surface cleaning	mg/Nm^3	20-75(1)
2.	VOCs - plastic coating	mg/Nm^3	100 (up to 15 ton/y solvent consumption) 75 (more than 15 ton/y solvent consumption) 50 (drying processes)
3.	VOCs - rubber conversion	mg/Nm^3	20(2)
4.	TOC - rubber vulcanization	mg/Nm^3	80
5.	Volatile Halogenated Hydrocarbons - metal surface treatments	mg/Nm^3	20
6.	Particulate Matter - plastic processing	mg/Nm^3	3
7.	Hydrogen Chloride	mg/Nm^3	10
8.	Nitrogen Oxides(3)	mg/Nm^3	350
9.	Ammonia	mg/Nm^3	50

Notes :

(1) As 30 minute mean for contained sources. 20 mg/Nm^3 for waste gases from surface cleaning using VOCs classified as carcinogenic, mutagenic or toxic to reproduction (risk phrases R45, R46, R49, R60, R61) with mass flow greater than or equal to 10g/hour ; and / or halogenated VOC classified with risk phrase R40 and having a mass flow greater than or equal to 100g/hour) ; 75 mg/Nm^3 for waste gases from other surface cleaning

(2) Facilities with solvent consumption greater than 15 tonnes/year.

(3) Dry air at 11 percent O^2.

SCHEDULE III

POTENTIAL RELEASE OF SUBSTANCES AT HIGH PROCESSING TEMPERATURES FOR PLASTIC MANUFACTURING INDUSTRIES

S/N	*Plastics*	*Examples of detected Constituents*
1.	PVC-Polyvinyl chloride	Hydrogen chloride, Vinyl Chloride monomer
2.	ABS - Acrylonitrile-Butadiene-	Styrene copolymer Styrene, phenol, butadiene
3.	PP - Polypropylene	Aldehydes, Butane, other alkanes, alkenes
4.	POM - Acetals	Formaldehyde
5.	LDPE, MDPE, HDPE Polyethylene (low, medium and high density)	Aldehydes, Butane, other alkanes, alkenes
6.	PS - Polystyrene	Styrene, aldehydes

SCHEDULE IV

Regulations 14(2)(*b*), 17(1)(2)(3), 18(1)(2), 19(1)(2)(*d*) *and* 54(*b*)

EFFLUENT LIMITATION FOR PETROLEUM - BASED POLYMER INDUSTRIES

S/N	Parameter	Unit	Guideline value
1.	pH	S.U	6 - 9
2.	Temp increase	°C	3
3	BOD^5	mg/l	25
4.	COD	mg/l	150
5.	Total Nitrogen	mg/l	10
6.	Total phosphorus	mg/l	2
7.	Sulphide	mg/l	1
8.	TSS	mg/l	100
9.	Oil and grease	mg/l	10
10.	Cadmium	mg/l	0.1
11.	Chromium (total)	mg/l	0.5
12.	Chromium (hexavalent)	mg/l	0.1
13.	Copper	mg/l	0.5
14.	Lead	mg/l	0.5
15.	Mercury	mg/l	0.01
16.	Nickel	mg/l	0.5

17.	Zinc	mg/l	2
18.	Fluorides	mg/l	20
19.	Phenols	mg/l	0.5
20.	Vinyl chloride	mg/l	0.05
21.	Benzene	mg/l	0.05
22.	Adsorbable organic halons	mg/l	0.3
23.	Total Nitrogen	mg/l	15
24.	Total Phosphorus	mg/l	5
25.	Sulphides	mg/l	1
26.	Toxicity	To be determined on a case specific basis	

SCHEDULE V *Regulation* 14(2)(*b*) *and* 26(1)

AIR EMISSION LIMITATIONS FOR PETROLEUM-BASED POLYMER INDUSTRIES

S/N	*Pollutant*	*Unit*	*Guideline value*
1.	PM	mg/Nm^3	20
2.	Nitrogen Oxides	mg/Nm^3	300
3.	Hydrogen Chloride	mg/Nm^3	10
4.	Sulphur Oxides		500
5.	Vinyl Chloride (VCM)	g/t s-PVC g/t e-PVC	80 500
6.	Acrylonitrile	mg/Nm^3	5 (15 from dryers)
7.	Ammonia	mg/Nm^3	15
8.	VOCs	mg/Nm^3	20
9.	Heavy metals (Total)	mg/Nm^3	1.5
10.	Mercury	mg/Nm^3	0.2
11.	Formaldehyde	mg/Nm^3	0.15
12.	Dioxins/ Furans	ng TEQ/Nm^3	0.1

SCHEDULE VI *Regulation* 7(1)

BEST PRACTICES

(*a*) Embracing cleaner production with emphasis on water reuse and recycling ;

(*b*) Encourage efficient use of process chemicals through recovering and reusing process chemicals and dye solution ;

(*c*) Substituting with less-toxic dye carriers wherever possible and avoid carriers containing chlorine ;

(*d*) Using peroxide-based bleaches instead of sulphur and chlorine-based bleaches, where feasible ;

(*e*) Adopting counter-current rinsing .

(*f*) Install vapour recovery systems to control air emissions to prevent the release of toxic organics into air.

(*g*) Replace highly toxic and persistent ingredients with less toxic and degradable ones.

(*h*) Control loss and wastage of active ingredients.

(*i*) Recycle packaging materials

(*j*) Recover solvents and reduce to the barest minimum the use of halogenated solvents.

(*k*) Use equipment wash down waters as make-up solutions for subsequent batches.

(*l*) Minimize wastage by inventory control, and find uses for off-specification products.

(*m*) Control Fugitive Emissions mostly Volatile Organic Compounds (VOC) emissions associated with handling of chemicals in open vats and mixing processes. The prevention and control techniques recommended include the following:

*Substitution of less volatile substances, such as aqueous solvents ,

* Collection of vapours through air extractors and subsequent treatment of gas stream by removing VOCs with control devices such as condensers or activated carbon absorption ;

* Collection of vapours through air extractors and subsequent treatment with destructive control devices such as Catalytic Incinerators, Thermal Incinerators, Enclosed Oxidizing Flares, etc.

* Use of floating roofs on storage tanks to reduce the opportunity for volatilization.

(*n*) Maintain good housekeeping at all times.

SCHEDULE VII *Regulations* 5(2), 7(1) and 19(4)

POLLUTION PREVENTION AND CONTROL TECHNIQUES

Recommended pollution prevention and control techniques for emission of particulate matter include as appropriate -

* Optimization of processing conditions for handling and mixing of dry additives and polymer granulation ;

* Filtration of air exhaust from material handling and granulation areas using a cyclone and/or bag house ;

* Use of enclosed storage for all solvent and cleaning fluids and for all low boiling point reagents ;

* Installation of ventilation control systems, especially at the points of highest processing temperatures along the production line ;

*Installation of local exhaust extraction systems and activated carbon absorbers ,

* Installation of recuperative/regenerative thermal oxidizers, catalytic/ regenerative catalytic oxidizers, condensers or biofilters ;

Development and implementation of a Solvent Management Plan.

* Use of chemicals in small, pre-weighed, sealed bags for direct addition to the mixer to limit dust generation ;

* Emissions from the internal mixers should be controlled using bag filters.

* Exhausts from the collection hoods should be conveyed to the bag filters to control particulate and possibly particle-bound semivolatiles[3], ammonia, and metals (e.g. zinc, nickel, selenium, lead, cadmium, antimony compounds and titanium dioxide).

* Dust and fine rubber particles, generated by surface grinding, should be controlled by a primary cyclone and a secondary bag filter or two-stage electrostatic precipitator or any other approved method ;

* Solvents should be carefully managed to prevent spills and fugitive emissions ;

*There should be guidance on storage and handling of solvents, and other hazardous materials ;

* Solvent use should be minimized while water, silicon, and non-solvent-based release compounds should be used where possible ,

Emission abatement equipment should be used in the event of significant emissions of VOCs.

* Waste streams should be properly segregated (e.g. uncured rubber, cured rubber, and off-specification products) ;

* Uncured rubber as well as slightly cured waste rubber should be recycled to Banbury mixers ;

* Cured and off-specification rubber waste should either be recycled at the facility or reused (through shredding) to make other products ,

* Scraps from thermoplastic polymers should be reground and mixed with virgin materials ;

* If reuse or recycling is not possible, the waste rubber (including scrap polymer parts that have been excessively heated) should be disposed of according to industrial waste control recommendations prescribed by NESREA and the state regulatory authorities.

SCHEDULE VIII *Regulation* 13(2)

BANNED/RESTRICTED CHEMICALS
CONTROLLED SUBSTANCES UNDER THE MULTILATERAL ENVIRONMENTAL AGREEMENTS ON ENVIRONMENT

Chemical/Pesticide	*CAS Number*
ROTTERDAM CONVENTION	
PART 1— Banned Chemicals and Pesticides	
2,4,5-T	93-76-5
Aldrin	309-00-2
Binapacryl	485-31-4
Captafol	2425-06-1
Chlordane	57-74-9
Chlordimeform	6164-98-3
Chlorobenzilate	510-15-6
DDT	50-29-3
Dieldrin	60-57-1
DNOC and its salts (such as mmonium salt, potassium salt and sodium salt)	534-52-1;2980-64-5;5787-96-2;2312-76-7
Dinoseb and its salts and esters	88-85-7
EDB (1,2-dibromoethane)	106-93-4
Ethylene dichloride	107-06-2
Ethylene oxide	75-21-8
Fluoroacetamide	640-19-7
HCH (mixed isomers)	608-73-1
Heptachlor	76-44-8
Hexachlorobenzene	118-74-1
Lindane (gamma-HCH)	58-89-9
Mercury Compounds	
Monocrotophos	6923-22-4

Parathion	56-38-2
Parathion (all formulations - aerosols, dustable powder (DP), emulsifiable concentrate (EC), granules (GR) and wettable powders (WP) - of this substance are included, except capsule suspensions (CS))	56-38-2
Pentachlorophenol	87-86-5
Toxaphene (Camphechlor)	8001-35-2
Dustable powder formulations containing a combination of benomyl at or above 7%, carbofuran at or above 10% and thiram at or above 15%	17804-35-2 ; 1563-66-2 ; 137-26-8
Methamidophos (Soluble liquid formulations of the substance that exceed 600 g active ingredient/l)	10265-92-6
Methyl-parathion (emulsifiable concentrates (EC) with 19.5%, 40%, 50%, 60% active ingredient and dusts containing 1.5%, 2% and 3% active ingredient)	298-00-0
Monocrotophos	6923-22-4
Phosphamidon (Soluble liquid formulations of the substance that exceed 1000 g active ingredient/l)	13171-21-6 (mixture, (E)&(Z)-isomers) 23783-98-4 ((Z)-isomer), 297-99-4 ((E)-isomer)
Actinolite asbestos	77536-66-4
Amosite, asbestos	12172-73-5
Anthophylite	77536-67-5
Tetraethyl lead	78-00-2
Tetramethyl lead	75-74-1
Tremolite	77536-68-6
Tris(2,3 dibromopropyl) phosphate	126-72-7
PART 2—Severely Restricted Chemicals and Pesticides	
Polybrominated Biphenyls (PBBs)	36355-01-8(hexa-) 27858-07-7(octa-) 13654-09-6(deca-)
Polychlorinated Biphenyls (PCBs) Polychlorinated Terphenyls (PCTs)	1336-36-3 61788-33-8

STOCKHOLM CONVENTION	
PART 3—PERSISTENT ORGANIC POLLUTANTS - (POPs)	
Aldrin	309-00-2
Chlordane	57-74-9
DDT	50-29-3
Dieldrin	60-57-1
Dioxins	
Endrin	
Furans	
Heptachlor	76-44-8
Hexa Chloro Benzene (HCB)	11-74-1
Polychlorinated Biphenyls (PCBs)	1336-36-3
Mirex	
Toxaphene	8001-35-2
MONTREAL PROTOCOL	
PART 4—OZONE DEPLETING SUBSTANCES	
Trichlorofluoromethane	75-69-4
Dicholrodifluoromethane	75-71-8
Trichlorotrifluoroethane	76-13-1
Dichlorotetrafluoroethane	76-14-2
	76-15-3
Bromochlorodifluoromethane	353-59-3
Bromotrifluoromethane	75-63-8
Dibromotetrafluoroethane	76-15-3
Chlorotrifluoromethane	75-72-9
Pentachlorofluoroethane	354-56-3
Tetrachlorodifluoroethane	76-12-0
Tetrachloromethane or carbon tetrachloride	56-23-5
Trichloroethane or methyl chloroform	71-55-6
Chlorodifluoromethane	75-45-6
Dichlotrifluoroethane	306-83-2
Chlorotetrafluoroethane	2837-89-0
Dichlorofluoroethane	1717-00-6
Chlorodifluoroethane	75-68-3
Methyl Bromide or Bromoethane	74-83-9
1,2-dibromoethane (EDB)	106-93-4
BASEL CONVENTION All wastes arising from the chemicals covered under the Rotterdam and Stockholm Conventions as well as the Montreal Protocol	

Others	
Acetic acid	64-19-7
Acetone	67-64-1, 7217-25-6
Acetyl bromide	506-96-7
Allyl isothiocyanate	57-06-7
Ammonia (35% or greater)	
Ammonia (less than 35%)	7664-41-7
Ammonium Nitrate	6484-52-2
Antimony pentachloride	7647-18-9
Antimony trihydride	7803-52-3
Arsine	7784-42-1
Arsenical substances	
Boric acid; Sodium borate	10043-35-3, 1330-43-4
Boron tribromide	10294-33-4
Boron trichloride	10294-34-5
Boron trifluoride	7637-07-2
Bromine; Bromine solutions	7726-95-6,
Captafol	2939-80-2, 2425-06-1
Carbamates,	598-55-0
Bendiocarb	22781-23-3
BPMC (Fenobucarb)	3766-81-2
Mercaptodimethur (methiocarb)	2032-65-7
Calcium Ammonium Nitrate	
Carbon monoxide	630-08-0
Carbon tetrafluoride	75-73-0
Chlorinated hydrocarbons	85422-92-0
Chlorine	7782-50-5
Chlorine trifluoride	7790-91-2
Chlorobenzenes	108-90-7
Chlorophenols	25167-80-0
Chlorophenoxyacids ; their salts, esters, amines Chlorosilanes	94-74-6
Chlorosulphonic acid	7790-94-5
Chromic acid	1333-82-0
Cyanides	
Diborane	19287-45-7
Dibromochloropropane	96-12-8
Diethyl sulphate	77-78-1
Epichlorohydrin	106-89-8
Ethyl mercaptan	75-08-1

Ethylene imine	151-56-4
Ferric chloride	7705-08-0
Fipronil	120068-37-3
Fluorine	7782-414
Fluoroacetamide	640-19-7
Formic acid	64-18-6
Germane	
Hydrazine anhydrous; Hydrazine aqueous solutions	302-01-2
Hydrochloric acid	7647-01-0
Hydrofluoric acid	7664-39-3
Hydrogen chloride	7647-01-0
Hydrogen cyanide; Hydrocyanic acid	74-90-8,
Hydrogen Peroxide	7722-84-1
Hydrogen selenide	7783-07-5
Isocyanates	
Mercury compounds including inorganic mercury compounds, alkyl mercury compounds, alkyloxyalkyl and aryl mercury compounds, and other organic compounds of mercury	
Metanil yellow (sodium salt of metanilylazo-diphenylamine)	587-98-4
Methyl chloride	74-87-3
Methyl mercaptan	74-93-1
Monomethyltetrachloro diphenyl methane	76253-60-6
Monomethyl-dichloro-diphenyl methane	76253-60-24
Monomethyl-dibromodiphenyl methane	99688-47-8
Neonicotinoid compounds used as pesticides	138261-41-3
Nitric acid (95% or greater)	
Nitric acid (less than 95%)	
Nitric oxide	10102-43-9
Nitrogen trifluoride	7783-54-2
Nitromethane	75-52-5
Oleum	8014-95-7
Orange II [sodium salt of p-(2-hydroxy-1-naphthylazo) benzenesulphonic acid]	
Organic peroxides	
Organo-tin compounds	
Perchloromethyl mercaptan	594-42-3

Perfluorooctane sulfonate (PFOS)	29457-72-5
Phenols	
Phenol ethoxylate	9016-45-9
Phosgene	75-44-5
Phosphides	
Phosphine	603-35-0
Phosphorus compounds, excepting	
Dimethoate	
Fenchlorphos	
Fenitrothion	
Phenthoate	
Profenophos	
Prothiophos	
Quinalphos	
Phosphorus oxybromide	7789-59-5
Phosphorus oxychloride	10025-87-3
Phosphorus pentabromide	7789-69-7
Phosphorus pentachloride	10026-13-8
Phosphorus pentafluoride	7647-19-0
Phosphorus trichloride	7719-12-2
Polybrominated diphenyl ethers	
Potassium hydroxide	1310-58-3
Potassium Nitrate	7757-79-1
Potassium Perchlorate	7778-74-7
Prochloraz	67747-09-5
Pyrethroid compounds used as pesticides	
Sodium azide	26628-22-8
Sodium Chlorate	7775-09-9
Sodium hydroxide	1310-73-2
Sodium Nitrate	7631-99-4
Sulphur tetrafluoride	7783-60-0
Sulphur trioxide	7446-11-9
Sulphuric acid	7664-93-9
Sulphuryl chloride	7791-25-5
Sulphuryl fluoride	2699-79-8
Titanium tetrachloride	7550-45-0
Tungsten hexafluoride	7783-82-6
Urea	57-13-6

SCHEDULE IX *Regulation* 4(2)(3)

DRAFT GUIDE TEMPLATE FOR EMERGENCY PROCEDURES IN INDUSTRY

CONTENTS

STEP 4—IMPLEMENT THE PLAN

Implementation means more than simply exercising the plan during an emergency. It means acting on recommendations made during the vulnerability analysis, integrating the plan into company operations, training employees and evaluating the plan.

Integrate the Plan into Company Operations

Conduct Training, Drills and Exercises

SCHEDULE X *Regulation* 3(1) (*c*)

GUIDELINES FOR PREPARING ENVIRONMENTAL MANAGEMENT PLAN (EMP)

An Environmental Management Plan (EMP) describes the process that an organization will follow to maximize its compliance and minimize harm to the environment. This plan also helps an organization map its progress toward achieving continual improvements.

Regardless of the organization's situation, all environmental plans must include the following elements :

* Policy ;
* Planning ;
* Implementation and Operation ,
* Checking and Corrective Action ;
* Management Review and commitment.

POLICY .

Policy statements are important to an organisation because they help anchor the organisation on a core set of beliefs. These environmental guiding principles will enable all members of an organisation to focus on the same objective. They provide an opportunity for outside interests to understand the operation of the organisation. The policy should be focused, concise and easy to read. The environmental policy should address the following :

* Compliance with legal requirements and voluntary commitments ;
* Minimising waste and preventing pollution ;
* Continual improvement in environmental performance, including areas not subject to regulations ;
* Sharing information on environmental performance with the community.

Planning

The planning should define the organisation's environmental footprints and set goals. Goals and objectives should focus on maximising their positive impacts on the environment. When evaluating, the following elements should be considered :

* Impacts on the environment through its activities, products and services ;
* Legal requirements associated with protecting the environment ,
* Meaningful and focused environmental objectives and targets.

Implementation and Operation

Implementation and operation should define the activities that the organisation will perform to meet its environmental objectives and targets. The EMP should identify the activity each person is responsible for, ensure completion and set targets for each of the identified activities. In addition, this area should specify employee training, communication and outreach activities that are necessary to ensure successful implementation of the plan.

Checking and Corrective Action

The EMP should describe the process that will be followed to verify proper implementation and how problems will be corrected in a timely manner. Routine evaluation and continual improvement to the process is necessary to make sure that the plan successfully leads towards the completion of environmental objectives and targets.

Management Review and Committement to Improvement

Routine review and support by management is a necessary and meaningful tool for the organization. This should identify the improvement that will be carried out to ensure that the plan is appropriately implemented to meet its environmental objectives.

SCHEDULE XI *Regulation 25*

MEASURES TO PREVENT AND CONTROL FIRE HAZARD DUE TO PENTANE AND OTHER HIGHLY FLAMMABLE CHEMICALS

(Raw expandable polystyrene (EPS) bead typically contains pentane, an extremely flammable gas)

* A work permit system should be established in areas where EPS is stored ;

* Smoking should be prohibited anywhere EPS bead is manufactured, used, or stored ;

* During pre-expansion, pentane vapour is mixed with steam which reduces its flammability. Pentane/steam vapour should be vented ;

* Conveying ducts should be grounded and product conveyed at slow speeds, to minimize static electricity generation ;

* Expandable beads and pre-forms should be stored in a well-ventilated area. In the maturing silos, explosive mixtures may be generated in the head space. Silos should be grounded and ventilated to keep levels of pentane below the lower explosive limit.

* Finished goods should also be kept in a ventilated and fire proof place after molding ;

* Electrical switches, lighting, motors and ventilation fan and portable electrical devices should be suitable for use in areas where flammable vapours may be present ;

* Hot-wire cutting may cause fires. The block transport system should be interlocked so that if the conveyor stops, the electrical supply to the wire is turned off ;

* A gas monitor should be used to identify where pentane 'hot spots' are likely to occur, and to monitor concentrations ;

* EPS handling areas should have a fire extinguishing system designed based on the results of a hazard analysis.

* Sources of ignition should be eliminated.

Metal parts should be grounded to reduce sparks formation due to static electricity

* The use of open flames and smoking should be forbidden. A magnetic separator should be installed to reduce the risk of metals pieces entering the granulator

OCCUPATIONAL EXPOSURE, PREVENTION AND CONTROL MEASURES

* Isolation (e.g. isolated storage, separate process area, enclosures, closed systems) and local exhaust ventilation should be adopted as the primary engineering controls in the plastics and rubber manufacturing processes.

* Controls should be implemented in compounding and mixing areas, heated curing areas including autoclaves, finishing and repair areas and controlling off-gases from exotherms ;

* Adequate ventilation control systems and exhaust extraction with activated carbon adsorbers should be installed to prevent operator exposure to toxics, dusts and fibers.

* Adequate ventilation should be provided and should not be less than six air changes per hour ;

* Adequate ventilation should be used in work areas to maintain the concentration of the isocyanates below 25 percent of the concentration that may cause harmful effects ,

* The residence time and processing temperature of used polymer formulation in the barrel should be set to minimize plastics overheating and prevent fume generation ;

* The "burning out" of nozzles, blocked dies, injectors, material transfer valves, screen filter breaker plates, as well as the burning of solidified material should be conducted under extraction, using pyrolysis units, or by other methods which prevent fume exposure ;

* Whenever heat-sensitive materials (e.g. acetals and PVC) are processed, clear emergency procedures, including possible evacuation of the likely affected area should be developed noting that potential release of formaldehyde or hydrogen chloride (HCl) may result from the rapid degradation of the polymer in the barrel.

* Temperatures should be monitored and controlled in all sections of the production line. Adequate and reliable thermocouples should be installed to verify that the material is processed at the correct temperatures.

* Proportional-Differential-Integral controllers or PC controlled heating systems are recommended to minimize the cycling thermal fluctuation responsible for production instabilities and release of fumes.

* Gloves, protective clothing, eye protection and other relevant PPE should be worn, especially when working with resins, curing agents and solvents.

* Respirators should be used where airborne solvent and dust levels are potentially high (e.g. during resin mixing and finishing/repair activities), where large surface areas and significant hand work are involved, where exotherms are experienced and whenever polyurethane-based materials are produced or handled at temperatures that might degrade the polymer ;

* Adequate lighting should be ensured in the shop floor areas to improve illumination.

* Operators should be provided with Material Safety Data Sheet (MSDS) from the supplier/distributor for the particular formulation used.

* Signages/warnings should be strategically located at the shop floor.

SCHEDULE XIII *Regulation* 11(1)

GUIDELINES FOR EXTENDED PRODUCER RESPONSIBILITY PROGRAMME

As part of the Strategic Alliance Programme of the Agency, all manufacturers and importers of Plastics, Rubber, tyres and products shall partner with the Agency to establish an effective Extended Producer Responsibility Programme.

The manufacturers and importers shall submit a proposal for an Extended Producer Responsibility Programme to the Agency for approval. Such a proposal shall include elements for successful implementation of the scheme as follows ;

(*a*) establish a process for the collection, handling, transportation and final treatment of post-consumer products, regardless of who the original brand owner is ;

(*b*) incorporate the principles of a pollution prevention hierarchy by moving progressively from disposal to reduction, reuse, recycling and recovery of post-consumer products ;

(*c*) submit to the Agency on or before June 30 in each year, an annual report on their consumer products stewardship program during the previous fiscal year including, but not limited to, information with respect to :

(*i*) the total amount of consumer plastics, rubbers, tyres and other related products sold and post-consumer products collected ,

(*ii*) the total amount of post-consumer plastics, rubbers, tyres and other related products processed or in storage ;

(*iii*) the percentage of post-consumer chemicals, pharmaceuticals, cosmetics, batteries paints, and other related products that were treated or contained, reduced, reused, recycled or recovered ;

(*iv*) efforts taken through consumer plastics, rubbers, tyres and other related products marketing strategies to reduce post-consumer products and packaging waste ;

(*v*) the types of processes used to reduce, reuse, recycle or recover post-consumer plastics, rubbers, tyres and other related products, including but not limited to details of efforts to incorporate the priorities of a pollution prevention hierarchy by moving progressively from disposal to reduction, reuse, recycling and recovery of post-consumer products ,

(*vi*) the location of return collection facilities or depots ,

(*vii*) the location of any long-term containment or final treatment and processing facilities for post-consumer products and packaging waste ;

(*viii*) the types of educational information and programs provided ;

(*ix*) the process of internal accountability used to monitor environmental effectiveness ; and

(*x*) any other information requested by the Agency.

SCHEDULE XIV *Regulations* 20(2) and 54(*b*)

SLUDGE DISPOSAL PERMISSIBLE LIMIT

DRY SLUDGE GENERATION FROM WASTEWATER TREATMENT	
Parameters	Sludge Production Kg of DS/tonne
Sludge (total)	200
Primary Treatment:	
Mixing- sedimentation	80
Mixing-Chemical treatment+	150 - 200
Sedimentation	150 - 200
Mixing chemical treatment+	
Flotation	

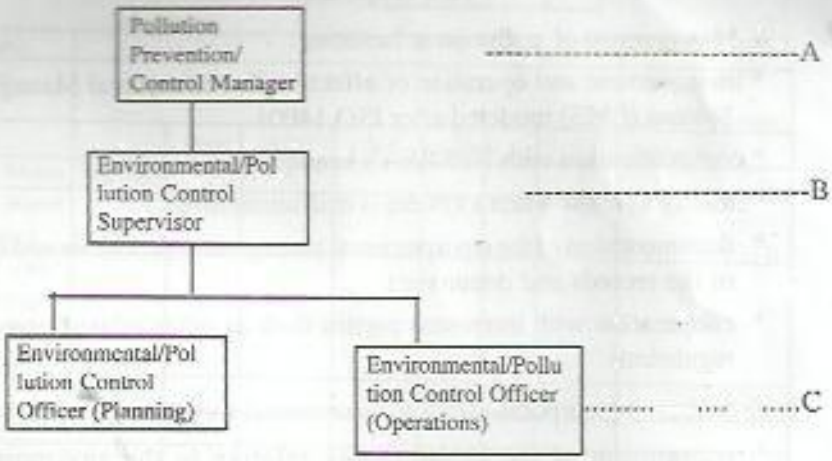
SCHEDULE XV *Regulation* 10(1) (2)

ORGANIZATIONAL SYSTEM FOR POLLUTION CONTROL

Each facility shall be mandated by the Agency to have an organizational system that will carryout Internal Environmental Auditing of the facility as well as liaise with NESREA and other Government Authorities.

The Organizational system shall have Environmental/Pollution Control Manager, Environmental/Pollution Control Supervisor and Environmental/ Pollution Control Officers with relevant scientific background as minimum qualification. These shall be certified by the Agency.

ORGANIZATION FOR POLLUTION PREVENTION



FUNCTIONS

A- Manages the pollution prevention and control issues of the facility

B- Supervises and directs the Pollution Control Officers (only applicable in facilities where large amount of smoke and sewage is generated)

C- Deals with technical matters like inspection of the facility and raw materials.

Note: C depends on the size of the facility; for a large facility there shall be PCM for Air, Land and Water

SPECIFIC DUTIES OF THE POLLUTION CONTROL MANAGER (PCM)

The specific duties of the PCMs are .

* to ensure that the responsibilities are very clear for all the staff involved in pollution prevention and control ,

* to ensure that daily pollution prevention and control practices are complied with ; and

* to maintain smooth and proper environmental and safety communications within the facility and the regulatory authorities as well as the host community.

CONCRETE POLICIES CONCERNING INDUSTRIES' POLLUTION CONTROL

1. Management of pollution at facilities :

* improvement and operation of effective Environmental Management System (EMS) modeled after ISO.14001
* communication with NESREA's headquarters.
* ability to know when a system is malfunctioning
* documentation of the environmental management procedure and control of the records and documents
* cooperation with interested parties such as other related companies regulations

2. Addressing corporate-wide environmental measures :

* recognition of the business risk relative to the environmental management system.
* resourse management including maintenance of competent human resources for effective pollution.
* establishing a corporate-wide environmental management system including risk information feed-back system.
* establishing a redundant monitoring, assessment and self-improvement system
* establishing a contingency plan and its verification.

SCHEDULE XVI *Regulation* 40(3)(4)

NATIONAL ENVIRONMENTAL STAMDARDS AND REGULATIONS ENPORCEMENT AGENCY (NESREA)

QUARTERLY AIR QUALITY/EMISSION REPORT [NESREA EMISSION MONITORING REPORT]

PLEASE COMPLETE AND SUBMIT ONE COPY EACH QUARTER.

FACULTY NAME AND ADDRESS :

Facility e-mail address :

Mail To: National Environmental Standards and Regulations Enforcement Agency (NESREA), # 4, Oro-Ago Crescent, Garki II, Abuja.

TYPE OF SAMPLE								
Parameters	*Monthly Results*							*NESREA's Regulatory Limits*
PHYSICAL :		UNITS	1ST	2ND	3RD			AVERAGE
Particulate Matter	mg/Nm³							
Particulate Matter (KILN System)	mg/Nm³							
Dust (other point source including clinker, cooling, cement grinding)	mg/Nm³							
NOx	mg/Nm³							
SOx	mg/Nm³							
pH								
Total Suspended								
Solids (TSS)	mg/Nm³							
Total Dissolved								
Solids (TDS)	mg/Nm³							
COD	mg/Nm³							
BOD	mg/Nm³							
Alkalinity	mg/Nm³							
Temperature	°C							
Phosphates	mg/m3							
Sulphites	mg/m3							
VOC	mg/Nm³							
Oil Aerosol	mg/Nm³							
Hydrogen Chloride	mg/Nm³							
Dioxin-Furans	mg/							
Cadmium and thallium	TEQNm³ mg/Nm³							

Mercury	mg/Nm³						
PCDD/F	NTU						
CO	mg/l						
Amine	mg/l						
Chlorine	mg/l						
Pb,Cd,and their compounds	mg/l						
Zn	mg/m³						
Ni, CO, Cr,Sn and their compounds	mg/m³						
Cu and their compounds	mg/m³						
Chloride mg/l							
Fluoride mg/l							
H2S	mg/l						
Signature of Certified Operator	Date (Month, day, year)			Date :			
				Signature :			

FORM 2

INCIDENT REPORT FORM

This report is to be completed when accidental discharge, occupational illness or incident occurs. If an employee is injured or gradually developes a job-related illness as a result of his employment at the facility, he must complete and submit the "Incident Report". If the employee is unable to complete the form, the supervisor must complete on his behalf.

1. FACILITY

Name and Address of Facility :.....

.....

.....

No of Employees :.....

.....

Department where the discharge occurred . .....

.....

.....

Place of the accidental discharge :.....

.....

2. DISCHARGE

Cause(s) of discharge ;

Did the discharge occur as a result of mechanical/technical/unskilled application? Please specify.

.....

Was the discharge gaseous, liquid or solid? Please specify.

.....

What was the nature of discharge, sludge, effluent or influent? Please specify.

.....

Into which medium was it discharged to i.e. water body, land, or air? Please specify.

.....

* If water body, specify type of water; pond, stream, lake, river etc.

.....

* if land ;

* Name and location (Geo-reference) of the land where discharge occurred.

.....

.....

.....

* Ways of disposing of discharge; i.e. burying, burning etc please specify.

.....

Was there any previous accidental discharge of this kind? Yes No

If yes, when ?.....

How ?.....

Who was/were the victim(s) ?.....

.....

SCHEDULE XVIII—HEARING CONSERVATION TABLE

Regulation 29(1)

A-Weighted Sound Level(dB)	*Duration (hours)*
80dBx	32
85+	16
90‡	8
95	4
100	2
105	1
110	0.5
115	0.25
120	0.125
125	0.063
130#	0.031

Where :

* Measuring threshold

\+ Hearing Conservation begins - 50% dose

‡ Eight hour criteria level

\# Minimum upper range

A dosimeter is the instrument in noise assessment. It determines the noise level to which employees are exposed by measuring sound over time and analyzing information to produce a noise dose, expressed in a percentage. The employee exposure exceeds the OSHA limits if the noise dose exceeds unity or 100%.

Noise dose (D) is defined as D=C/T
D= noise dose, C= actual duration of exposure in hours,
T= noise exposure limit in hours.

Done at Abuja this 28th day of April, 2011

Mr John Odey
Honourable Minister,
Federal Ministry of Environment