adidas GROUP

Environmental Guidelines

adidas GROUP

TABLE OF CONTENTS

Preface

In order to promote uniform standards in environmental management, the adidas Group has developed tools to measure and assess the environmental performance and risks at factories doing business with us. These Guidelines are based on international industry practice and standards for environmental management and sustainable resource consumption.

The Guidelines detail requirements which will allow suppliers to comply with the adidas Group's Workplace Standards and also support the adidas Group's ongoing development of policies and strategies to address environmental sustainability along our supply chain. The guidelines described here do not necessarily reflect the national laws of all the countries where suppliers are based, and it is the responsibility of the individual suppliers to ensure that they meet all legal requirements and obtain the necessary approvals, permissions and consents related to the environmental impact of their operations.

These Guidelines are minimum requirements only. They are not industry specific and in some cases suppliers may be required to achieve higher standards depending on the nature of the industrial processes or manufacturing activities undertaken on site.

Please consult with SEA's designated environmental experts before making any major investments in the construction or reengineering of systems.

Section 1 – Introduction

The adidas Group Environmental Guidelines have been prepared as a technical reference for our business partners and in particular those involved in manufacturing activities. The Guidelines draw on good industry practice and describe ways to prevent pollution, manage and control environmental impacts and avoid the depletion of natural resources. The performance levels and measures that are set out in these Guidelines are generally achievable using existing technologies, at an affordable cost. In applying these Guidelines, adidas Group' business partners must:

- Understand their obligation under the adidas Group's Workplace Standards.
- Acknowledge and be aligned with the guiding principles set out in Section 1.2 below.
- Comply with all relevant requirements and standards as stated in the Guidelines. When country-specific regulations differ from the levels and measures in the Guidelines, meet whichever is the more stringent.
- Recognise and take action with respect to the specific hazards and risks associated with facility operations and processes.
- Establish site-specific targets for improvement, with an appropriate timetable for achieving them.

These Guidelines complement, and should be read alongside, the adidas Group's Health & Safety Guidelines 2010 and the adidas Group's Environmental Best Practices Guidelines 2005.

1.1 Workplace Standards and Guiding Principles

Performance Passion Integrity Diversity

These are the core values found in sport. Sport is the soul of the adidas Group. We measure ourselves by these values, and we measure our business partners in the same way.
Consistent with these values, we expect our partners – contractors, subcontractors, suppliers, and others – to conduct themselves with the utmost fairness, honesty and responsibility in all aspects of their business.
We use the adidas Group Workplace Standards as a tool to assist us in selecting and retaining business partners who follow business practices consistent with our policies and values. As a set of guiding principles, the Workplace Standards also help identify potential problems so that we can work with our business partners to address issues of concern as they arise. Business partners will develop and implement action plans for continuous improvement in factory working conditions. Progress against these plans will be monitored by the business partners themselves, our internal monitoring team and external independent monitors.
Specifically, we expect our business partners to operate work places where the following standards and practices are implemented: [...]

Environmental Requirements
Business partners must make progressive improvement in environmental performance in their own operations and require the same of their partners, suppliers and subcontractors. This includes: integrating principles of sustainability into business decisions; responsible use of natural resources; adoption of cleaner production and pollution prevention measures; and designing and developing products, materials and technologies according to the principles of sustainability.

Extract from the adidas Group Workplace Standards

The adidas Group's Workplace Standards include specific Environmental Requirements (see insert above). To support these requirements, the adidas Group expects our business partners to commit to a set of guiding principles that require them to:

- Meet or exceed legal requirements.
- Take a precautionary approach to environmental, health and safety challenges.
- Adopt a holistic approach to handle all environmental, health and safety issues as relevant for their operations.
- Continuously develop strategies to reduce consumption of resources, prevent pollution and improve the overall environmental impact from their own operations and those of their suppliers, service providers and subcontractors.
- Continuously develop programmes and objectives, based on results in the areas, both qualitatively and quantitatively measured via indicators and key performance indicators.
- Continuously seek ways to improve the work environment to reduce risks that can cause accidents and pollution. This requires the adoption of a risk management perspective and continuously reducing the production related risks regarding accidents, chemicals and toxic substances, including potential future contamination.
- Adopt and implement certifiable environmental management systems where production processes have the potential for significant environmental impact.

The adidas Group expects our suppliers and partners to develop strategies, set objectives and in general drive improvement in the following – but not limited to – environmental areas:

- Climate change, energy consumption and greenhouse gas emissions
- Emissions to water and air, waste, noise
- Materials and use of resources
- Risks and hazards, including chemicals.

It is our overall ambition that our suppliers and partners continuously improve and reduce their overall environmental, health and safety impact.

1.2 Environmental Permits and Legal Requirements

The adidas Group respects the laws and regulations in the countries in which it operates and requires that its suppliers and partners do the same. For a business to be effective in managing its environmental risks and liabilities it must be compliant with the law. A well run business will meet or exceed regulatory requirements, track legislative changes and obtain and maintain all necessary permits and approvals. Permits and approvals may include, but are not limited to:

- Business licenses
- Environmental impact assessments and land use consents for the nature of the operations and processes on site
- Construction and building permits
- Surface and groundwater abstraction licenses
- Permits for the discharge of wastewater, emission of air pollutants and disposal of hazardous and non-hazardous waste
- Operating permits for boilers, pressurised vessels, and for mechanical, electrical or chemical processes, where required
- Operating licenses for treatment plants and processes and for their operators
- Licenses for the storage and handling of hazardous chemicals or flammable substances
- Permits for the decommissioning of plant and contaminated soil clean-up and remediation
- Handling and disposal of asbestos.

Should any requirement stated in these Environmental Guidelines violate or conflict with the applicable local law, the law takes precedence.

1.3 Environmental Management Systems

The adidas Group's business partners are required to adopt or establish a suitable environmental management system whose scope is related to the content of these Guidelines.

The management system must be designed to ensure:

- Compliance with applicable laws, regulations and adidas Group requirements related to the business partner's operations and products
- Conformance with these Guidelines
- Identification and mitigation of operational risks highlighted through reference to these Guidelines and to on-site environmental risk assessment. It should also facilitate continual improvement.

As a minimum, the management system should contain the following elements:

- ***Company Commitment:*** Corporate statements affirming the business partner's commitment to compliance and continual environmental improvement.
- ***Management Accountability and Responsibility:*** Clearly identified company representative/s responsible for ensuring implementation and periodic review of the status of the management systems.
- ***Legal and Customer Requirements:*** Identification, monitoring and understanding of applicable laws, regulations and customer requirements.
- ***Risk Assessment and Risk Management:*** Process to identify the environmental risks associated with the business partner's operations. Determination of the relative significance of each risk and implementation of appropriate procedural and physical controls to ensure regulatory compliance and management of the identified risks.
- ***Performance Objectives with Implementation Plan and Measures:*** Written standards, performance objectives, targets and implementation plans including a periodic assessment of the business partner's performance against those objectives.
- ***Training:*** Programmes for training managers and workers to implement the adopted policies, procedures and improvement objectives.
- ***Communication:*** Process for communicating clear and accurate information about the business partner's performance, practices and expectations to workers, suppliers and customers.

For further guidance, please refer to Section 2.

1.4 Sustainable Resource Use

The adidas Group promotes the adoption of lean manufacturing and we encourage our suppliers and partners to minimise their use of materials and other resources in production processes. Such resources could be, but are not limited to, energy, water, air, chemicals and raw materials. All materials that can be reused or recycled should be reused or recycled.

For further guidance, please refer to the following sections in this document:

- Energy efficiency (Section 3.1)
- Water conservation and access to water (Section 3.3)
- Materials efficiency (see Section 4.1, Waste Management)

1.5 Emissions to Water and Air, Waste

The adidas Group expects our business partners to progressively reduce factors that cause pollution, to assess the impacts of their manufacturing processes and to identify and act on the potential for improvement. Moreover, suppliers and partners should:

- Monitor and treat all effluents as required by law
- Manage waste systematically, with due care
- Monitor and manage noise – both as an environmental issue and as a health and safety concern.

For further guidance, please refer to the following sections in this document:

- Waste (Section 4.1)
- Wastewater discharge (Section 4.2)
- Air emissions (Section 4.3)
- Noise (Section 4.4. See also adidas Group Health & Safety Guidelines 2010)
- Soil and groundwater contamination (Section 4.5).

1.6 Risks and Hazards

To control pollution and effectively manage environmental issues, our partners must include environmental considerations into their day-to-day business operations in an organised, hierarchical approach that includes:

- Identifying environmental hazards and associated risks as early as possible in facility development, including the incorporation of environmental considerations into the site selection process, building design, product development, engineering planning, or layout and process change plans.
- Engaging technical experts and professionals who have the experience, competence, and training necessary to assess and manage environmental impacts and risks and carry out specialised environmental management functions.
- Understanding the likelihood and magnitude of environmental risks, based on:
    - The nature of the manufacturing activities, such as whether the production processes will generate significant quantities of emissions or effluents, or involve hazardous materials or processes.
    - The potential consequences to workers, communities or the environment if hazards are not adequately managed.
- Developing suitable environmental management plans and systems, as described below.

The adidas Group expects our business partners to adopt a risk management approach in their handling of operational risks, hazards and chemicals. The adidas Group requires our partners to conduct regular risk assessments and to seek to continuously minimise risks and hazards. Moreover, the adidas Group requires our suppliers to have strict management systems in place for storage, handling and use of chemicals, including chemical risk assessments and the proper training of personnel in handling chemicals.

For further guidance, please refer to the following:

- Risk assessment (Section 5.1)
- Chemical handling and storage (see adidas Group Health & Safety Guidelines 2010)

1.7 Further Guidance

The adidas Group's Environmental Guidelines draw extensively from the guidance contained in the International Finance Corporation (IFC) and World Bank Environmental Health and Safety (EHS) Guidelines 1997, which have been revised, updated and added to, to reflect our specific requirements.

For more industry-specific information on EHS issues, please see the complete list of industry-sector guidelines published by the IFC at:
www.ifc.org/ifcext/enviro.nsf/Content/EnvironmentalGuidelines.

The industry-specific guidelines are available in several languages.

Section 2 – Environmental Management Systems

As outlined in Section 1.3, the adidas Group expects our suppliers to implement environmental management systems (EMS) that are appropriate to the size and environmental impact of their operations.

Why implement an environmental management system?
A management system-based approach allows a business to better understand its operations and their different environmental impacts, and to find the means to reduce the impacts and generate environmental improvement, thereby leading to a significant reduction in their environmental footprint. An EMS provides clear rules and responsibilities for handling environmental issues where they arise, before they impact negatively on the environment. The integration of preventative measures within the organisation helps avoid or reduce "end-of-pipe" emissions and impacts.

2.1 Environmental Management System Elements

What is the ISO 14001 environmental management system model?
The environmental management system model detailed in ISO 14001 follows a "Plan-Do-Check-Act" (PDCA) management model. PDCA is an ongoing, iterative process that enables an organisation to establish, implement and maintain its environmental policy based on top management's leadership and commitment to the environmental management system. After the organisation has evaluated its current position in relation to the environment, the steps of this ongoing process are as follows:

1. Environmental policy
2. Planning
3. Implementation and operation
4. Checking
5. Management review

Leading to: → Continual improvement

This ongoing process enables the organisation to continually improve its EMS and its overall environmental performance. It should be emphasised that the EMS does not produce results automatically. It will do so only if the corresponding objectives are defined and programmes implemented. The adidas Group strongly supports a results-driven and improvement-focussed approach. The system is only valuable if substantial environmental improvements are achieved with the help of the system. The system is the vehicle to achieve these results.

In addition to improved environmental performance within all business processes, the potential benefits associated with an effective EMS include:

- Assuring customers of commitment to effective environmental management
- Maintaining good public/community relations
- Satisfying investor criteria and improving access to capital
- Obtaining insurance at reasonable cost
- Enhancing image and market share
- Improving cost control
- Conserving input materials and energy
- Fostering development and sharing of solutions to environmental problems.

What are the requirements of ISO 14001?

Key tasks for managers establishing, implementing, maintaining or improving an environmental management system include the need to:

- Recognise the high priority of environmental management
- Establish and maintain communication and constructive relations with internal and external interested parties
- Establish and maintain a defined organisation with clear responsibilities
- Identify the environmental aspects of the organisation's activities, products and services
- Identify the legal and other requirements to which the organisation subscribes, that relate to the organisation's environmental aspects
- Ensure the commitment of management and all persons working for or on behalf of the organisation, with clear assignment of accountability and responsibilities
- Encourage environmental planning throughout the product or service life cycle
- Establish a process for achieving environmental objectives and targets
- Provide appropriate and sufficient resources, including training
- Evaluate environmental performance
- Establish a management process to audit and review the EMS and to identify opportunities for improvement of the system and resulting environmental performance.

Certified Systems

Any partner whose operations and facilities are of sufficient scale or contain processes that present significant hazards and risks to the environment is expected to establish a formal environmental management system, such as ISO 14001, or Europe's Eco-Management and Audit Scheme (EMAS). The system needs to be certified by a reputable certification body. The adidas Group reserves the right to disqualify any certification body that has not proven itself to operate with integrity and independence in the granting and renewal of ISO 14001 or EMAS certification.

2.2 Measurement and Reporting

To ensure that a systematic improvement programme can be put in place and evaluated, all suppliers are requested to monitor and report on their performance. All permits, legal limits, but also standard indicators, such as energy and water consumption, must be monitored on a regular basis, summarised and held ready for reporting to the adidas Group.

An example of the type of data that should be collected and reported is given in Appendix 1.

Section 3 – Sustainable Resource Use

The adidas Group supports the sustainable use of materials and the conservation of natural resources. We recognise that uncontrolled consumption of resources may have dire implications for local communities and for the planet. We are therefore committed to act wherever we have direct influence – in the design of our products and in the selection of materials – and where we see measurable adverse impacts from the manufacture and transportation of our goods. We expect our suppliers and business partners to be aligned with globally agreed policies and frameworks for sustainable resource use and have a strategy in place for a stepwise improvement in their efficiency, with specific measures to eliminate all forms of waste (as described in Section 4.1) and to reduce their:

- Energy consumption, with a primary focus on energy efficiency
- Carbon emissions and associated impacts on greenhouse gases (GHG)
- Water footprint, with a focus on water conservation and recycling efforts.

More detailed guidance is given below.

3.1 Energy Efficiency

Buildings today account for over 40% of the world's energy use. Manufacturing facilities also consume energy in process heating and cooling; process and auxiliary systems, such as motors, pumps, and fans; compressed air systems and heating, ventilation and air conditioning systems (HVAC); lighting systems. Energy management at the facility level should be viewed in the context of overall consumption patterns, including those associated with production processes and supporting utilities, as well as overall impacts associated with emissions from power sources.

3.1.1 Energy Management Programmes

Energy management programmes should include the following elements:

- Identification, and regular measurement and reporting of principal energy flows within a facility at unit process level
- Preparation of mass and energy balance
- Definition and regular review of energy performance targets which are adjusted to account for changes in major influencing factors on energy use
- Regular comparison and monitoring of energy flows with performance targets to identify where action should be taken to reduce energy use
- Regular review of targets, which may include comparison with benchmark data, to confirm that targets are set at appropriate levels.

3.1.2 Energy Efficiency

For any energy-using system, a systematic analysis of energy efficiency improvements and cost reduction opportunities should include a hierarchical examination of opportunities to:

- Demand/Load Side Management by reducing loads on the energy system, and
- Supply Side Management by:
    - Reducing losses in energy distribution
    - Improving energy conversion efficiency
    - Exploiting energy purchasing opportunities
    - Using lower-carbon fuels.

3.1.3 Green Buildings

'Green buildings' refer to the use of environmentally preferable practices and materials in the design, location, construction, operation, and disposal of buildings. It applies to both renovation and retrofitting of existing buildings and construction of new buildings. Many countries have developed their own standards for green buildings, examples include:

- ***Germany:*** The German Association for Sustainable Building (DGNB) has developed a quality certification for buildings with five sustainability criteria. See www.dgnb.de
- ***Japan*** has developed the so-called Comprehensive Assessment System for Building Environmental Efficiency (CASBEE). See http://www.ibec.or.jp/CASBEE/english/index.htm
- ***United Kingdom:*** The British Research Establishment Environmental Assessment Methodology (BREEAM) is the most widely used international method for assessing building quality and performance in terms of energy, environmental impact and health indicators. See http://www.breeam.org/ and http://www.thegreenguide.org.uk/
- ***USA:*** The Leadership in Energy and Environmental Design (LEED) Green Building Rating System, developed by the US Green Building Council (USGBC), provides a suite of standards for environmentally sustainable construction. See http://www.usgbc.org/

In designing and constructing new buildings, business partners are strongly encouraged to adopt green building practices, following the guidance given above. Certification against a specific standard is, however, optional.

BENEFITS OF GREEN BUILDINGS		
Environmental benefits: • Enhance and protect ecosystems and biodiversity • Improve air and water quality • Reduce solid waste • Conserve natural resources	**Economic benefits:** • Reduce operating costs • Enhance asset value and profits • Improve employee productivity and satisfaction • Optimise life cycle economic performance	**Health and community benefits:** • Improve air, thermal, and acoustic environments • Enhance occupant comfort and health • Minimise strain on local infrastructure • Contribute to overall quality of life

3.2 Climate Change and Reducing Greenhouse Gases (GHGs)

Industrial facilities and processes have the potential to contribute to global warming through the emissions of greenhouse gases (GHGs). Of most concern are emissions of what are known as "long-lived" greenhouse gases, the most important of which are CO_2, methane, nitrous oxide and CFC gases[1]. In total they account for more than 97% of the direct effect of the long-lived gases on how much heat is retained in the atmosphere. A decade ago countries came together to sign an international treaty – the 1994 United Nations Framework Convention on Climate Change – to reduce the impact of greenhouse gases, and through the supplementary and binding Kyoto Protocol reduction targets were set[2]. The Kyoto Protocol expires in 2012 and a new round of targets and agreements will be established by the United Nations in 2011. These will increase the pressure on industry globally to reduce greenhouse gases and in particular carbon emissions from fossil fuels. Sustained reduction in GHGs is essential if global warming is to be held below the 2 degree threshold that has been recommended by the Intergovernmental Panel on Climate Change (IPCC)[3].

For manufacturing operations, greenhouse gases may be generated from direct emissions from facilities within the physical boundary of the site and from indirect emissions associated with the off-site production of power used by those facilities. Recommendations for the reduction and control of greenhouse gases include:

- Enhancement of energy efficiency (as described earlier)
- Protection and enhancement of sinks and reservoirs of greenhouse gases, e.g. through reforestation
- Development and use of renewable forms of energy, both on-site and as an off-site energy source.

3.2.1 Carbon Footprint

'Carbon footprint' is a term used to describe the amount of GHG emissions caused by a particular activity or facility, and therefore a way for businesses to assess their contribution to climate change. Understanding GHG emissions and where they come from is necessary in order to reduce them. In the past, consumer goods companies wanting to measure their carbon footprints have focussed on their own emissions, but now increasing attention is given to emissions along the entire value chain: from raw material to production, distribution and retail of the product, through to its final disposal by the consumer.

Supply chain GHG emissions, which include those associated with processes not controlled by the adidas Group directly, can be measured at either the supplier level or the level of an individual product. The adidas Group encourages business partners to begin to map their own carbon footprints in order to reduce GHG emissions and to identify cost saving opportunities through energy reduction programmes.

---

[1] The six greenhouse gases that form part of the Kyoto Protocol to the United Nations Framework Convention on Climate Change include carbon dioxide ($C0_2$); methane (CH_4); nitrous oxide (N_2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulfur hexafluoride (SF_6).

[2] The Kyoto Protocol, an international and legally binding agreement to reduce greenhouse gas emissions worldwide, entered into force on February 16, 2005.

[3] See *Climate Change 2007 Fourth IPPC Assessment Report*

There are seven essential steps to calculating a carbon footprint:

Step 1: Build a process map	**Step 4:** Calculate the footprint
Step 2: Check boundaries and set priorities	**Step 5:** Validate results
Step 3: Collect data	**Step 6:** Reduce emissions
Step 7: Report outcome	

More complete guidance on how to conduct a carbon footprinting exercise can be found in:

- The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard, and Project Accounting Protocol and Guidelines: http://www.ghgprotocol.org/standards
- ISO 14040-14044 Environmental Management -- Life cycle assessment -- Requirements and Guidelines, 2006
- PAS 2050, standards on measuring the greenhouse gas emissions of products and services, prepared by BSI British Standards: http://www.bsigroup.com/en/Standards-and-Publications/How-we-can-help-you/Professional-Standards-Service/PAS-2050/

As a minimum, adidas Group partners must comply with the GHGs reduction and energy efficiency targets established for their industry in the countries where they operate.

For further guidance on energy management see the adidas Group's Environmental Best Practices Guide and the IFC Energy Conservation Guidelines.

3.3 Water Conservation and Access to Water

Water conservation programmes should be implemented in line with the magnitude and cost of water consumed. These programmes should promote the continuous reduction of water consumption and achieve savings in the water pumping, treatment and disposal costs. Water conservation measures may include water monitoring/management techniques; process and cooling/heating water recycling, reuse, and other techniques; and sanitary water conservation techniques. Where possible, it is recommended that business partners include:

- Storm/rainwater harvesting and use
- Zero discharge design/use of treated wastewater to be included in project design processes
- Use of localised recirculation systems in plant/facility/shops (as opposed to centralised recirculation systems), with provision only for make-up water
- Use of dry process technologies, e.g. dry quenching
- Process water system pressure management
- Project design to have measures for adequate water collection, spill control and a leakage control system.

3.3.1 Water Monitoring and Management

The essential elements of a water management programme involve:

- Identification, regular measurement and recording of principal flows within a facility
- Definition and regular review of performance targets, which are adjusted to account for changes in major factors affecting water use (e.g. industrial production rate)
- Regular comparison of water flows with performance targets to identify where action should be taken to reduce water use.

Water measurement (metering) should emphasise areas of greatest water use. Based on the review of metering data, 'unaccounted' use – indicating major leaks at industrial facilities – could be identified.

3.3.2 Process Water Reuse and Recycling

Opportunities for water savings in industrial processes are highly industry-specific. However, the following techniques have all been used successfully and should be considered in conjunction with the development of the metering system described above.

- Washing Machines: Many washing machines use large quantities of hot water. Use can increase as nozzles become enlarged due to repeated cleaning and/or wear.
- Monitor machine water use, compare with specifications and replace nozzles when water and heat use reaches levels warranting such work.
- Water reuse: Common water reuse applications include countercurrent rinsing, for example in multi-stage washing and rinsing processes, or reusing wastewater from one process for another with less exacting water requirements. Water jets/sprays: If processes use water jets or sprays (e.g. to keep conveyors clean or to cool product), review the accuracy of the spray pattern to prevent unnecessary water loss.
- Flow control optimisation: Industrial processes sometimes require the use of tanks, which are refilled to control losses. It is often possible to reduce the rate of water supply to such tanks, and sometimes to reduce tank levels to reduce spillage. If the process uses water cooling sprays, it may be possible to reduce flow while maintaining cooling performance. Testing can determine the optimum balance.
    - If hoses are used in cleaning, use flow controls to restrict wasteful water flow.
    - Consider the use of high pressure, low volume cleaning systems rather than using large volumes of water sprayed from hosepipes.
    - Using flow timers and limit switches to control water use.
    - Using 'clean-up' practices rather than hosing down.

3.3.3 Building Facility Operations

Consumption of building and sanitary water is typically less than that used in industrial processes. However, savings can readily be identified as outlined below:

- Compare daily water use per employee to existing benchmarks taking into consideration the primary use at the facility, whether sanitary or including other activities such as showering or catering
- Regularly maintain plumbing and identify and repair leaks
- Shut off water to unused areas
- Install self-closing taps, automatic shut-off valves, spray nozzles, pressure reducing valves and water conserving fixtures (e.g. low-flow shower heads, faucets, toilets, urinals and spring-loaded or sensored faucets)
- Operate dishwashers and laundries on full loads and only when needed
- Install water-saving equipment in lavatories, such as low-flow toilets.

3.3.4 Cooling Systems

Water conservation opportunities in cooling systems should include:

- Use of closed-circuit cooling systems with cooling towers rather than once-through cooling systems
- Limiting condenser or cooling tower blowdown to the minimum required to prevent unacceptable accumulation of dissolved solids
- Use of air cooling rather than evaporative cooling, although this may increase electricity use in the cooling system
- Use of treated wastewater for cooling towers
- Reusing/recycling cooling tower blowdown.

3.3.5 Heating Systems

Heating systems based on the circulation of low or medium pressure hot water (which do not consume water) should be closed. If they do consume water, regular maintenance should be conducted to check for leaks. However, large quantities of water may be used by steam systems, and this can be reduced by business partners adopting the following measures:

- Repair of steam and condensate leaks and repair of all failed steam traps;
- Return of condensate to the boilerhouse and use of heat exchangers (with condensate return) rather than direct steam injection where process permits
- Flash steam recovery
- Minimising boiler blowdown consistent with maintaining acceptably low dissolved solids in boiler water. Use of reverse osmosis boiler feed water treatment substantially reduces the need for boiler blowdown
- Minimising deaerator heating.

3.3.6 Water Use

As a minimum, business partners should comply with the following:

- Water abstraction from surface or groundwater should be in compliance with local permit requirements and resource consents granted by government.
- Water should be tested to ensure that it is fit for the purpose to which it is being used; such testing should include chemical and microbial properties.
- Water which is used for potable purposes, i.e. as drinking water, should meet WHO Guidelines for drinking water quality (WHO Guidelines for drinking-water quality, Vol. 1, 3rd edition incorporating 1st and 2nd addenda),or local water quality standards, whichever is higher.

3.3.7 Further Guidance

For further guidance on water saving techniques please refer to the adidas Group's Environmental Best Practices Guidelines 2005.

Section 4 – Emissions to Water and Air, Waste

Waste is any solid, liquid, or contained gaseous material that is being discarded by disposal, recycling, burning or incineration. Specific types of waste are described below. Manufacturing facilities that generate and store wastes should adopt the following practices:

- Establish waste management priorities at the outset of activities, based on an understanding of potential Environmental, Health, and Safety (EHS) risks and impacts and considering waste generation and its consequences.
- Establish a waste management hierarchy that considers prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes.
- Avoid or minimise the generation of waste materials, as far as practicable.
- Where waste generation cannot be avoided, it should be minimised, recovered and/or reused.
- Where waste cannot be recovered or reused, it should be treated, destroyed and disposed of in an environmentally sound manner.

4.1 Waste

Manufacturing operations generate many different types of waste, both hazardous and non-hazardous. This section of the Guidelines considers important concepts in the management and control of waste, including waste prevention, recycling, reuse, treatment and disposal.

4.1.1 Types of Waste

Solid (non-hazardous) wastes generally include any garbage or refuse, such as metal scrap and residual waste from industrial operations, such as boiler slag or fly ash.

Hazardous waste shares the properties of a hazardous material (e.g. ignitability, corrosivity, reactivity, or toxicity), or other physical, chemical or biological characteristics that may pose a potential risk to human health or the environment if improperly managed.

Sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material from industrial operations needs to be evaluated to establish whether it constitutes a hazardous or a non-hazardous waste.

4.1.2 General Waste Management

Waste management should be handled through a waste management system that addresses issues linked to waste minimisation, generation, transport, disposal and monitoring, as described below.

4.1.3 Waste Management Planning

Facilities that generate waste should characterise their waste according to composition, source, types of wastes produced, generation rates, or according to local regulatory requirements. Effective planning and implementation of waste management strategies should include:

- Review of new waste sources during planning, siting, and design activities, including during equipment modifications and process alterations, to identify expected waste generation, pollution prevention opportunities, and necessary treatment, storage, and disposal infrastructure.
- Collection of data and information about the process and waste streams in existing facilities, including characterisation of waste streams by type, quantities and potential use/disposition.

- Establishment of priorities based on a risk analysis that takes into account the potential EHS risks during the waste cycle and the availability of infrastructure to manage the waste in an environmentally sound manner.
- Definition of opportunities for source reduction, as well as reuse and recycling.
- Definition of procedures and operational controls for on-site storage.
- Definition of options/procedures/operational controls for treatment and final disposal.

4.1.4 Waste Prevention

Processes should be designed and operated to prevent, or minimise, the quantities of wastes generated and hazards associated with the wastes generated by:

- Substituting raw materials or inputs with less hazardous or toxic materials or with those where processing generates lower waste volumes.
- Applying manufacturing processes that convert materials efficiently, providing higher product output yields, including modification of design of the production process, operating conditions, and process controls.
- Instituting good housekeeping and operating practices, including inventory control to reduce the amount of waste resulting from materials that are out-of-date, off-specification, contaminated, damaged, or excess to plant needs.
- Instituting procurement measures that recognise opportunities to return usable materials such as containers and which prevent the over-ordering of materials.
- Minimising hazardous waste generation by implementing stringent waste segregation to prevent the commingling of non-hazardous and hazardous waste.

4.1.5 Recycling and Reuse

In addition to the implementation of waste prevention strategies, the total amount of waste may be significantly reduced through:

- Evaluation of waste production processes and identification of potentially recyclable materials
- Identification and recycling of products that can be reintroduced into the manufacturing process
- Investigation of external markets for recycling by other industrial processing operations
- Establishing recycling objectives and formal tracking of waste generation and recycling rates
- Providing training and incentives to employees in order to meet objectives.

4.1.6 Treatment and Disposal

If waste materials are still generated after the implementation of feasible waste prevention, reduction, reuse, recovery and recycling measures, waste materials should be treated and disposed of and all measures be taken to avoid potential impacts to human health and the environment.

Selected management approaches should be consistent with the characteristics of waste and local regulations and may include:

- On-site or off-site biological, chemical, or physical treatment of the waste material to render it non-hazardous prior to final disposal
- Treatment or disposal at permitted facilities specially designed to receive the waste.

Disposal of waste should be secured through the use of formal procurement agreements with qualified waste vendors who have the required permits, certifications and approvals from government.

4.1.7 Hazardous Waste Management

Hazardous wastes should always be segregated from non-hazardous wastes. If the generation of hazardous waste cannot be prevented, then management should focus on the prevention of harm to health, safety and the environment, according to the following principles:

- Understanding potential impacts and risks associated with the hazardous waste over its complete life cycle
- Ensuring that contractors handling, treating, and disposing of hazardous waste are reputable and legitimate enterprises, licensed by the relevant regulatory agencies and following good international industry practice for the waste being handled
- Ensuring compliance with applicable local and international regulations.

It is noted that hazardous waste materials can be generated in relatively small quantities, including spent solvents and oily rags, empty paint cans, chemical containers, used lubricating oil, used batteries and lighting equipment. These wastes should also be managed according to the above principles.

4.1.8 Waste Storage

Hazardous waste should be stored so as to prevent or control accidental releases to air, soil and water resources. As a minimum, suppliers should:

- Store waste in a manner that prevents the commingling or contact between incompatible wastes and allows for inspection between containers to monitor leaks or spills
- Store in closed containers away from direct sunlight, wind and rain
- Avoid underground storage tanks and underground piping of hazardous waste.

Hazardous waste storage activities should be subject to special management actions, conducted by employees who have received specific training in handling and storage of hazardous wastes. Also spill response and emergency plans must be in place to address their accidental release.

4.1.9 Transportation

On-site and off-site transportation of waste should be conducted so as to prevent or minimise spills, releases and exposures to employees and the public. All waste containers designated for off-site shipment should be secured and labelled with the contents and associated hazards, be properly loaded on the transport vehicles before leaving the site and be accompanied by a shipping paper (i.e. manifest) that describes the load and its associated hazards.

4.1.10 Monitoring

Monitoring activities associated with the management of hazardous and non-hazardous waste should include regular visual inspections of all waste storage collection and storage areas for evidence of accidental releases and to verify that wastes are properly labelled and stored.

When significant quantities of hazardous wastes are generated and stored on site, monitoring activities should include:

- Inspection of vessels for leaks, drips or other indications of loss
- Identification of cracks, corrosion or damage to tanks, protective equipment or floors
- Verification of locks, emergency valves and other safety devices for easy operation
- Checking the operability of emergency systems
- Documenting results of testing for integrity, emissions or monitoring stations

- Documenting any changes to the storage facility, and any significant changes in the quantity of materials in storage.

Regular audits of waste segregation and collection practices should include:

- Tracking of waste generation trends by type and amount of waste generated
- Characterising waste at the beginning of generation of a new waste stream and periodically documenting the characteristics and proper management of the waste, especially hazardous wastes
- Keeping manifests or other records that document the amount of waste generated and its destination
- Periodic auditing of third-party treatment and disposal services including reuse and recycling facilities when significant quantities of hazardous wastes are managed by third parties
- Regular monitoring of groundwater quality in case of waste on-site storage and/or pre-treatment and disposal of hazardous water.

Monitoring records for hazardous waste collected, stored or shipped should include:

- Name and identification number of the material(s) composing the hazardous waste
- Physical state (i.e. solid, liquid, gaseous or a combination of one, or more, of these)
- Quantity (e.g. kilograms or litres, number of containers)
- Waste shipment tracking documentation to include quantity and type, date dispatched, date transported and date received, record of originator, recipient and transporter
- Method and date of storing, repacking, treating or disposing at the facility, cross-referenced to specific manifest document numbers applicable to the hazardous waste
- Location of each hazardous waste within the facility and the quantity at each location.

4.2 Wastewater Discharge

Manufacturing operations may generate different types of wastewater, including process wastewater, sanitary wastewater, wastewater from utility operations and also site run-off or stormwater. This section of the Guidelines considers the control and treatment of different types of wastewater and the minimum standards that must be met for its discharge.

4.2.1 Discharge of Wastewater

In disposing of wastewater the following guidance should be followed.

Discharges to Surface Water

Discharges to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria or, in the absence of local criteria, other sources of ambient water quality. Receiving water use and assimilative capacity, taking other sources of discharges to the receiving water into consideration, should also influence the acceptable pollution loadings and effluent discharge quality.

Discharge to Sanitary Sewer Systems

Discharge of wastewater into public or private wastewater treatment systems should:

- Meet the pre-treatment and monitoring requirements of the sewer treatment system into which it discharges.
- Not interfere, directly or indirectly, with the operation and maintenance of the collection and treatment systems, or pose a risk to worker health and safety, or adversely impact the characteristics of residuals from wastewater treatment operations.

- Be discharged into municipal or centralised wastewater treatment systems that have adequate capacity to meet local regulatory requirements for treatment of wastewater generated from the site.

Septic Systems

Septic systems are commonly used for treatment and disposal of domestic sanitary sewage in areas with no sewerage collection networks. Septic systems should only be used for treatment of sanitary sewage. They are not suitable for industrial wastewater treatment. When septic systems are used, they should be:

- Properly designed and installed in accordance with local regulations and guidance to prevent any hazard to public health or contamination of land, surface or groundwater
- Well maintained to allow effective operation
- Installed in areas with sufficient soil percolation for the wastewater loading rate.

4.2.2 Wastewater Management

Wastewater management includes water conservation, wastewater treatment, stormwater management and wastewater and water quality monitoring.

4.2.3 Industrial Wastewater

Industrial wastewater generated from industrial operations includes process wastewater, wastewater from utility operations, run-off from process and materials staging areas and miscellaneous activities including wastewater from laboratories, equipment maintenance shops, etc. The pollutants in industrial wastewater may include acids or bases (exhibited as low or high pH), soluble organic chemicals causing depletion of dissolved oxygen, suspended solids, nutrients (phosphorus, nitrogen), heavy metals (e.g. cadmium, chromium, copper, lead, mercury, nickel, zinc), cyanide, toxic organic chemicals, oily materials and volatile materials, as well as pollutants from thermal characteristics of the discharge (e.g. elevated temperature).

Transfer of pollutants off-site should be minimised through process and engineering controls, as described below.

Process Wastewater

Wastewater treatment system performance very much depends on the adequacy of its design, equipment selection as well as proper operation and maintenance. Business partners should:

- Seek technical and engineering advice in the design and selection of the appropriate wastewater treatment systems and technologies.
- Provide for proper operation and maintenance of the treatment system, through the employment of qualified, technically competent and well-trained operators.
- Avoid uncontrolled air emissions of volatile chemicals from the wastewater treatment processes.
- Ensure waste residue from wastewater treatment operations are disposed of in compliance with local regulatory requirements and with due consideration for the protection of public health and safety.

4.2.4 Stormwater Management

Stormwater includes any surface run-off and flows resulting from precipitation, drainage or other sources. Typically, stormwater run-off contains suspended sediments, metals, petroleum hydrocarbons, Polycyclic Aromatic Hydrocarbons (PAHs), coliform, etc. In order to reduce the need for stormwater treatment, the following should be applied:

- Stormwater should be separated from process and sanitary wastewater streams in order to reduce the volume of wastewater to be treated prior to discharge.
- Surface run-off from process areas or potential sources of contamination should be prevented.
- Where this approach is not practical, run-off from process and storage areas should be segregated from potentially less contaminated run-off.
- Run-off from areas without potential sources of contamination should be minimised (e.g. by minimising the area of impermeable surfaces) and the peak discharge rate should be reduced (e.g. by using vegetated swales and retention ponds).
- Priority should be given to managing and treating the first flush of stormwater run-off where the majority of potential contaminants tend to be present.
- When water quality criteria allow, stormwater should be managed as a resource, either for groundwater recharge or for meeting water needs at the facility.
- Oil-water separators and grease traps should be installed and maintained as appropriate at refuelling facilities, workshops, parking areas, fuel storage and containment areas.
- Sludge from drains or treatment systems may contain elevated levels of pollutants and should be disposed of in compliance with local regulatory requirements.

4.2.5 Sanitary Wastewater

Sanitary wastewater from industrial sites may include effluents from domestic sewage, food service, and laundry facilities serving site employees. Miscellaneous wastewater from laboratories, medical infirmaries, water softening etc. may also be discharged to the sanitary wastewater treatment system. In order to properly manage sanitary wastewater, business partners should:

- Segregate wastewater streams to ensure compatibility with selected treatment option (e.g. septic system which can only accept domestic sewage)
- Segregate and pre-treat oil and grease containing effluents (e.g. through the use of a grease trap) prior to discharge into sewer systems.

4.2.6 Wastewater Treatment and Discharge Standards

As a minimum, business partners should:

- Comply with national or local standards for process wastewater treatment and discharge or, in their absence, follow the indicative guideline values applicable in the IFC's Environmental Guidelines.
- Comply with national or local standards for sanitary wastewater treatment and discharges or, in their absence, the indicative guideline values applicable to sanitary wastewater discharges shown in Table 4.1 below.
- Ensure that the temperature of wastewater prior to discharge does not result in an increase greater than 3°C of ambient temperature at the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use and assimilative capacity among other considerations.
- If sewage from the industrial facility is to be discharged to either a septic system, or where land is used as part of the treatment system, treatment to meet applicable national or local standards for sanitary wastewater discharges is required.

- In any case, if necessary, a specific wastewater discharge permit must be obtained and complied with and monitored for adherence.
- Sludge from sanitary wastewater treatment systems should be disposed of in compliance with local regulatory requirements, in the absence of which disposal has to be consistent with protection of public health and safety and conservation and long-term sustainability of water and land resources.

Pollutants	Units	Guideline value
pH	pH	6 – 9
BOD	Mg/l	30
COD	Mg/l	125
Total nitrogen	Mg/l	10
Total phosphorus	Mg/l	2
Oil and grease	Mg/l	10
Total suspended solids	Mg/l	50
Total coliform bacteria	MPNb / 100 ml*	400a
AOX	Mg/l	< 0.1
Foam	No visible discharge	
Metals		
Antimony	Mg/l	<0.01
Arsenic	Mg/l	<0.01
Cadmium	Mg/l	<0.01
Chromium	Mg/l	<0.10
Cobalt	Mg/l	<0.02
Copper	Mg/l	<0.25
Lead	Mg/l	<0.10
Mercury	Mg/l	<0.01
Nickel	Mg/l	<0.20
Zinc	Mg/l	<1.00
Anions		
Cyanide	Mg/l	<0.20

*MPN: Most probable number

Table 4.1– Indicative Values for Treated Sanitary Sewage Discharges

4.2.7 Emissions from Wastewater Treatment Operations

Air emissions from wastewater treatment operations may include hydrogen sulfide, methane, ozone (in the case of ozone disinfection), volatile organic compounds (e.g. chloroform generated from chlorination activities and other volatile organic compounds (VOCs) from industrial wastewater), gaseous or volatile chemicals used for disinfection processes (e.g. chlorine and ammonia), and bioaerosols. Odours from treatment facilities can also be a nuisance to workers and the surrounding community. Recommendations for the management of emissions are given in the Air Emissions section of these Guidelines (Section 4.3) and in the adidas Group's Environmental Best Practices Guidelines 2005.

4.2.8 Residuals from Wastewater Treatment Operations

Sludge from a waste treatment plant needs to be evaluated to establish whether it constitutes a hazardous or a non-hazardous waste and managed accordingly. See also the Waste Management section of these Guidelines (Section 4.1).

4.2.9 Monitoring

A wastewater and water quality monitoring programme with adequate resources and management oversight should be developed and implemented to meet the objective/s of the monitoring programme. The wastewater and water quality monitoring programme should consider the following elements:

Monitoring Parameters
The parameters selected for monitoring should be indicative of the pollutants of concern from the process and should include parameters that are regulated under compliance requirements.

Monitoring Type and Frequency
Wastewater monitoring should take into consideration the discharge characteristics from the process over time. Monitoring of discharges from processes with batch manufacturing or seasonal process variations should take into consideration time-dependent variations in discharges and, therefore, is more complex than monitoring of continuous discharges. Effluents from highly variable processes may need to be sampled more frequently or through composite methods.

Monitoring Locations
The monitoring location should be selected with the objective of providing representative monitoring data. Effluent sampling stations may be located at the final discharge as well as at strategic upstream points prior to the merging of different discharges. Process discharges should not be diluted prior to or after treatment with the objective of meeting the discharge or ambient water quality standards.

Data Quality
Monitoring programmes should apply internationally approved methods for sample collection, preservation and analysis. Sampling should be conducted by, or under the supervision of, trained individuals. Analysis should be conducted by entities permitted or certified for this purpose. Sampling and Analysis Quality Assurance/Quality Control (QA/QC) plans should be prepared and implemented. QA/QC documentation should be included in monitoring reports.

4.2.10 Occupational Health and Safety Issues in Wastewater Treatment Operations

Wastewater treatment facility operators may be exposed to physical, chemical and biological hazards depending on the design of the facilities and the types of wastewater effluents managed. Examples of these hazards include the potential for trips and falls into tanks, confined space entries for maintenance operations and inhalation of VOCs, bioaerosols and methane, contact with pathogens and vectors and use of potentially hazardous chemicals, including chlorine, sodium and calcium hypochlorite and ammonia. Please refer to the guidance on occupational health and safety given in the adidas Group's Health & Safety Guidelines 2010.

4.3 Air Emissions

Emissions of air pollutants can occur from a wide variety of industrial activities and can come from a single source (e.g. a flue or stack from a boiler or furnace) or from multiple sources (e.g. the application of solvents in a production line). Wherever possible, business partners should avoid, minimise and control adverse impacts of air emissions on human health, safety, and the environment.

4.3.1 Air Quality Standards and Testing

Factories with significant sources of air emissions and potential for significant impacts on air quality should prevent or minimise impacts by ensuring that emissions do not reach or exceed relevant local or national air quality standards, or in their absence of such standards, the current World Health Organization's (WHO) Air Quality Guidelines or other internationally recognised guidance. Reference should also be made to Table 7.1 of the adidas Group's Health & Safety Guidelines 2010.

To ensure compliance with the applicable local or national standards, air emissions should be regularly monitored and samples tested in government-approved laboratories.

Point sources are discrete, stationary, identifiable sources of emissions that release pollutants to the atmosphere. They are typically associated with the combustion of fossil fuels, which may result in the release of air pollutants such as nitrogen oxides (NOx), sulfur dioxide (SO_2), carbon monoxide (CO), and particulate matter (PM), but may also include other air pollutants depending on the industrial processes involved.

Emissions from point sources should be avoided and controlled through the combined application of process modifications and emissions controls, including the proper design of the stack height. The stack height should be designed to avoid excessive ground level concentrations due to downwash, wake, and eddy effects, and to ensure reasonable diffusion to minimise impacts. For factories where there are multiple sources of emissions, stack heights should consider emissions from all other sources.

4.3.2 Fugitive Sources

Fugitive source air emissions refer to emissions that are distributed spatially over a wide area and are not confined to a specific discharge point. The two main types of fugitive emissions are VOCs and particulate matter (PM). Factories with potentially significant fugitive sources of emissions must carry out regular ambient quality testing as part of their monitoring practices.

Open burning of solid wastes, whether hazardous or non-hazardous, is not a good practice and should be avoided.

Volatile Organic Compounds (VOCs)
The most common sources of fugitive VOC emissions are associated with industrial activities that produce, store and use VOC-containing liquids or gases where the material is under pressure, exposed to a lower vapour pressure or displaced from an enclosed space. Typical sources include equipment leaks, open vats and mixing tanks, storage tanks, unit operations in wastewater treatment systems and accidental releases.

Equipment leaks include valves, fittings and elbows which are subject to leaks under pressure. The recommended prevention and control techniques for VOC emissions associated with equipment leaks include equipment modifications and implementing a leak detection and repair (LDAR) programme by regularly monitoring to detect leaks and implementing repairs within a pre-defined time period.

For VOC emissions associated with handling of chemicals in open vats and mixing processes, the recommended prevention and control techniques include:

- Substitution of less volatile substances, such as water-based 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, for example, catalytic incinerators which reduce VOCs from process exhaust gases exiting paint spray booths, ovens and other process operations
- Use of floating roofs on storage tanks to reduce the opportunity for volatilisation by eliminating the headspace present in conventional storage tanks.

Particulate Matter (PM)
The most common pollutant involved in fugitive emissions is dust or particulate matter (PM). This may be released as a by-product of certain industrial operations such as grinding and milling, or the transport and open storage of solid materials, or from exposed soil surfaces, including unpaved roads.

Recommended prevention and control of these emissions sources include:

- Use of dust control methods such as covers, water suppression or increased moisture content for open material storage piles
- Use of air extraction and treatment through a baghouse or cyclone for material handling sources such as conveyors and bins.

Operators responsible for cleaning and disposing of dust and baghouse waste should be provided with the proper safety training and PPE (Personal Protective Equipment), i.e. apron, head cover and mask. All residues should be properly and safely disposed of to an authorised waste facility.

Ozone Depleting Substances (ODSs)
Several chemicals are classified as ozone depleting substances (ODSs) and are scheduled for phase-out under the Montreal Protocol on Substances that Deplete the Ozone Layer. No new systems or processes should be installed using CFCs, halons, 1,1,1-trichloroethane, carbon tetrachloride, methyl bromide or hydrobromofluorocarbons (HBFCs).

HBFCs should only be considered as interim/bridging alternatives as determined by the host country commitments and regulations.

4.4 Noise

This section of the Guidelines addresses impacts of noise beyond the property boundary of the facilities. Please also see the adidas Group's Health & Safety Guidelines on noise as an occupational health concern.

4.4.1 Prevention and Control

Noise prevention and mitigation measures should be applied where predicted or measured noise impacts from a facility or operation exceed the applicable noise level guideline at the most sensitive point of reception. A point of reception or receptor may be defined as any point on the premises occupied by persons where extraneous noise and/or vibration are received.

The preferred method for controlling noise from stationary sources is to implement noise control measures at source. However, methods for prevention and control of sources of noise emissions will depend on the source and proximity of receptors.

Noise reduction options that should be considered include:

- Selecting equipment with lower sound power levels
- Installing silencers for fans and mufflers on engine exhausts and compressor components
- Installing acoustic enclosures for equipment casing radiating noise
- Improving the acoustic performance of constructed buildings; apply sound insulation
- Installing acoustic barriers to minimise the transmission of sound. Barriers should be located as closely to the source or to the receptor location as possible to be effective
- Installing vibration isolation for mechanical equipment
- Limiting the hours of operation for specific pieces of equipment or operations
- Relocating noise sources to less sensitive areas to take advantage of distance and shielding
- Siting permanent facilities away from community areas if possible
- Taking advantage of the natural topography as a noise buffer during facility design
- Developing a mechanism to record and respond to complaints.

4.4.2 Noise Standards

To ensure compliance with the applicable local or national standards, noise levels should be regularly monitored. In the absence of any local guidelines or standards, noise impacts should not exceed the levels presented in Table 4.2 or result in a maximum increase in background levels of 3dB at the nearest receptor location off-site.

	One House LAeq (dBA) *Reference: Guidelines for Community Noise, World Health Organization (WHO), 1999*	
Receptor	Daytime 07:00 – 22:00	Nighttime 22:00 – 07:00
Residential; institutional; educational	55	45
Industrial; commercial	70	70

Table 4.2 – Noise Level Guidelines

4.4.3 Monitoring

Noise monitoring may be carried out for the purposes of establishing the existing ambient noise levels in the area surrounding the facility or to verify operational noise levels. Noise monitoring programmes should be designed and conducted by trained personnel. Typical monitoring periods should be sufficient for statistical analysis and may last 48 hours with the use of noise monitors that should be capable of logging data continuously over this time period, or hourly, or more frequently, as appropriate.

4.4.4 Further Guidance

Additional information on noise reduction options and good practice on noise minimisation on-site can be found in Section 11.0 of the adidas Group's Health and Safety Guidelines and in Chapter 5 of the adidas Group's Guide to Environmental Best Practices. For guidance on the measurement and management of noise and its impact on communities, please refer to the World Health Organization's (WHO) Guidelines for Community Noise 1999.

4.5 Soil and Groundwater Contamination

Land is considered contaminated when it contains hazardous materials or oil concentrations above background or naturally occurring levels. The source of contamination may be due to historic or current site activities, including accidents and the poor handling, storage and disposal of hazardous materials or waste. Contaminated lands may involve surface soils or subsurface soils that, through leaching and transport, may affect groundwater, surface water and adjacent sites. Where subsurface contaminant sources include volatile substances, soil vapour may also become a transport and exposure medium and create potential for contaminant infiltration of indoor air spaces of buildings.

Contaminated land is a concern because of:

- The potential and serious risks to human health and ecology
- The financial liability that it may pose to the polluter or business owner or other affected parties (e.g. nearby property owners).

4.5.1 Prevention and Control

Contamination of land should be avoided by preventing or controlling the release of hazardous materials, hazardous wastes or oil to the environment. When contamination of land is suspected or confirmed during any project phase, the cause of the uncontrolled release should be identified and corrected to avoid further releases and associated adverse impacts.

Contaminated lands should be managed to avoid the risk to human health and ecological receptors. The preferred strategy for land decontamination is to reduce the level of contamination at the site while preventing the human exposure to contamination.

To determine whether risk management actions are warranted, the following simple assessment approach should be applied to establish whether the three risk factors of 'Contaminants', 'Receptors', and 'Exposure Pathways' co-exist, or are likely to co-exist, at the production site:

1. Contaminant(s): Presence of hazardous materials, waste, or oil in any environmental media in potentially hazardous concentrations
2. Receptor(s): Actual or likely contact of humans, wildlife, plants and other living organisms with the contaminants of concern
3. Exposure pathway(s): A combination of the route of migration of the contaminant from its point of release (e.g. leaching into potable groundwater) and exposure routes (e.g. ingestion, transdermal absorption), which would allow receptor(s) to come into actual contact with contaminants.

When the three risk factors are considered to be present (in spite of limited data) under current or foreseeable future conditions, the following steps should be followed:

1. Risk screening
2. Interim risk management
3. Detailed quantitative risk assessment
4. Permanent risk reduction measures.

Where contaminated soil and/or groundwater is required, the cost of cleaning and the length of time required to do so escalates dramatically as the level of clean-up required increases. Thus, it is in the best interest for our business partners to prevent contamination at the outset. If remediation is, however, necessary, reference should be made to local or national standards on soil and groundwater clean-up requirements.

On-site treatment for contaminated soils and groundwater can take the form of in-situ and ex-situ treatments, the choice of which depends on specific site conditions. In-situ treatment does not require any removal of the contaminated soil or groundwater. Conditions where such a treatment method is applicable include the treatment of soils beneath or in close proximity to buildings and in soil conditions that are amenable to these technologies.

In other circumstances, the soils may need to be excavated or the contaminated groundwater pumped out for treatment which may include the addition of microbial agents or chemical catalysts. This treatment generally involves mechanical mobile processes which consist of screening and blending.

Off-site treatment of soils can also take the form of standard landfill disposal options or treatment at licensed facilities (where available).

4.5.2 Soil and Groundwater Contamination Standards

Business partners should comply fully with local or national standards and laws for the evaluation and mitigation of soil and groundwater contamination. In the absence of local guidance or regulation, they should apply the 'Dutch List' which is a widely referenced international standard:
http://www.epd.gov.hk/eia/register/permit/latest/figure/vep159appendixa.pdf

4.5.3 Occupational Health and Safety Considerations

Site operatives should be mindful of the occupational exposures that could arise from working in close contact with contaminated soil or other environmental media (e.g. groundwater, wastewater, sediments and soil vapour). Occupational health and safety precautions should be exercised to minimise exposure, as described in Chapter 6 of the adidas Group's Guide to Environmental Best Practices 2005 and Section 5 ('Chemical Safety Management') and 6 ('Use of Hazardous Materials in Production') in the Health & Safety Guidelines. In addition, personnel carrying out contaminated land site investigation and remediation activities should receive specific health and safety training and have the correct PPE.

Section 5 – Risks and Hazards

As a basic principle, the adidas Group expects its business partners to identify and manage the risks and hazards associated with their operations and activities so as to prevent or minimise any impacts to their surrounding ecosystems, animals and people.

5.1 Risk Assessment

Risk assessment has become a tool that is widely used in various professions and industries to examine the risks of very different natures. At its core, risk assessment is a procedure by which risks associated with inherent hazards of a process or a situation is estimated either qualitatively or quantitatively, allowing the assessor to decide if enough precautions have been taken or whether more measures are required to address the identified risk.

5.1.1 Environmental Risk Assessment

An environmental risk assessment (ERA) examines the risks that arise from technology which could threaten ecosystems, animals and people. While ERAs may be broken down further to occupational health, ecological and ecotoxicological risk assessments, the main principal is to make sure that the natural and built environment, animals and people do not get hurt or become ill. Ill health and accidents can ruin lives and also affect your business if production is lost, or if property or machinery is damaged because of them.

5.1.2 Basic Definitions

The following definitions, which can also be found in the adidas Group Health & Safety Guidelines, apply when conducting a risk assessment:

Hazard
A hazard is anything that has the potential to cause harm (for example chemicals, electricity, working at height, etc.).

Hazard classes have been defined in Table 18.1 of the adidas Group's Health & Safety Guidelines and should be referred to in conducting any ERA.

Risk
A risk is the likelihood (great or small) of harm being done.

Damage Indicators

There are six major indicators that are commonly assessed in an ERA and cover both human health and ecosystems. The indicators can be mapped onto the following table (*Table 5.1*) for the purpose of assessing risk:

	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Impact level	1	2	3	4		5					
a	1			10			100			1000	
b	10			100			1000			10000	
c		10^5		10^6		10^7				10^9	
d	0.1			1			10			100	
e	10^3			10^4			10^5			10^6	
f		0.01		0.1				10		100	

Where the indicators are defined as:
a = Number of fatalities
b = Number of injuries
c = Volume of contaminated surface water (m^3)
d = Area of contaminated surface water (km^2)
e = Number of people deprived by interruption of drinking water (groundwater, person * month)
f = Area of contaminated soil (km^2)

And where impact levels are defined as:
1 = Insignificant/very low probability
2 = Small impact
3 = Medium impact
4 = Large impact
5 = Catastrophe

Risk Factors

A risk factor reflects the likelihood of harm being caused. Use a scale of 1-5: 1 as the least likely to happen, through to 5 as very likely to happen. A category 5 risk would be one with a very high (80% or more) chance of happening, and a category 1 with a very remote (10% or less) chance of happening.

Risk Factor	Likelihood of Happening
1	< 10% probability
2	11 – 25% probability
3	26 – 50% probability
4	51 – 79% probability
5	> 80% probability

Table 5.2 – Risk Factors

5.1.3 Conducting a Risk Assessment

There are three main criteria that must be reviewed in the process of identifying hazards and the associated risks in any given area. These are:

- ***Pollutant Potential:*** How dangerous are the pollutants and in what quantities are they present?
- ***Release Potential:*** How fast, how far and in what quantities will the pollutants be released and transported?
- ***Exposure and importance of natural resources (water, soil, air):*** Can the pollutants reach natural resources at all? And how great is the extent of any potential damage?

The extent of any combination of these three criteria will define the extent of risk on the environment and thus, at most, risk assessments can only give estimates to the hazards. A residual risk, and with it a certain degree of uncertainty, will always remain. For example, chemicals can contaminate soil and groundwater as well as impact people, but the risk of them doing so when they are properly stored (i.e. in storage containers appropriate for the type of chemical, segregated, etc.) and there is a chemical management plan in place is low, provided that the workers also undergo regular training on chemical management and proper PPE is worn.

Risk Assessment Form Checklist
By identifying and estimating the potential hazards using Table 5.1 and estimating the likelihood of occurrence using Table 5.2, one can make a gross estimation of the likely risk associated with a given technology. An example of a completed Risk Assessment form is shown in Table 5.3 below. All questions on the form must be covered, ideally in some detail.

- Company name and address
- Department/section assessed
- Date of assessment, assessor's name
- Next review date
- What hazards exist?
- Who might be at risk?
- What safety measures are in place?
- What further action needs to be taken?

Business partners are expected to review the detailed discussion on Risk Assessment in the adidas Group's H&S Guidelines.

More complete guidance on how to conduct an environmental risk assessment can be found at:
http://www.eea.europa.eu/publications/GH-07-97-595-EN-C2

Environmental Risk Assessment Form

Site:	**Assessment No**:
Department:	**Assessor's Name**:
Assessment Date:	**Assessor's Signature:**

Activity/Process Description: **Documentation available: drawings, process diagrams, etc.**

No.	Deviation	Cause	Consequence/Hazards Involved	Existing Control measures	Probability X Impact = Rating (see matrix at the end of the document)			Acceptable? → If not: Identify with number and go on to the next table
1							0	
2							0	
3							0	
4							0	
5							0	
6							0	
7							0	

Do any procedures/processes/plans relating to the task need to be amended or updated in light of your risk assessment findings? **If "Yes" give details:**	**Yes** ☐ **No** ☐

Environmental investigations required? **If "Yes" give details:**	**Yes** ☐ **No** ☐

Are current control measures adequate? **If "Yes" then the risk assessment is complete subject to management confirmation.**	**Yes** ☐ **No** ☐

Are additional controls needed to reduce the risk rating?	**Yes** ☐ **No** ☐
If "**Yes**" specify below the controls to be implemented	

No	**Identified Risk**	**Rating (see table above)**	**Additional Control Measures Required**	**Residual risk, after implementing the additional controls Probability X Impact =**		**Rating**	**Acceptable? → Action plan**
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	

Action Plan

No	**Action by**	**Comments**	**Target Date**	**Completion Date**	**Verification that residual risk is acceptable – result**	**Signature (when completed)**

Have the Additional Controls been agreed? **Yes** ☐ **No** ☐
If "No" please specify reasons:

Have the Target Date(s) been agreed? **Yes** ☐ **No** ☐
If "No" please specify reasons:

Are additional assessments necessary? For example Hazops? Yes ☐ **No** ☐
Reasons/ Comments:

Management Confirmation
I have noted the above assessment and will take appropriate steps to ensure all the actions raised are completed satisfactorily.
Name (Block Capitals): (Manager responsible for the activity)
Signed: **Date:**

Risk Assessment Review		
I confirm that the assessment remains valid, controls remain effective and there has been no increase in risk.		
1st Review date:	**Name:**	**Signed:**
2nd Review date:	**Name:**	**Signed:**
3rd Review Date:	**Name:**	**Signed:**
NB If the above statement cannot be verified then a re-assessment will be required to confirm that there has been no significant change to the activity/ process.		

Table 5.3 – Risk Assessment Form

Guidance on Probability and Impact:

Probability:

Very low: Practically never   Low: Practically never - once every 100 years   Medium: Once every 100 years – once every 10 years
High probability: Once every 10 years - once every year   Very high probability: Once every year or more often

5.2 Chemicals and Restricted Substances

We expect our business partners to ensure that materials supplied to the adidas Group are in full compliance with actual local laws and regulations regarding environmental and product safety.

Furthermore, we require our business partners to avoid the intentional use of those substances which are listed in the adidas Group Policy for the Control and Monitoring of Hazardous Substances (A-01) and to comply with best practice standards.

We actively encourage our business partners to take a proactive stance in improving the environmental impact of the materials they supply. Improving the environmental impact means to:

- Ensure that materials and components supplied are non-toxic in use and disposal and using them in manufacturing products does not involve toxic releases or damaging ecosystems.
- Strive to make materials which come from renewable and organic resources that are recyclable or biodegradable.
- Manufacture product components and materials under the best possible environmental conditions and to use the best available technology.

5.2.1 Banned Chemicals

Whilst the A-01 policy addresses the presence of restricted substances in the final product, the adidas Group has also issued a ban on the use of certain chemicals in order to minimise occupational health risks to workers. The following chemicals are prohibited due to their recognised high toxicity, their rapid absorption through skin, and/or the extreme difficulty of exposure control (*CAS numbers indicated in parenthesis*).

Benzene (71-43-2)	Toluene (108-88-3)
Methylene Chloride (75-09-2)	Trichloroethylene (79-01-6)
Perchloroethylene (127-18-4)	Carbon Tetrachloride (56-23-5)
N,N-Dimethylformamide (68-12-2)	Phenol (108-95-2)
Cellosolve (110-80-5)	Cellosolve Acetate (111-15-9)
Methyl Cellosolve (109-86-4)	Methyl Cellosolve Acetate (110-49-6)

Table 5.4 – Banned Chemicals

Note: For information on the associated Material Safety Data Sheet (MSDS) information for each of the chemicals listed above, please refer to http://msds.chem.ox.ac.uk/newcas.html.

Where banned chemicals are used in the production process due to technical limitations, the supplier shall develop a comprehensive remediation action plan to address the removal and replacement of the banned chemical(s) with a safer alternative for SEA approval.

For further information on chemical management, including MSDS requirements, occupational hazards, threshold limit values for chemical exposure, please refer to the adidas Group Health & Safety Guidelines.

APPENDIX 1 – Example of Supplier Metrics

All suppliers are expected to keep the same level of data on key environmental metrics, resource use and safety, as specified below. The data should be available at least on an annual basis and separately recorded for each facility or location which is producing for the adidas Group. Please complete all indicators that are available and insert 'Not Available' or 'NA' where these are not known.

The reporting period is for each full calendar year, e.g. January 1, 2009 to December 31, 2009.

NO.	SUBJECT AREA	ANSWER
	ISO 14001	
1	The site has an ISO 14001 certificate or an EMAS registration.	☐ Yes ☐ No
	CONSUMPTION OF RESOURCES	
	Resources / Energy Direct energy use is energy that is generated and utilised directly on site. Indirect energy is energy utilised on site, but generated upstream of the site. Therefore, emissions stemming from indirect energy will be emitted outside the site itself. These emissions are called indirect emissions. Common reporting schemes request the reporting company to differentiate between direct and indirect emissions.	
2	Direct energy use segmented by primary source (oil, gas) - Heating oil	MWh
3	Direct energy use segmented by primary source (oil, gas) - Diesel oil	MWh
4	Direct energy use segmented by primary source (oil, gas) - Gas	MWh
5	Indirect energy use - Electricity	MWh
6	Indirect energy use - District heat	MWh
7	Indirect energy – electricity. Indicate if the energy source is known. Please consult with your energy supplier. Request information about the grid, the CO_2 per MWh, e.g. - Nuclear - Coal-fired power station o Brown coal o Black coal - Oil - Hydro power - Wind power - Other	

8	Indirect energy – electricity. Indicate carbon emission factor specified for the grid used at your local site, e.g. CO_2 (kg) per MWh	CO_2 (kg) per MWh
9	Indirect energy - district heat. Indicate carbon emission factor specified for the grid used at your local site, e.g. CO_2 (kg) per MWh	CO_2 (kg) per MWh
	Resources / Water Supply	
10	Total water consumption (1,000 m^3), production, all	1,000 m3
	Resources / Materials	
11	Paper consumption in tonnes per year	Tonne
	EMISSIONS	
12	Emissions from fossil fuel consumption are reported under *Resources* above.	
	Emissions/ Wastewater Discharge	
13	Wastewater discharge	m^3/h
	Emissions/ Waste Management	
14	Total amount of waste by type and destination - Household category waste that is incinerated (energy waste)	Tonne
15	Total amount of waste by type and destination - Household category waste that is deposited in a landfill	Tonne
16	Total amount of waste by type and destination - Metal waste for recycling	Tonne
17	Total amount of waste by type and destination - Metal sludge for recycling or final depositing	Tonne
18	Total amount of waste by type and destination - Waste oil for recycling	Tonne
19	Total amount of waste by type and destination - Toxic waste	Tonne
20	Total amount of waste by type and destination - Other category (please specify)	Tonne
	HAZARDOUS CHEMICALS	
21	Use of organic solvents - Amount per year	Tonne
	HEALTH AND SAFETY	
22	Number of injuries with >1 lost day	No
23	Number of lost days due to injury	Days
24	Number of employees	Employees
25	Number of hours worked	Hours

	PRODUCTION VOLUMES	
26	Total units of production made: - Product category X - Product category Y - Etc.	Number of pieces; tonne
	IMPROVEMENT PROGRAMMES	
27	Please state what improvements you have made in the environmental area over the past two years (2007 (2008, etc.) and 2008 (2009, etc.)). *Example: Water consumption. Savings of 12% in two years. Actions taken were: XXYY. Investments were: ZZAA. Payback time was: AABB.*	
28	Improvement 1:	
29	Improvement 2:	
30	Improvement 3:	

APPENDIX 2 – Glossary of Terms

GLOSSARY OF TERMS	
BREEAM	British Research Establishment Environmental Assessment Methodology; the Green Building Standard in the UK.
CASBEE	Comprehensive Assessment System for Building Environmental Efficiency; the Green Building Standard in Japan.
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
dB(A)	Decibel Rating on A-Scale. When the "A weighting filter" is used to measure sound, the sound pressure level is given in units of dB(A) or dBA. Frequency levels are taken into account. The dB(A) scale is not linear but logarithmic. An increase of only 3 dB(A) doubles the hazard of hearing damage.
EHS	Environmental Health and Safety
EMAS	Eco-Management and Audit Scheme
EMS	Environmental Management System
ERA	Environmental Risk Assessment
GHG	Greenhouse gases
H&S	Health and Safety
HBFC	Hydrobromofluorocarbon
HFC	Hydrofluorocarbon
HVAC	Heating, ventilation and air conditioning systems
IFC	International Finance Corporation
IPCC	Intergovernmental Panel on Climate Change
KPI	Key Performance Indicator
LDAR	Leak detection and repair
LEED	Leadership in Energy and Environmental Design; USA Green Building Rating System
MSDS	Material Safety Data Sheet. Provides comprehensive physical, chemical, medical and ecological data for chemicals. MSDSs are provided by the supplier of the chemicals.
MWh	Megawatt hour
N_2O	Nitrous oxides
NO_x	Nitrogen oxides
ODS	Ozone depleting substance. These include organic halogen compounds like halon 1211 which have a very high ozone depletion potential. With increasing depletion of the ozone layer an increase of mutations and cancer is observed.
PAH	Polycyclic aromatic hydrocarbon
PDCA	Plan-Do-Check-Act; management model detailed in ISO 14001
PFC	Perfluorocarbon
PM	Particulate matter
PPE	Personal Protective Equipment. Examples for PPE are goggles, face masks, gloves, ear plugs etc.
QA/QC	Quality Assurance / Quality Control
SEA	Social & Environmental Affairs department of the adidas Group